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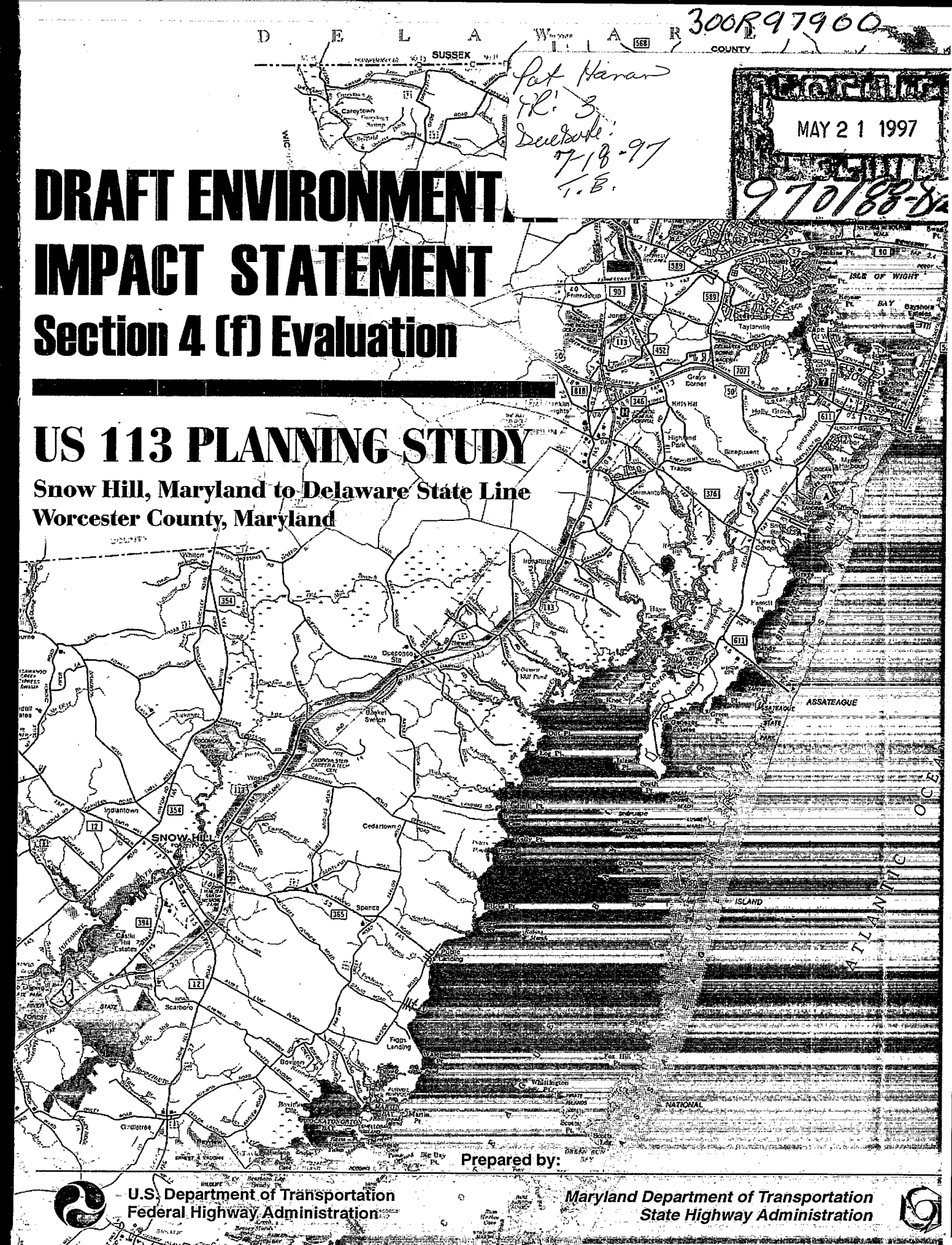
DRAFT ENVIRONMENTAL IMPACT STATEMENT

Section 4 (f) Evaluation

US 113 PLANNING STUDY

Snow Hill, Maryland to Delaware State Line
Worcester County, Maryland



Prepared by:

U.S. Department of Transportation
Federal Highway Administration

Maryland Department of Transportation
State Highway Administration

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May 21, 1997

Project No. WO720B11
US 113 Planning Study
Draft Environmental Impact Statement/
Section 4(f) Evaluation
PDMS No. 232061

Enclosed for your review and comment is the approved Draft Environmental Impact Statement/ Section 4(f) Evaluation for the US 113 project. This document has been prepared in accordance with the CEQ Regulations and 23 CFR 771.

You are requested to provide comments on or before July 17, 1997 to:

Mr. Louis H. Ege, Jr.
Deputy Director
Office of Planning and Preliminary Engineering
Mailstop C-301
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707 North Calvert Street
Baltimore, Maryland 21202

All responses will be considered in developing the final document.

Very truly yours,

Louis H. Ege

Neil J. Pedersen, Director
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1-800-735-2258 Statewide Toll Free

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
ENFORCEMENT AND
COMPLIANCE ASSURANCE

Date 5/21/96

The US Environmental Protection Agency has received the

/V/ **DRAFT** / / **FINAL** / / **SUPPLEMENTAL**

Environmental Impact Statement prepared by the (Agency)

U.S. 113 PLANNING STUDY

entitled

The above document has been hand carried to the USEPA for official filing purposes by the undersigned. The undersigned also verifies that complete distribution to all Agencies/persons has been made simultaneously with this filing.

GREG PEARSON
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REPORT NUMBER - FHWA-MD-EIS-97-02(D)
Federal Highway Administration Region III

US 113 PLANNING STUDY
from south of Snow Hill, Maryland to Delaware State Line
Worcester County, Maryland

ADMINISTRATIVE ACTION

DRAFT ENVIRONMENTAL IMPACT STATEMENT
SECTION 4(f) EVALUATION

Submitted Pursuant to 42 U.S.C. 4332 (2)(c), 49 U.S.C. 303, and CEQ Regulations (40 CFR 1500 et seq.)

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
REGION III, MARYLAND DIVISION

and

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

Cooperating Agencies: **U.S. ARMY CORPS OF ENGINEERS**
U.S. ENVIRONMENTAL PROTECTION AGENCY
U.S. FISH AND WILDLIFE SERVICE

FEDERAL HIGHWAY ADMINISTRATION
Division Administrator

5/16/97
Date

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The proposed action would upgrade the remaining two-lane sections of US 113 within Maryland, thereby improving safety and traffic operations along this critical 23.8 mile transportation link on the Delmarva peninsula. Alternatives being considered include the No-Build (Alternatives 1S and 1N); Transportation System Management (Alternatives 2S and 2N) primarily consisting of local intersection improvements; provision of a 20-foot wide median with guardrail plus passing lanes and turning lanes along existing 2-lane US 113 in the southern portion of the study area (Alternative 2S - Median); dualization along existing US 113 in the southern (Alternative 3S) and northern (Alternative 3N) portions of the study area; and a four-lane dual highway on new location in the northern portion of the study area (Alternative 4N Modified). A combination of portions of Alternatives 3N and 4N Modified is also being considered. Environmental impacts associated with this project are summarized in Table S-1 and would include residential and business displacements, right-of-way acquisitions, effects upon wetlands and Waters of the U.S., 100-year floodplain encroachment, noise impacts, and impacts to cultural resources.

Comments on this Draft Environmental Impact Statement are due July 18, 1997 and can be sent to the persons listed above.

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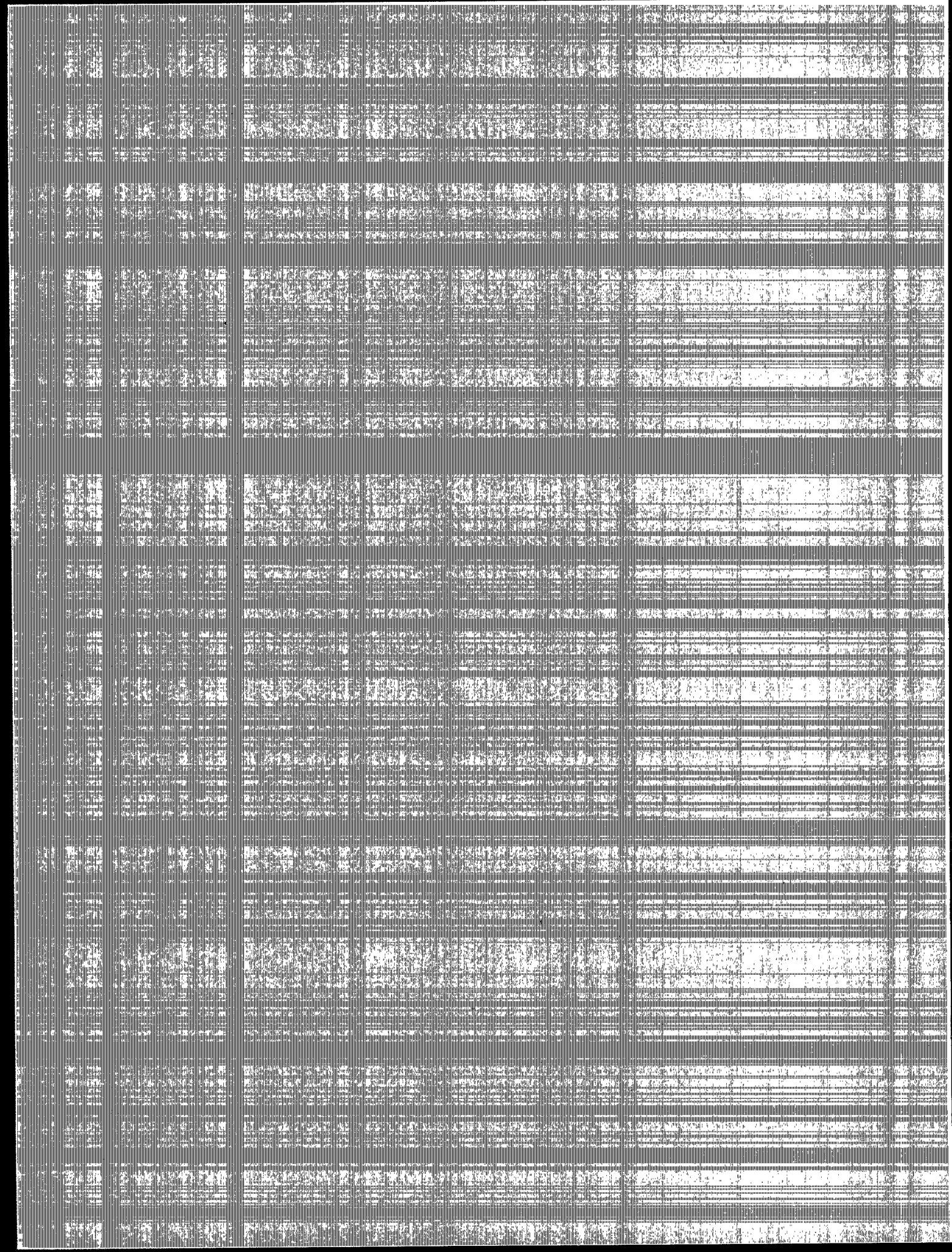

SUMMARY

1. Administrative Action

Federal Highway Administration:

( ) Environmental Assessment
(X) Draft Environmental Impact Statement
( ) Final Environmental Impact Statement
( ) Findings of No Significant Impact
(X) Section 4(f) Evaluation

2. Informational Contacts

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HOURS: 7:30 a.m. - 4:30 p.m.

3. Introduction

This document presents the results of studies that have been completed to address both National Environmental Policy Act (NEPA) and US Army Corps of Engineers Section 404 Permit requirements. NEPA focuses on environmental analysis of alternatives, whereas the Corps Section 404 permit addresses specific impacts to wetlands and Waters of the U.S. in accordance with the Clean Water Act. In addition, the study has addressed Section 4(f) requirements of the U.S. Department of Transportation Act.

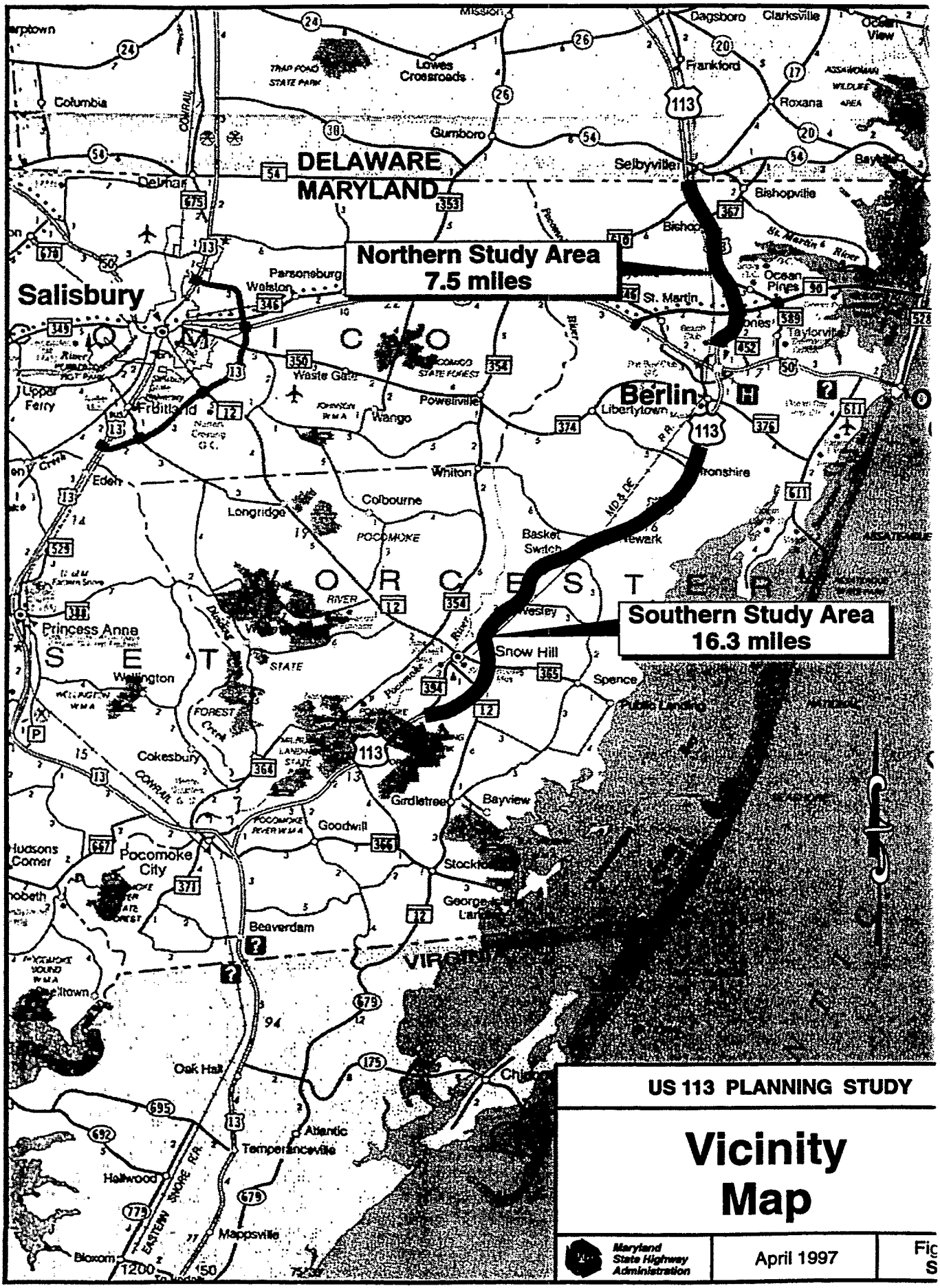
4. Description of Proposed Action/Purpose and Need

US 113 departs from US 13 near Pocomoke City, Maryland and extends north 40 miles in Maryland and 60 miles in Delaware, rejoining US 13 in Dover, Delaware. US 113 provides a critical connection on the Delmarva Peninsula for through and local traffic, including recreation trips. The proposed action would improve the remaining two-lane sections (23.8 miles) of US 113 (Worcester Highway) within Maryland, thereby improving safety conditions and traffic operations.

The project area, located in Worcester County and shown in Figure S-1, consists of two study areas:

- The **southern study area** extends along US 113 from south of Snow Hill, Maryland to south of Berlin, Maryland (approximately 16.3 miles, from latitude 38°08'30"/longitude 75°24'45" to latitude 38°17'45"/longitude 75°13'30").

- The **northern study area** extends from north of Berlin to the Delaware state line (approximately 7.5 miles, from latitude 38°21'15"/longitude 75°12'45" to latitude 38°27'00"/longitude 75°14'00").


Northern Study Area
7.5 miles
Southern Study Area
16.3 miles
DELAWARE
MARYLAND
VIRGINIA
Salisbury
Berlin
Princess Anne
Pocomoke City
Snow Hill
Selbyville
Ocean City
Ocean Pines
Fruitland
Parsonsburg
Powellville
Whaleyville
Newark
Bishopville
Roxana
Frankford
Dagsboro
Clarksville
Lowes Crossroads
Gumboro
Delmar
Columbia
Wellington
Cokesbury
Goodwill
Bayview
Girdletree
Stockton
Beaverdam
Oak Hall
Temperanceville
Atlantic
Hallwood
Mappsville
Bloxom
Chincoteague
Colbourne
Longridge
Waste Gate
Wango
Whiton
Basket Switch
Spence
Public Landing
Taylorville
Libertytown
Ironshire
Hudsons Corner
Upper Ferry
Eden
Wesley
Gardletree
Trap Pond State Park
Assawoman Wildlife Area
St. Martin River
Pocomoke River
Nanticoke River
Chincoteague Bay
Assateague Island
Conrail
Maryland
State Highway
Administration
US 113 PLANNING STUDY
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April 1997
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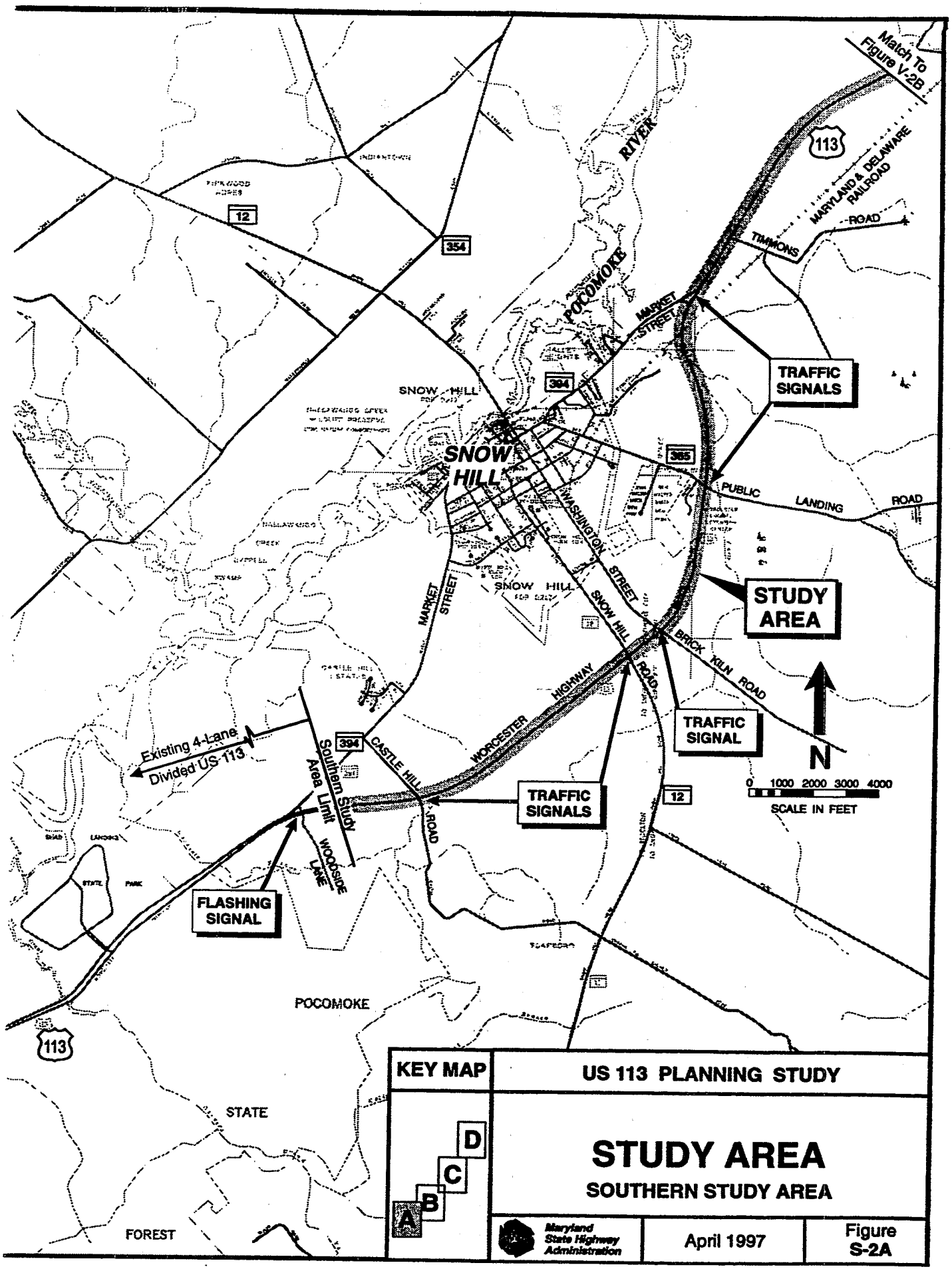
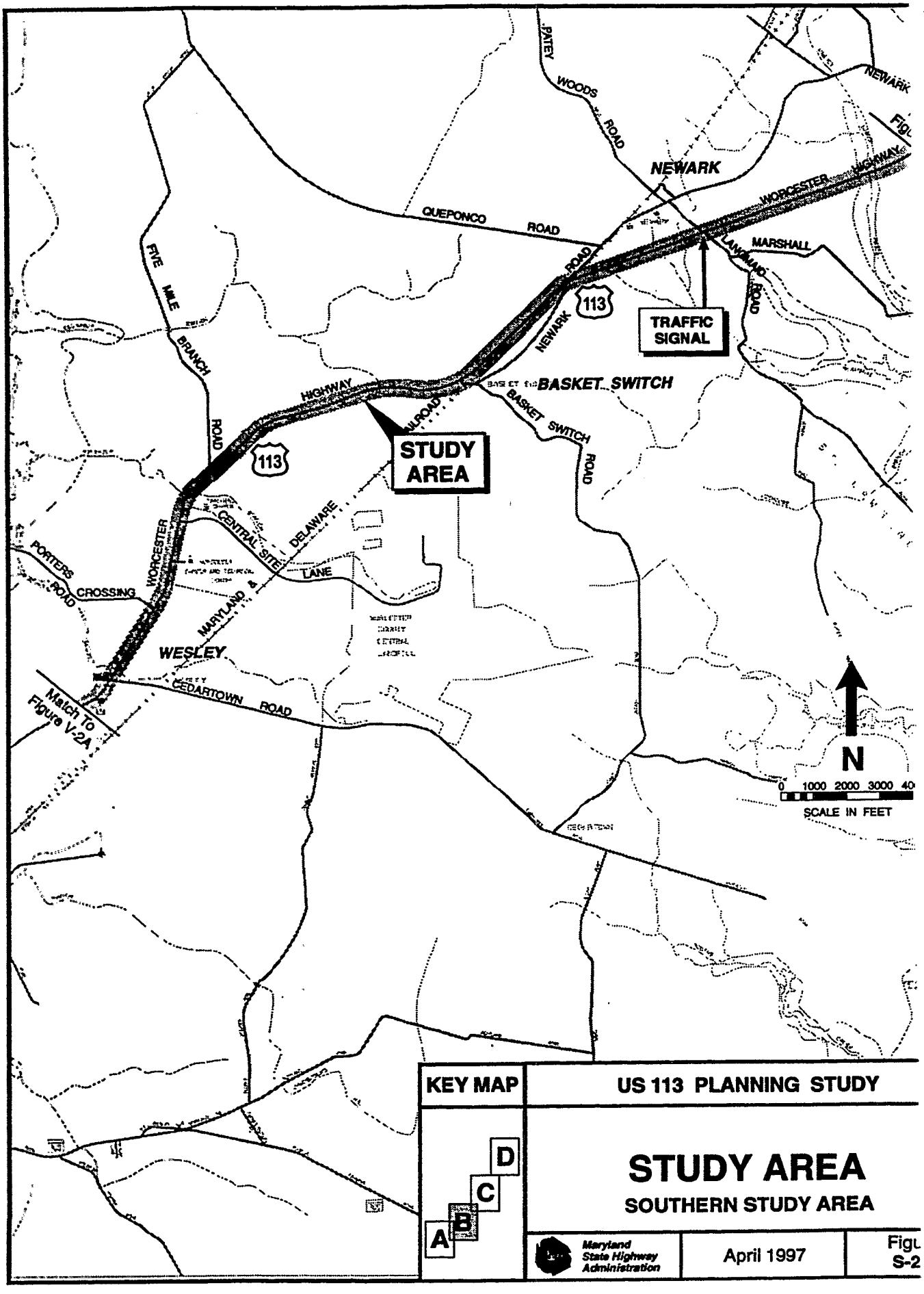


KEY MAP	US 113 PLANNING STUDY	
A B C D	**STUDY AREA** **SOUTHERN STUDY AREA**	
Maryland State Highway Administration	April 1997	Figure S-2A


PATEY
WOODS
ROAD
NEWARK
QUEPONCO
ROAD
WORCESTER
HIGHWAY
MARSHALL
LANDMAN
ROAD
FIVE MILE
BRANCH
ROAD
113
TRAFFIC
SIGNAL
NEWARK
BASKET SWITCH
HIGHWAY
RAILROAD
STUDY
AREA
BASKET SWITCH
ROAD
CENTRAL
DELAWARE
LANE
PORTERS
ROAD
CROSSING
WORCESTER
MARYLAND
WESLEY
CEDARTOWN
ROAD
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SCALE IN FEET
KEY MAP
A
B
C
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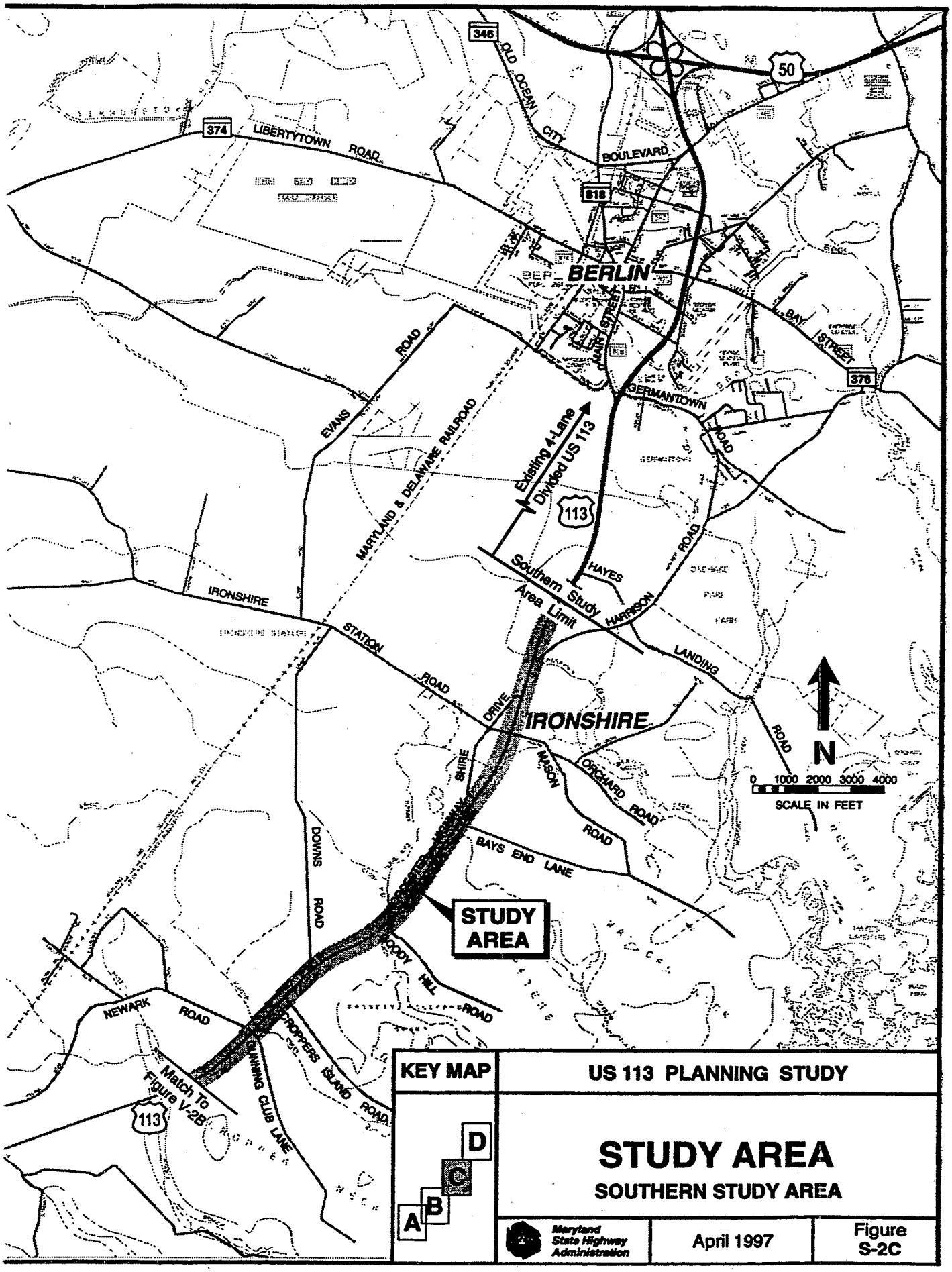
US 113 PLANNING STUDY
STUDY AREA
SOUTHERN STUDY AREA
Maryland
State Highway
Administration
April 1997
Figu
S-2


346
OLD OCEAN CITY BOULEVARD
50
374
LIBERTYTOWN ROAD
618
BERLIN
MAIN STREET
BAY STREET
376
GERMANTOWN ROAD
EVANS ROAD
MARYLAND & DELAWARE RAILROAD
Existing 4-Lane Divided US 113
113
HAYES ROAD
IRONSHIRE
Southern Study Area Limit
HARRISON LANDING ROAD
STATION ROAD
DRIVE
IRONSHIRE
MASON ROAD
ORCHARD ROAD
BAYS END LANE
DOWNS ROAD
STUDY AREA
NEWARK ROAD
HOODY HILL ROAD
CHOPPERS ISLAND ROAD
PLANNING CLUB LANE
Match To Figure V-2B
113
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SCALE IN FEET
KEY MAP
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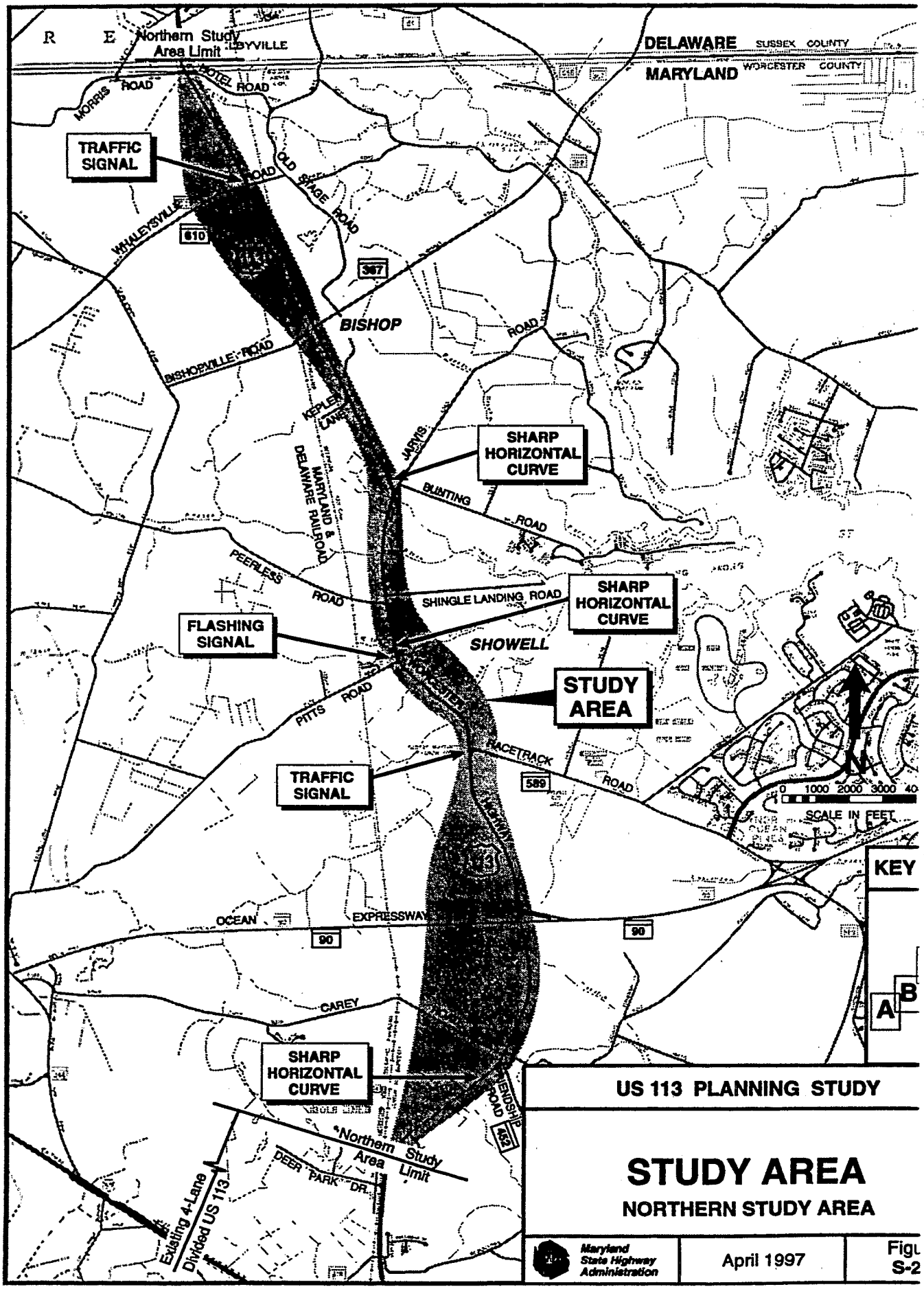
US 113 PLANNING STUDY
STUDY AREA
SOUTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Figure S-2C



US 113 PLANNING STUDY

STUDY AREA

NORTHERN STUDY AREA

Maryland State Highway Administration | April 1997 | Figu S-2

US 113 directly links Pocomoke City, Snow Hill (the Worcester County seat) and Berlin, and indirectly serves Ocean City (the second most populated city in Maryland during the summer vacation season). US 113 dates from the late 1600s; it was an earth and shell road until 1906, when portions of it were paved. The last segment near the Delaware state line was paved in 1921.

The purpose of this study is to improve safety conditions and traffic operations along the two-lane portions of US 113 from south of Snow Hill to the Delaware state line. The need for this project is demonstrated by the number of fatal accidents which have occurred along the two-lane portions of US 113 over the past 16 years at a rate which exceeds the statewide average for similar two-lane rural highways in Maryland. In addition, the Level of Service (LOS) for the northern study area will decline from its current LOS D rating during the summer months, to an expected LOS F by the design year 2020. The Purpose and Need for improvements along the two-lane portions of US 113, which are fully described in Chapter I of this document, are summarized as follows:

- **Existing Roadway Conditions**: US 113, combined with US 13 and US 50, form the backbone of the transportation system for the lower Eastern Shore of Maryland. US 113 is a four-lane divided roadway south of Snow Hill, through the Berlin area, and north of the Delaware state line. Figure S-1 shows the southern and northern study areas addressing the remaining two-lane portions of US 113. Figures S-2A through S-2D present these study areas in more detail, further defining the extent of divided and undivided roadways. The southern study area, from immediately south of Snow Hill to just south of Berlin (16.3 miles), consists of a two-lane undivided roadway with two 12-foot lanes and 10-foot shoulders. A four-lane divided highway was constructed in the late 1960's/early 1970's around the east side of Berlin. The northern study area, from north of Berlin to the Delaware state line (7.5 miles), consists of a two-lane undivided roadway with two 11-foot lanes and 8-foot shoulders. Within the northern study area, horizontal curves along US 113 at MD 452, Pitts Road, and Jarvis Road are less than desirable (see Figures S-2A through S-2D for locations of traffic signals/flashing signals and sharp horizontal curves).

- **Traffic Volumes and Levels of Service**: Average daily traffic (ADT) volumes range from 3,500 to 7,500 vehicles per day for the southern study area and 6,400 to 12,200 vehicles per day for the northern study area. The existing summer ADT (defined to be Saturdays between Memorial Day and Labor Day) ranges from 4,900 to 8,900 vehicles per day for the southern study area and 8,300 to 18,500 vehicles per day for the northern study area. Design year 2020 traffic volumes in the southern study area are predicted to increase over these existing volumes by approximately 44 percent for both the average day and summer weekend day. Design year 2020 traffic volumes in the northern study area are predicted to increase over these existing volumes by approximately 64 percent for both the average day and summer weekend day. Existing and projected ADT volumes are presented in Table I-1.

  Drivers in rural areas typically expect less traffic congestion than do drivers in urban and suburban areas. Existing levels of traffic service (LOS) along US 113 are acceptable during an average day, however, in the summer months the road operates at LOS D in the northern study area. In 2020, US 113 is expected to operate at LOS C and D in the southern study area

including summer weekends, but is expected to operate at LOS D on weekdays all year in the northern study area, and LOS F between MD 589 and the Delaware state line on summer weekends.

- **Safety:** Fatalities have been occurring along US 113 at an alarming rate. Improvements to the two-lane portions of US 113 from south of Snow Hill to the Delaware state line are needed in order to address the safety problems occurring along the corridor. A local citizen's organization, County Residents Action for Safer Highways (CRASH), has been very vocal in their support for safety improvements to address the accidents on the two-lane portions of US 113. As a direct consequence of the efforts of CRASH, the Governor and study area elected officials (senators, delegates, and mayors) requested that SHA study the characteristics of US 113 and develop solutions that will create a safer roadway. A primary goal of this project is to identify safety solutions, thereby minimizing future fatal accidents.

  As shown on Table I-2, US 113 experienced a total of 947 accidents from January 1980 through December 1995 (a 16-year period). The fatal accident rate is equal to or greater than the statewide average rate for **both study areas**, and the rate for injury accidents and property damage accidents in the **northern study area** is greater than the statewide average rate for the 1980 through 1995 period.

  Table I-3 presents a detailed analysis for the accidents which occurred along the two-lane portions of US 113 for the 6-year period from 1990 through 1995. The following observations may be drawn from these 6-years of accident data:

  - the statistically determined fatal accident rate is equal to or higher than the statewide average rate for **both study areas** and **significantly** greater in the **northern study area**.

  - the overall accident rate in the **northern study area** is greater than the statewide average rate.

  - the accident rates in the **northern study area** for angle collisions, fixed object, opposite direction and pedestrian accidents are greater than the statewide average, and **significantly** greater statistically for angle collisions and fixed object accidents.

  - furthermore, in the **northern study area,** the wet surface related accidents and alcohol related accidents are **significantly** greater statistically than the statewide average rate.

  The high number of fatal accidents is a primary purpose for conducting this study. Fall and summer have represented the seasons that experience the highest number of fatal accidents. Figures I-1A through 1D identifies the locations and provides a description of the 40 fatal accidents for the period January 1980 through April 1997 (17 years plus 4 months). **A total of 46 people have died as a result of vehicular accidents along the two-lane portions of US 113 during the January 1980 through April 1997 period. Additional details on these fatal accidents are presented in Table I-4.**

5. Alternatives Considered

This study has identified transportation alternatives that address the project need while minimizing impacts to the social, cultural, and natural environment. After the project termini were determined, preliminary alignments were developed based on mapping showing environmental constraints. Following a Public Alternates Meeting held in November 1995 and based on citizen and environmental agency comments, the following alternatives were retained for detailed study. All reasonable alternatives are now under consideration; a decision will be made after the alternatives' impacts and comments on the DEIS and from the public hearing have been fully evaluated.

◆ No-Build Alternatives (Alternatives 1S and 1N)

The No-Build Alternatives would not provide significant improvements to the existing roadways; minor improvements would occur as part of normal maintenance and safety operations. The routine maintenance operations would not measurably reduce the accident rate or affect roadway capacity. Site specific improvements have been recently implemented, or are programmed for implementation by SHA. Although the No-Build Alternatives will not meet the project need, they are being used as the baseline for comparison with the other alternatives.

◆ Transportation Systems Management Alternatives (Alternatives 2S and 2N)

The Transportation Systems Management (TSM) Alternatives would provide improvements to 41 of the 45 existing intersections along US 113 and a full length pavement overlay in order to enhance safety and reduce traffic congestion without major alteration to the existing two-lane highway. The improvements would be part of an integrated plan of phased safety and capacity improvements. The TSM Alternatives include short-term spot improvements such as signing and marking, street lighting, warning flashers, traffic signals and intersection relocation; as well as longer-term improvements such as additional turning, acceleration/deceleration, and bypass lanes; skid resistant pavement overlays with rumble slots along the centerline and edge of travel lane; and the limiting of passing through intersection areas.

◆ 2-Lanes with 20' Median Alternative (Alternative 2S-20' Median)

This alternative would provide a 20-foot wide median (either paved or grass) with guardrail and typically one (1) lane per direction along existing US 113 in only the southern study area. Designed in accordance with 60 MPH criteria, 10-foot wide paved shoulders and 20-foot wide safety grading would be provided (except in environmentally sensitive areas, where the safety grading would be replaced by guardrail to reduce impacts). At intersections, left turn lanes would be provided in the median; right turn lanes would be provided where warranted by traffic volumes. In order to facilitate passing maneuvers, four (4) passing lanes 12-foot wide and approximately 1 to 1.25 miles in length (two for northbound and two for southbound traffic) would be provided. Passing would be prohibited at all other locations. The seven (7) plates for this alternative are presented in Appendix A (scale: 1" = 400').

◆ **Dualization Alternatives (3S, 3N, 4N Modified, and Combination Alternative)**

Each of the Dualization Alternatives propose a four-lane divided roadway with a median (both 20-foot wide and 34-foot wide medians are being evaluated). Access would be partially controlled and landscaping in the median and on the roadside would be included. The Southern Dualization Alternatives are being evaluated in accordance with 60 MPH design criteria (Alternative 3S); 50 MPH and 60 MPH design criteria are being evaluated for the Dualization Alternatives along existing US 113 in the northern study area (Alternative 3N); the new location and combination alternatives are being evaluated for 60 MPH design criteria. The northern Dualization Alternatives (Alternatives 3N, 4N Modified, and the Combination Alternative) have been developed in segments with common endpoints so that they can be used in various combinations to produce the alternative with the least impacts and lowest cost while still meeting the project need. The ten (10) plates for the Dualization Alternatives are presented in Appendix A (Scale: 1" = 400').

Dualization on Existing Alignment (Alternatives 3S and 3N): The dualization of existing US 113 would involve the construction of a new two-lane roadway adjacent to the existing facility and the retention of the existing roadway as the northbound or southbound roadway to the extent possible in both the southern and northern study areas. These alternatives would use existing right-of-way where possible. A new interchange would be provided along this alignment at MD 90.

Dualization on New Alignment (Alternative 4N Modified): The dualization on new alignment would involve the construction of a new four-lane divided roadway only in the northern study area. The roadway would be constructed on new location to minimize impacts to residential and commercial properties. A new interchange would be provided along this alignment at MD 90. The preliminary new alignment alternatives presented at the Alternates Public Meeting in November 1995 have been combined and revised to create Alternative 4N Modified. These revisions resulted in fewer impacts to the natural and socioeconomic environments.

Combination Alternative: A Combination Alternative which uses parts of Alternative 3N (60 MPH design speed only) and Alternative 4N Modified is also being considered in the northern study area. The Combination Alternative follows the Alternative 4N Modified alignment from US 50 through the previously graded interchange area at MD 90, then crosses US 113 near MD 589 and bypasses the Town of Showell to the east. The Combination Alternative ties back into existing US 113 just north of Showell, and then follows Alternative 3N along the existing alignment of US 113 to the northern project terminus at the Delaware state line. A new interchange would be provided along this alignment at MD 90.

6. Summary of Environmental Impacts

The majority of the US 113 Study Area is rural, with adjacent land uses consisting of agricultural land, rural residential and business developments, several historic properties, forested areas, and wetlands/Waters of the US. Table S-1 presents a summary of the environmental impacts for each alternative.

- **Alternatives 1S and 1N** (No-Build) is being evaluated as the baseline condition and would have no environmental impacts.

- **Alternatives 2S and 2N** (TSM) would be constructed primarily within existing right of way and would have minimal environmental impacts.

- **Alternative 2S - 20' Median (60 MPH)** (2 lanes with 20-foot wide median along existing US 113 in the southern study area) requires the acquisition of 4 residences (1 minority), 1 business, and 31 acres of additional right-of-way. Furthermore, 5.8 acres of wetlands, 9.5 acres of floodplains, 39 acres of upland forest, 8 acres of upland meadow, and 56 acres of landscape/turf areas would be required. Two (2) areas of archeological resources would be affected.

- **Alternative 3S - 20' Median (60 MPH)** (dualize along existing US 113 in the southern study area) requires the acquisition of 2 residences (1 minority), 1 business, and 67 acres of additional right-of-way. Furthermore, 11.8 acres of wetlands, 7.1 acres of floodplains, 47 acres of upland forest, 10 acres of upland meadow, and 67 acres of landscaped/turf areas would be required. Ten (10) areas of archeological resources would be affected.

- **Alternative 3S - 34' Median (60 MPH)** (dualize along existing US 113 in the southern study area) requires the acquisition of 2 residences (1 minority), 1 business, and 74 acres of additional right-of-way. Furthermore, 13.6 acres of wetlands, 8.4 acres of floodplains, 52 acres of upland forest, 11 acres of upland meadow, and 74 acres of landscaped/turf areas would be required. Ten (10) areas of archeological resources would be affected.

- **Alternative 3N - 20' Median/50 MPH** (dualize along existing US 113 in the northern study area) requires the acquisition of 19 residences (5 minority), 7 businesses, and 86 acres of additional right-of-way (including a total of 0.99 acres from NRE three historic properties). Furthermore, 3.6 acres of wetlands, 5.2 acres of floodplains, 14 acres of upland forest, 15 acres of upland meadow, and 46 acres of landscaped/turf areas would be required. Six (6) areas of archeological resources would be affected.

- **Alternative 3N - 34' Median/50 MPH** (dualize along existing US 113 in the northern study area) requires the acquisition of 22 residences (5 minority), 7 businesses, and 97 acres of additional right-of-way (including a total of 1.13 acres from NRE three historic properties). Furthermore, 4.3 acres of wetlands, 5.7 acres of floodplains, 16 acres of upland forest, 17 acres of upland meadow, and 52 acres of landscaped/turf areas would be required. Six (6) areas of archeological resources would be affected.

- **Alternative 3N - 20' Median/60 MPH** (dualize along existing US 113 in the northern study area) requires the acquisition of 23 residences (5 minority), 6 businesses, and 122 acres of additional right-of-way (including a total of 1.11 acres from NRE three historic properties). Furthermore, 6.6 acres of wetlands, 8.0 acres of floodplains, 15 acres of upland forest, 17 acres of upland meadow, and 51 acres of landscaped/turf areas would be required. Six (6) areas of archeological resources would be affected.

- **Alternative 3N - 34' Median/60 MPH** (dualize along existing US 113 in the northern study area) requires the acquisition of 24 residences (5 minority), 6 businesses, and 136 acres of additional right-of-way (including a total of 1.36 acres from NRE three historic properties). Furthermore, 7.5 acres of wetlands, 8.5 acres of floodplains, 17 acres of upland forest, 19 acres of upland meadow, and 57 acres of landscaped/turf areas would be required. Six (6) areas of archeological resources would be affected.

- **Alternative 4N Modified - 20' Median (60 MPH)** (construct new dual highway in new location in the northern study area) requires the acquisition of 7 residences, 4 businesses, and 111 acres of additional right-of-way. Furthermore, 22.4 acres of wetlands, 2.7 acres of floodplains, 53 acres of upland forest, 15 acres of upland meadow, and 15 acres of landscaped/turf areas would be required. Two (2) areas of archeological resources would be affected.

- **Alternative 4N Modified - 34' Median (60 MPH)** (construct new dual highway in new location in the northern study area) requires the acquisition of 8 residences, 4 businesses, and 123 acres of additional right-of-way. Furthermore, 24.8 acres of wetlands, 3.0 acres of floodplains, 59 acres of upland forest, 17 acres of upland meadow, and 17 acres of landscaped/turf areas would be required. Two (2) areas of archeological resources would be affected.

- **Combination Alternative 3N/4N- 20' Median (60 MPH)** (a combination of dual highways in new location/existing location in the northern study area) requires the acquisition of 15 residences, 4 businesses, and 102 acres of additional right-of-way. Furthermore, 11.2 acres of wetlands (4 minority), 2.9 acres of floodplains, 48 acres of upland forest, 17 acres of upland meadow, and 17 acres of landscaped/turf areas would be required. Two (2) areas of archeological resources would be affected.

- **Combination Alternative 3N/4N - 34' Median (60 MPH)** (a combination of dual highways in new location/existing location in the northern study area) requires the acquisition of 15 residences (4 minority), 4 businesses, and 113 acres of additional right-of-way. Furthermore, 12.4 acres of wetlands, 3.1 acres of floodplains, 53 acres of upland forest, 19 acres of upland meadow, and 19 acres of landscaped/turf areas would be required. Two (2) areas of archeological resources would be affected.

7. Permits Required

Construction of this project would require review and approval for the following permits:

• U.S. Army Corps of Engineers:	Section 404 Permit
• Maryland Department of the Environment:	National Pollutant Discharge Elimination System (NPDES) Permit
• Maryland Department of the Environment:	Approved Sediment and Erosion Control Plan
• Maryland Department of the Environment:	Approved Stormwater Management Plan
• Maryland Department of the Environment:	Water Quality Certificate
• Maryland Department of the Environment:	Nontidal/Tidal Wetland and Waterways Permit

8. Areas of Controversy

The major resource agency concern expressed about this project pertains to the loss of wetlands associated with the Dualization Alternatives 3S, 3N, 4N Modified, and Combination Alternative. Other concerns include impacts to cultural resources, noise impacts, and loss of farmland.

Community concerns focus on the continued frequency of fatal accidents along US 113 as evidenced by the strong advocacy position taken by CRASH in support of dualizing US 113. In addition, residents of the Friendship community along US 113 in the vicinity of MD 90 strongly support the new location dualize alternatives (i.e. Alternative 4N Modified and the Combination Alternative N/4N Modified); they believe that dualization along existing US 113 (Alternative 3N) will divide their community.

9. Public Involvement Process

A public involvement program has been conducted as part of this study. Components of the program have included:

- A Project Initiation Meeting held with elected officials, representatives of CRASH, elected officials, the press, SHA, and others on March 8, 1995.

- Field Review Meetings conducted with elected officials, resource agency representatives, representatives of CRASH, SHA and others on August 3 and 4, 1995.

- Displays, documents and staff to answer citizens' questions and receive comments in SHA's District 1 Offices (located in Salisbury on the Delmarva peninsula).

- Alternates Public Meeting (held November 1995) to present results of initial screening of preliminary alternatives.

- Briefings to civic groups and community associations.

- Letters sent to churches in the study area to solicit participation by a wide range of area residents, including minority residents and low income residents.

The Location/Design Public Hearings will be held June 17, 1997. Comments on this DEIS may be made at the Public Hearing or within 30 days after the Hearing. The exact time and location of the Hearing will be announced via notices in local newspapers and a notice will be sent to everyone on the mailing list. The time and location may also be obtained by contacting the persons noted on the signature page.

10. Summary Table S-1

Table S-1, shown on the following pages, presents a summary of the social, economic and natural environmental impacts of the project alternatives presented in this document. The following alternatives are addressed:

◆ **Left Side of Table (Southern Study Area: 16.3 miles)**

- **Alt. 1S:** No Build - retain existing one lane per direction.

- **Alt. 2S:** Transportation Systems Management (TSM) - one lane per direction with intersection improvements

- **Alt. 2S-20' Median:** One lane per direction with 20-foot wide median/guardrail and passing lanes (and 60 MPH design speed).

- **Alt. 3S-20' Median:** Dualization to provide 4 lanes along existing US 113 and 20-foot wide median/guardrail (and 60 MPH design speed).

- **Alt. 3S-34' Median:** Dualization to provide 4 lanes along existing US 113 and 34-foot wide median (and 60 MPH design speed).

◆ **Right Side of Table (Northern Study Area: 7.5 miles)**

- **Alt. 1N:** No Build: retain existing one lane per direction.

- **Alt. 2N:** Transportation Systems Management (TSM) - one lane per direction with intersection improvements.

- **Alt. 3N-20' Median/50 MPH:** Dualization to provide 4 lanes along existing US 113 with 20-foot wide median/guardrail and 50 MPH design speed.

- **Alt. 3N-34' Median/50 MPH:** Dualization to provide 4 lanes along existing US 113 with 34-foot wide median and 50 MPH design speed.

- **Alt. 3N-20' Median/60 MPH:** Dualization to provide 4 lanes along existing US 113 with 20-foot wide median/guardrail and 60 MPH design speed.

- **Alt. 3N-34' Median/60 MPH:** Dualization to provide 4 lanes along existing US 113 with 34-foot wide median and 60 MPH design speed.

- **Alt. 4N Modified-20' Median:** Dual highway in new location to provide 4-lanes with 20-foot wide median/guardrail (and 60 MPH design speed)

- **Alt. 4N Modified-34' Median:** Dual highway in new location to provide 4-lanes with 34-foot wide median (and 60 MPH design speed)

- **Alt. 3N/4N Modified-20' Median:** Combination of Alts. 3N & 4N Modified to provide 4 lanes with 20-foot wide median/guardrail (and 60 MPH design speed)

- **Alt. 3N/4N Modified-34' Median:** Combination of Alts. 3N & 4N Modified to provide 4 lanes with 34-foot wide median (and 60 MPH design speed)

11. Environmental Assessment Form (EAF)

The Environmental Assessment Form for this US 113 Planning Study is presented on page S-11, following Table S-1. This Environmental Assessment Form is a requirement of the Maryland Environmental Policy Act and Maryland Department of Transportation Order 11.01.06.02. Its use is in keeping with the provisions of 1500.4(k) and 1506.2 and .6 of the Council of Environmental Quality Regulations, effective July 31, 1979, which recommended that duplication of Federal, State, and Local procedures be integrated into a single process.

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

Southern Study Area : 16.3 Miles				
Alt. 1S No-Build Existing US 113	Alt. 2S TSM Transportation Systems Management	Alt. 2S - 20' Median (2 - lanes with median traffic barrier)	Alt. 3S - Dualize Along Existing US 113 (4 - lanes with median)	
		20' Wide Median	20' Wide Median	34' Wide Median
(2 - lanes)	(2 - lanes)	60 MPH Design	60 MPH Design	
16.3 miles	16.3 miles	16.3 miles	16.3 miles	16.3 miles
2 existing	2 existing	2 existing with passing lanes (4 separate segments, each 1 mile in length)	2 existing + 2 new	2 existing + 2 new
25	18 improved	18 improved	24 improved	24 improved
B to D	-	-	-	-
B to D	-	-	-	-
B to E	B to E	B to D	A	A
C to E	C to E	C to D	A	A
no improvement	marginal improvement	moderate improvement	substantial improvement	substantial improvement
29	-	-	-	-
40	38	34	31	31

ENVIRONMENTAL ASSESSMENT FORM

		YES	NO	COMMENTS ATTACHED
A.	Land Use Considerations			
1.	Will the action be within the 100 year floodplain?	X		See III.G, IV.H
2.	Will the action require a permit for construction or alteration within the 50 year floodplain?		X	
3.	Will the action require a permit for dredging, filling, draining, or alteration of a wetland?	X		See III.H, IV.I
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		See III.C, IV.E
7.	Will the action require a mining permit for deep or surface mining?		X	
8.	Will the action require a permit for drilling a gas or 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	

		YES	NO	COMMENTS ATTACHED
11.	Will the action affect the use of a public recreation area, park, forest, wildlife management area, scenic river or wildland?	___	X	See III.G, IV.G
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	___	See III.B, IV.C, and V
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	___	See III.F, IV.G
15.	Will the action require the construction, alteration, or removal of a dam, reservoir, or waterway obstruction?	___	X	_____
16.	Will the action change the overland flow of stormwater or reduce the absorption capacity of the ground?	X	___	See III.E, IV.F
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	_____

		YES	NO	COMMENTS ATTACHED
19.	Will the action require a permit for the construction and operation of facilities for treatment or distribution of water?	___	X	_____
20.	Will the project require a permit for the construction and operation of facilities for sewage treatment and/or land disposal of liquid waste derivatives?	___	X	_____
21.	Will the action result in any discharge into surface or sub-surface water?	X	___	See III.C, IV.E
22.	If so, will the discharge affect ambient water quality limits or require a discharge permit?	___	X	_____
C.	Air Use Considerations			
23.	Will the action result in any discharge into the air?	___	X	See III.J, IV.K
24.	If so, will the discharge affect ambient air quality limits or produce a disagreeable odor?	___	X	_____
25.	Will the action generate additional noise which differs in character or level from present conditions?	X	___	See III.K, IV.L See Noise Study Report, _____
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	_____

		YES	NO	COMMENTS ATTACHED
D.	Plants and Animals			
28.	Will the action cause the disturbance, reduction, or loss of any rare, unique or valuable plant or animal?	X	___	See III.I, IV.J
29.	Will the action result in the significant reduction or loss of any fish or wildlife habitats?	___	X	See III.I, IV.J
30.	Will the action require a permit for the use of pesticides, herbicides or other biological, chemical, or radiological control agents?	___	X	_____
E.	Socioeconomic			
31.	Will the action result in a preemption or division of properties or impair their economic use?	X	___	See III.A, III.B, III.D, IV.D
32.	Will the action cause relocation of activities or structures, or result in a change in the population density of distribution?	X	___	See III.A, IV.B
33.	Will the action alter land values?	X	___	See III.A, IV.B
34.	Will the action affect traffic flow and volume?	X	___	See I.B, IV.A
35.	Will the action affect the production, extraction, harvest or potential use of a scarce or economically important resource?	___	X	See III.D, IV.D

		YES	NO	COMMENTS ATTACHED
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	—	See I.D
38.	Will the action affect the employment opportunities for persons in the area?	X	—	See III.A, IV.B
39.	Will the action affect the ability of the area to attract new sources of tax revenue?	X	—	See III.A, IV.B
40.	Will the action discourage present sources of tax revenue from remaining in the area, or affirmatively encourage them to relocate elsewhere?	X	—	See III.A, IV.B
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	See III.M, IV.N
43.	Could the action be eliminated without deleterious affects to the public health, safety, welfare, or the natural environment?	—	X	See I.B
44.	Will the action be of statewide significance?	—	X	

		YES	NO	COMMENTS ATTACHED
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	See II.D
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	___	DEIS document

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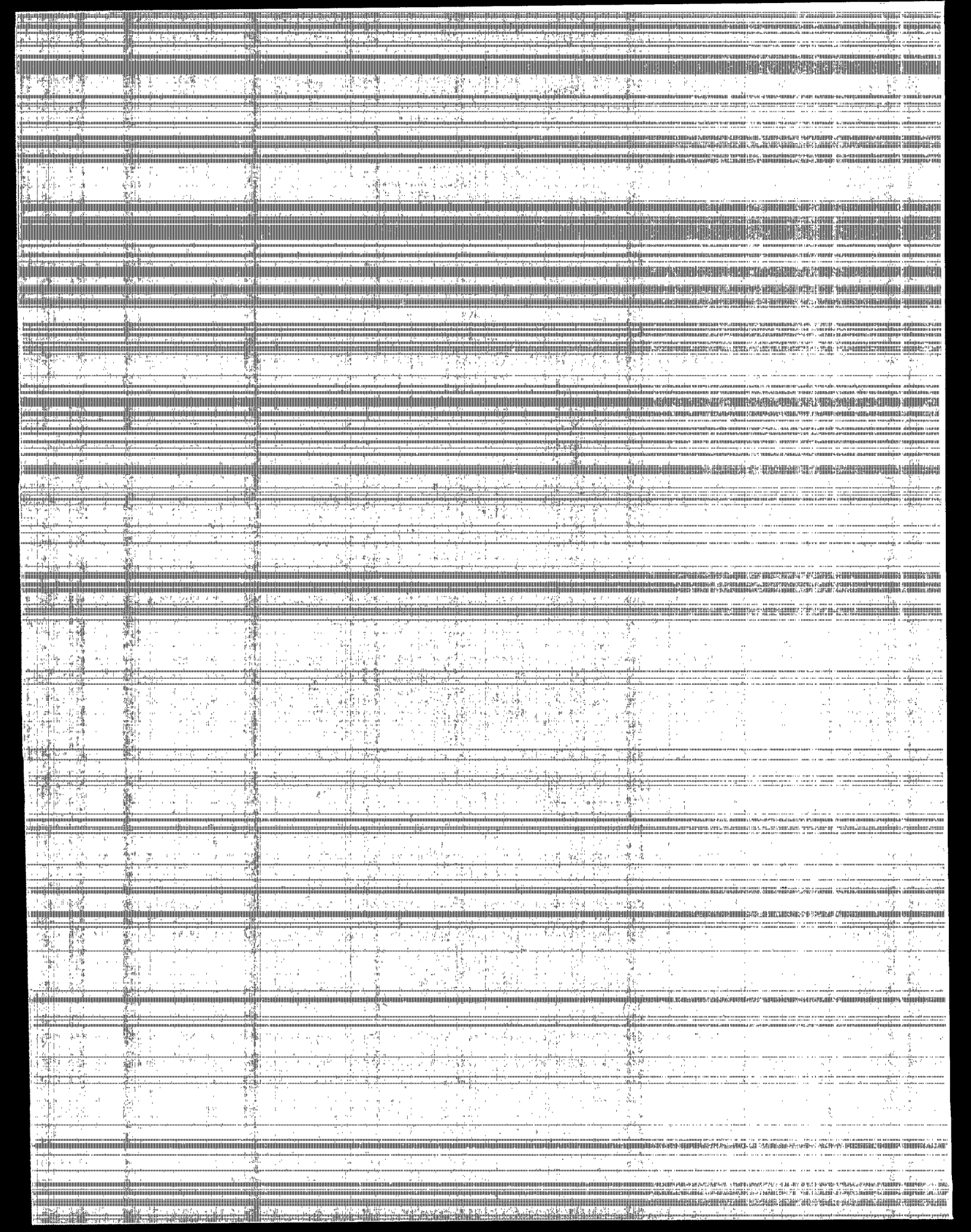
I.
PURPOSE OF AND NEED FOR ACTION

US 113 Planning Study
Snow Hill, Maryland to Delaware State Line

Office of Planning and Preliminary Engineering
Maryland State Highway Administration



I. PURPOSE OF AND NEED FOR ACTION

A. Introduction

The Purpose and Need Statement for the US 113 Planning Study was developed in early 1996 and concurred upon by the Federal Highway Administration (FHWA), U.S. Army Corps of Engineers (COE), U.S. Fish and Wildlife Service (FWS), and the U.S. Environmental Protection Agency (EPA) (see Chapter VI for relevant correspondence).

Following the Project Location and Description presented in Section B of this Chapter, Section C presents the Purpose and Need Statement as revised based on updated accident characteristics and agency comments. Of particular note is the updated information presented for fatal accidents along the existing two-lane portions of US 113 (data are current through April 1997).

B. Project Location and Description

US 113 departs from US 13 near Pocomoke City, Maryland and extends north 40 miles in Maryland and 60 miles in Delaware, rejoining US 13 in Dover, Delaware. US 113 provides a critical connection on the Delmarva Peninsula for through and local traffic, including recreation trips. US 113 directly links Pocomoke City, Snow Hill (the Worcester county seat) and Berlin, and indirectly serves Ocean City (the second most populated city in Maryland during the summer vacation season). As discussed in Chapter II Section A. of this document, US 113 dates from the late 1600's; US 113 was an earth and shell road until the early 1900's, when it was paved generally along its present alignment.

The project study area for US 113 (Worcester Highway) lies entirely within Worcester County, Maryland and encompasses the remaining 23.8 miles of two-lane US 113 in Maryland, extending from south of Snow Hill, Maryland north to the Delaware state line (see Figure S-1). It excludes the 4.4 miles of presently dualized US 113 highway around Berlin, Maryland and, therefore, consists of two study areas:

- The **southern study area** extends along US 113 from south of Snow Hill, Maryland to south of Berlin, Maryland (approximately 16.3 miles).
- The **northern study area** extends from north of Berlin to the Delaware state line (approximately 7.5 miles).

C. Project Need

The purpose of this study is to improve vehicular safety conditions and traffic operations along the two-lane portions of US 113 from south of Snow Hill to the Delaware state line. County Residents Action for Safer Highways (CRASH), a local citizens group, requested an accident investigation and evaluation of improvements to address the safety conditions within the study area due to the number

of fatal accidents. Need for this project is demonstrated by the fatal accident rate in the northern study area, which is significantly higher than the statewide average. Existing roadway conditions along US 113 are discussed in Section C.1. of this Chapter; Section C.2. addresses traffic operations and levels of service. Accident statistics are presented in Section C.3. of this Chapter. Section C.4 presents details on fatal accidents along US 113.

1. Existing Roadway Conditions

US 113, combined with US 13 and US 50, have historically formed the backbone of the transportation system for the lower Eastern Shore of Worcester County, Maryland and Sussex County, Delaware. US 113 is functionally classified as a "Rural-other Principal Arterial" on the Federal Functional Classification System of Highways and as an "Intermediate Arterial" on the State Functional Classification System of Highways. These are the highest types of arterial classifications - these highways handle longer-distance trips and should safely handle high-speed travel.

Due to its function, US 113 has been designated as part of the State Primary Highway System and is included in the National Highway System (designated by Congress in 1995). This project is included in the current approved federally required State Transportation Improvement Program (SIP).

No existing locations along US 113 in the southern study area have substandard geometry. Several locations in the northern study area, however, have substandard horizontal geometry along US 113. These locations, shown on Figure S-2D, are as follows:

- US 113 at MD 452
- US 113 at Pitts Road
- US 113 at Jarvis Road

Although US 113 is not an access controlled roadway, there is a grade separated interchange at MD 90. Signalized intersections in the southern study area of US 113 occur at the following locations (see Figures S-2A, S-2B, S-2C):

- MD 394 (Market Street) (flashers)
- Castle Hill Road
- MD 12 (Snow Hill Road)
- Washington Street / Brick Kiln Road
- MD 365 (Public Landing Road)
- Langmaid Road

In the northern study area, signalized intersections occur at the following locations (see Figure S-2D):

- MD 589 (Racetrack Road)
- Pitts Road (flashers)
- MD 610 (Whaleyville Road - Hammond Road)

US 113 is a four-lane divided roadway from south of Snow Hill to US 13 near Pocomoke City, through the Berlin area, and north of the Delaware state line. US 113 north and south of the existing four-lane divided highway portion east of Berlin has two different roadway sections. Figures S-2A through 2D show the area of divided and undivided roadways. The southern study area, from immediately south of Snow Hill to just south of Berlin, consists of a two-lane undivided roadway with two 12-foot lanes and 10-foot shoulders. The northern study area from north of Berlin to the Delaware line typically consists of a two-lane undivided roadway with two 11-foot lanes and 8-foot shoulders. Auxiliary lanes exist at various locations primarily for turning movements at intersections.

A pavement condition survey, conducted by SHA in 1994, indicated that the ride quality along US 113 is satisfactory throughout the project limits. The Distress Value, an indication of cracking, patching, surface defects and surface deformation, was found to be of medium distress in the southern study area. In the northern study area, the distress value was found to be low. The SHA Pavement Management Report rates roadways based on a combination of three factors: distress characteristics, traffic volumes and ride. In the southern study area, locations determined to have a poor rating have since been resurfaced. The US 113 roadway in the northern study area was rated as acceptable.

2. Traffic Volumes and Levels of Service

Average daily traffic (ADT) is the average number of vehicles traveling on a roadway during a 24-hour period. Summer ADT is traffic in areas where recreational traffic is most concentrated (this study defines summer to be the period between Memorial Day and Labor Day).

The current **ADT** (year 1995) ranges from 3,500 to 7,500 vehicles per day for the southern study area and 6,400 to 12,200 vehicles per day for the northern study area. The current **summer ADT** (1995) ranges from 4,900 to 8,900 vehicles per day for the southern study area and 8,300 to 18,500 vehicles per day for the northern study area. Summer ADT volumes range from 19% to 52% higher than the annual ADT for the same portion of US 113. Existing ADT volumes are presented in Table I-1. Trucks currently make up 14 percent of the ADT volumes on US 113. Much of the truck traffic results from the large poultry industry that is characteristic of the eastern shore. The Perdue Processing plant is located in Salisbury and accounts for a large portion of the truck traffic.

Design year (2020) traffic forecasts were prepared in accordance with the Comprehensive Development Plan for Worcester County and assume completion of 4 lanes along US 113 in Delaware. These forecasts indicate a 1% difference in the design year among the alternatives under consideration (i.e. between the No-Build and dualization alternatives). The design year 2020 ADT for the southern study area ranges from 5,000 to 10,800 vehicles per day and 7,000 to 12,900 vehicles per day during the summer months. The design year ADT for the northern study area ranges from 10,100 to 20,000 vehicles per day during non-summer timeframe (or months) and 13,600 to 30,400 vehicles per day during the summer months. Projected ADT volumes are presented in Table I-1.

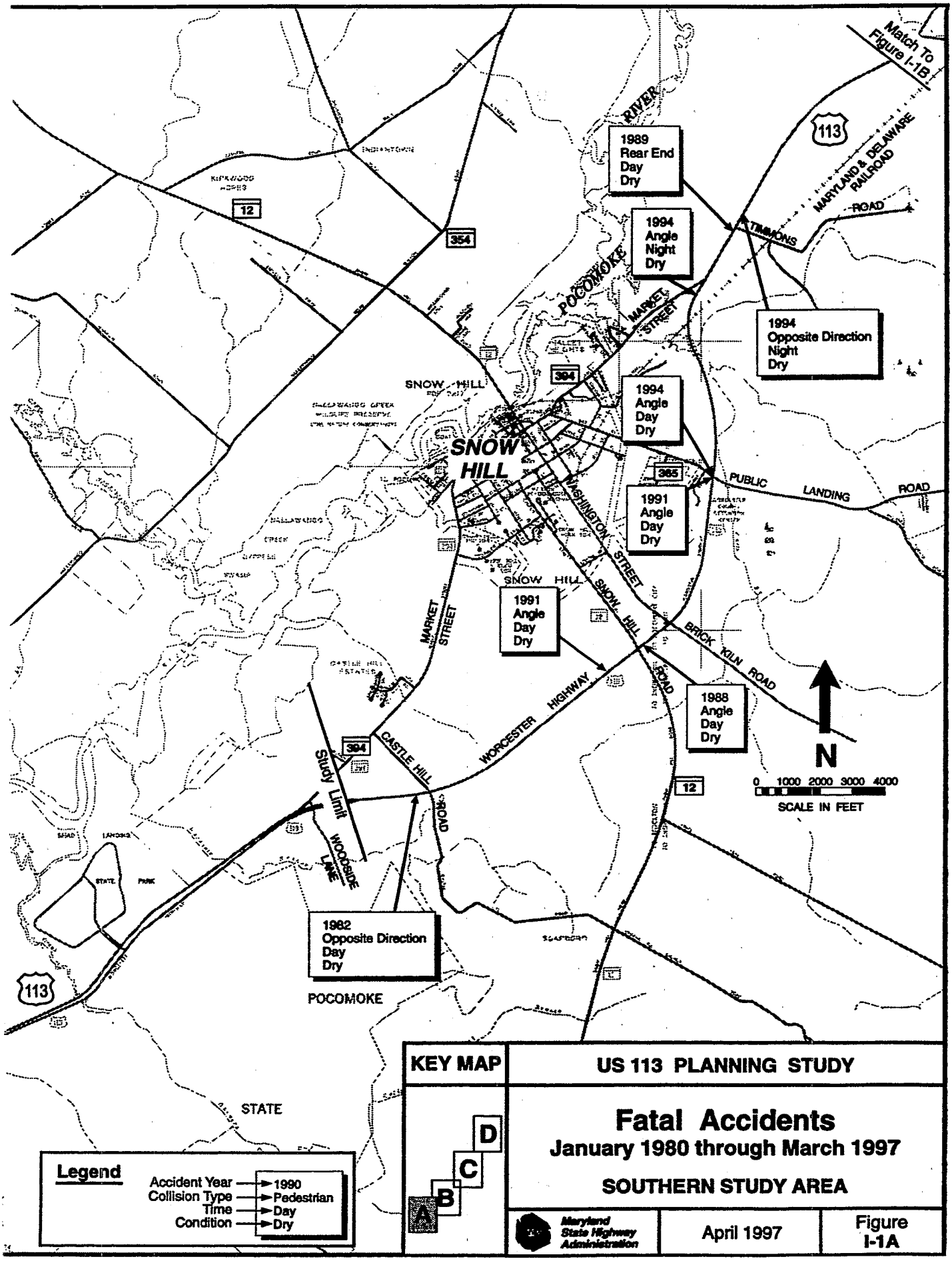
Table I-1: Average Daily Traffic (ADT) Volumes

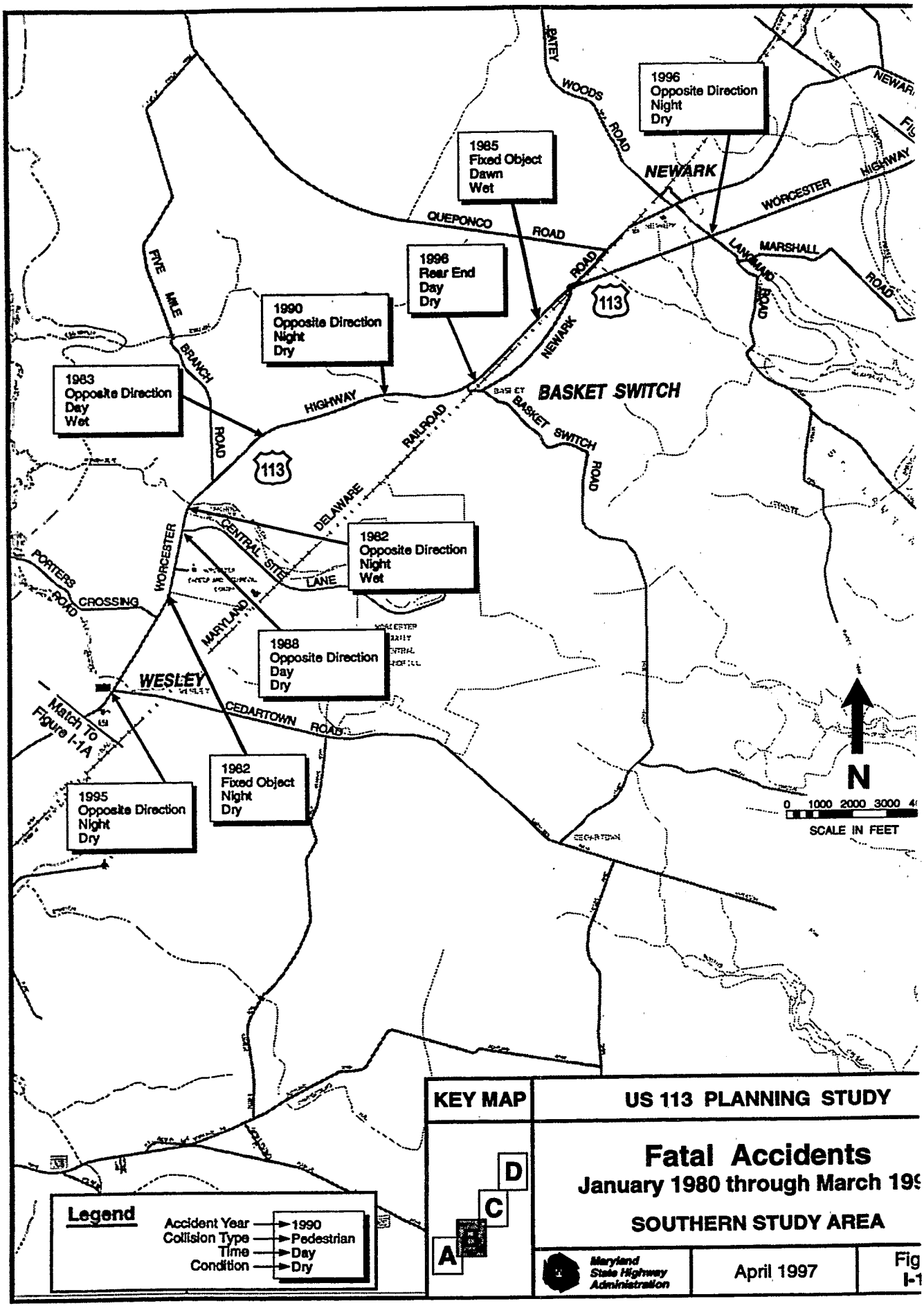
Segment	Existing ADT (1995)	Design Year ADT (2020)	Existing Summer ADT (1995)	Design Year Summer ADT (2020)
◆ **Southern Study Area** Two-lane US 113: Snow Hill to Berlin	3,500 to 7,500	5,000 to 10,800	4,900 to 8,900	7,000 to 12,900
◆ **Northern Study Area** Two-lane US 113: Berlin to Delaware line	6,400 to 12,200	10,100 to 20,000	8,300 to 18,500	13,600 to 30,400

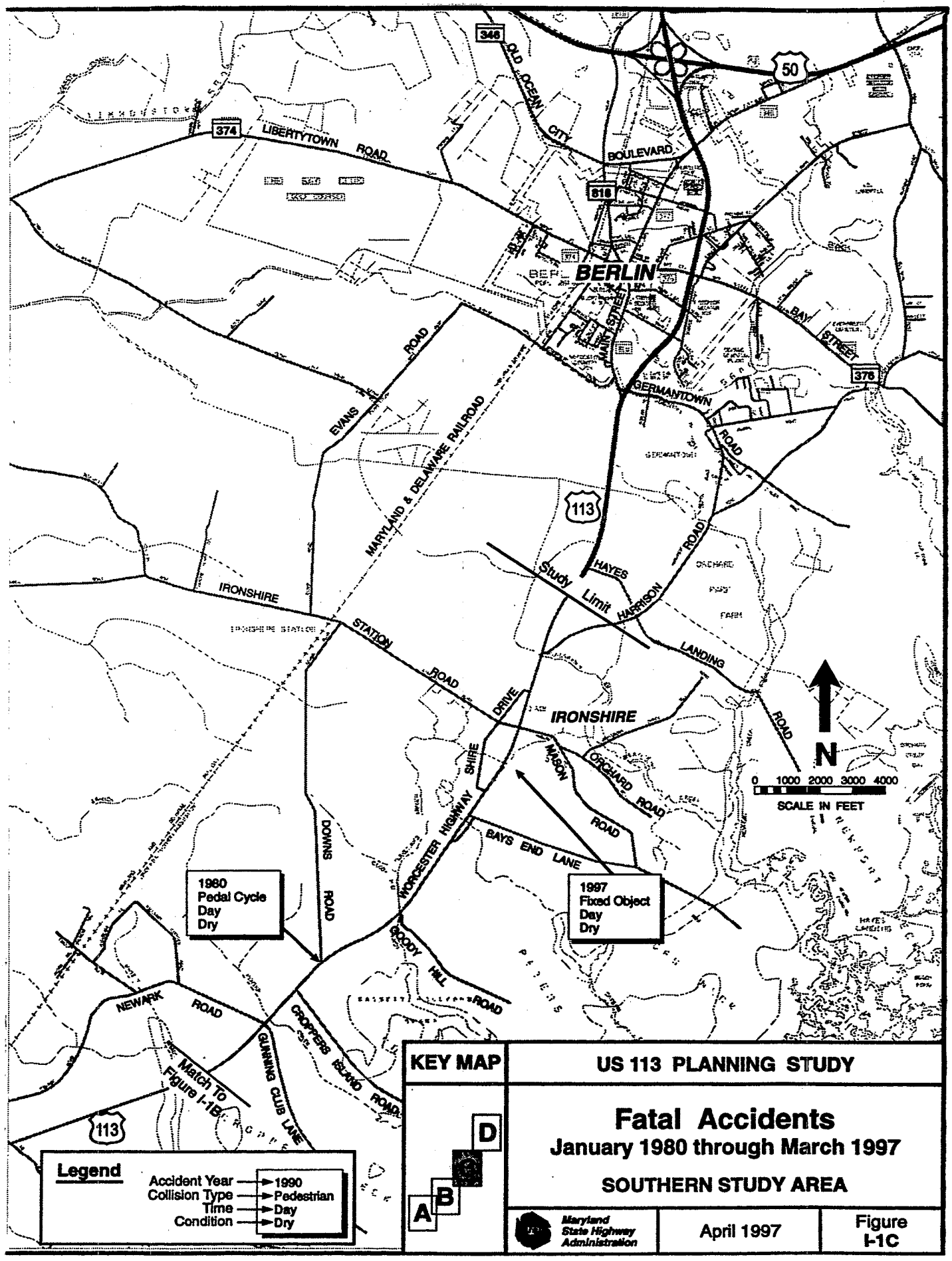
Traffic flow is measured by determining a level of service (LOS) for the roadway. Each level of service grade coincides with conditions that drivers experience while traveling along a roadway. LOS grade designations, from A to F, are used to define traffic operations on any given section of highway. LOS A indicates ideal conditions and LOS F indicates severe congestion and long delays. A brief explanation of LOS is given below:

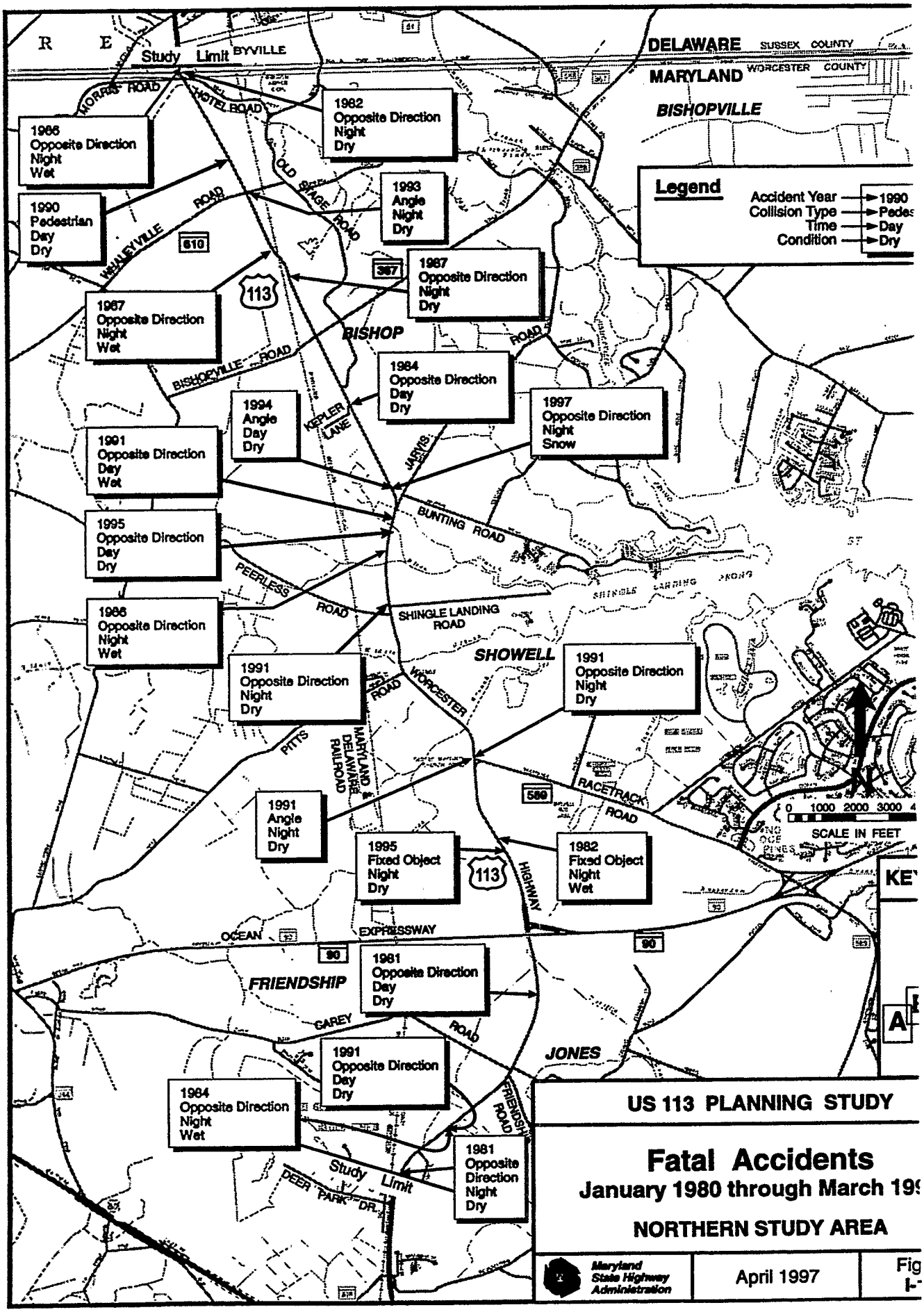
Level of Service A - Free traffic flow, low volumes, free-flow speeds
Level of Service B - Stable traffic flow, some speed restrictions, ability to maneuver freely is only slightly restricted
Level of Service C - Stable traffic flow, increasing traffic volumes, ability to maneuver freely is noticeably restricted
Level of Service D - Approaching unstable flow, heavy traffic volumes, decreasing speeds
Level of Service E - Decreased speeds accompanied by delays, maneuverability is very limited
Level of Service F - Severe congestion accompanied by delays, describes breakdown in traffic flow

NOTE: In the rural / agricultural areas through which US 113 passes (i.e. outside of the corporate limits of Berlin), travelers expect traffic conditions to be free of congestion, as represented by Levels of Service A, B or C.


Match To Figure I-1B
1989 Rear End Day Dry
1994 Angle Night Dry
1994 Opposite Direction Night Dry
1994 Angle Day Dry
1991 Angle Day Dry
1991 Angle Day Dry
1988 Angle Day Dry
1982 Opposite Direction Day Dry
SNOW HILL
POCOMOKE
MARKET STREET
WASHINGTON STREET
PUBLIC LANDING ROAD
BRICK KILN ROAD
WORCESTER HIGHWAY
CASTLE HILL ROAD
WOODSIDE LANE
Study Limit
MARYLAND & DELAWARE RAILROAD
TIMMONS ROAD
RIVER
STATE
N
0 1000 2000 3000 4000
SCALE IN FEET
Legend
Accident Year → 1990
Collision Type → Pedestrian
Time → Day
Condition → Dry
KEY MAP
A
B
C
D
US 113 PLANNING STUDY
Fatal Accidents
January 1980 through March 1997
SOUTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Figure I-1A


1996
Opposite Direction
Night
Dry
1985
Fixed Object
Dawn
Wet
1996
Rear End
Day
Dry
1990
Opposite Direction
Night
Dry
1983
Opposite Direction
Day
Wet
1982
Opposite Direction
Night
Wet
1988
Opposite Direction
Day
Dry
1982
Fixed Object
Night
Dry
1995
Opposite Direction
Night
Dry
NEWARK
BASKET SWITCH
WESLEY
WOODS ROAD
QUEPONCO ROAD
WORCESTER HIGHWAY
MARSHALL ROAD
LANDMARK ROAD
FIVE MILE BRANCH ROAD
HIGHWAY
RAILROAD
BASKET SWITCH ROAD
DELAWARE
CENTRAL SITE LANE
PORTERS CROSSING ROAD
WORCESTER
MARYLAND
CEDARTOWN ROAD
113
Match To Figure I-1A
N
0 1000 2000 3000
SCALE IN FEET
Legend
Accident Year → 1990
Collision Type → Pedestrian
Time → Day
Condition → Dry
KEY MAP
A
C
D
US 113 PLANNING STUDY
Fatal Accidents
January 1980 through March 19
SOUTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Fig I-1


346
OLD OCEAN CITY BOULEVARD
50
374
LIBERTYTOWN ROAD
BERLIN
BAY STREET
376
GERMANTOWN ROAD
EVANS ROAD
MARYLAND & DELAWARE RAILROAD
113
HAYES ROAD
Study Limit
HARRISON LANDING ROAD
IRONSHIRE
STATION ROAD
IRONSHIRE DRIVE
MASON ROAD
ORCHARD ROAD
WORCESTER HIGHWAY
BAYS END LANE
DOWNS ROAD
GROODY HILL ROAD
NEWARK ROAD
GUNNING CLUB LANE
CROPPERS ISLAND ROAD
Match To Figure I-1B
1980
Pedal Cycle
Day
Dry
1997
Fixed Object
Day
Dry
N
0 1000 2000 3000 4000
SCALE IN FEET
Legend
Accident Year → 1990
Collision Type → Pedestrian
Time → Day
Condition → Dry
KEY MAP
A
B
D
US 113 PLANNING STUDY
Fatal Accidents
January 1980 through March 1997
SOUTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Figure I-1C


DELAWARE
SUSSEX COUNTY
MARYLAND
WORCESTER COUNTY
BISHOPVILLE
Study Limit
MORRIS ROAD
HOTEL ROAD
OLD STAGE ROAD
WHALEYVILLE ROAD
BISHOPVILLE ROAD
BISHOP ROAD
KEPLER LANE
JARVIS
BUNTING ROAD
PEERLESS ROAD
SHINGLE LANDING ROAD
SHOWELL
WORCESTER HWY
PITTS
MARYLAND DELAWARE RAILROAD
RACETRACK ROAD
HIGHWAY
OCEAN EXPRESSWAY
FRIENDSHIP
CAREY ROAD
JONES
FRIENDSHIP ROAD
Study Limit
DEER PARK DR.
610
367
113
589
90
1986 Opposite Direction Night Wet
1982 Opposite Direction Night Dry
1990 Pedestrian Day Dry
1993 Angle Night Dry
1987 Opposite Direction Night Dry
1987 Opposite Direction Night Wet
1984 Opposite Direction Day Dry
1997 Opposite Direction Night Snow
1994 Angle Day Dry
1991 Opposite Direction Day Wet
1995 Opposite Direction Day Dry
1986 Opposite Direction Night Wet
1991 Opposite Direction Night Dry
1991 Opposite Direction Night Dry
1991 Angle Night Dry
1995 Fixed Object Night Dry
1982 Fixed Object Night Wet
1981 Opposite Direction Day Dry
1991 Opposite Direction Day Dry
1984 Opposite Direction Night Wet
1981 Opposite Direction Night Dry
Legend
Accident Year → 1990
Collision Type → Pedes
Time → Day
Condition → Dry
0 1000 2000 3000
SCALE IN FEET
US 113 PLANNING STUDY
Fatal Accidents
January 1980 through March 19
NORTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Fig
I-

US 113 in the southern study area currently operates at LOS C conditions, including summer weekends when traffic demand is the greatest. The existing LOS in the northern study area is LOS C to D on weekdays throughout most of the year and LOS D on summer weekends. In year 2020, the existing two-lane US 113 is expected to operate at LOS C to D condition in the southern study area including summer weekends, but is expected to operate at LOS D on weekdays all year in the northern study area, and LOS F between MD 589 and the Delaware state line on summer weekends. **In essence, traffic conditions now being experienced in the summer along the existing two-lane US 113 are predicted to be the fall-winter-spring conditions in the design year 2020, with summer weekend conditions in the design year substantially worse.**

Specific locations in the northern study area now experiencing traffic congestion during the summer include the intersections of US 113 and: MD 589, MD 367, and MD 610. The roadway segments between these intersections are also predicted to experience congestion. Each intersection experiences some congestion during the current summer months. The roadway segments between these intersections are also operating under unstable traffic flow conditions during the summer months and conditions are projected to become less stable. Traffic conditions are further discussed in Chapter IV, Section A. of this document.

3. Overall Safety Experience

As shown on Table I-2, US 113 experienced a total of 442 accidents in the southern study area and 505 accidents in the northern study area for the **16-year period from January 1980 through December 1995 inclusive.** This is a total of 947 accidents for both study areas over 16-years (nearly 60 accidents per year, on average). As evident on Table I-2, the fatal accident rate is equal to or greater than the statewide average rate for **both study areas**, and the rate for injury accidents and property damage accidents in the **northern study area** is greater than the similar statewide average rate. Furthermore, as demonstrated by this 16-years of historical accident data, safety has been a long-term concern along the two-lane portions of US 113.

Table I-2: Summary of 16-Years Historical Accident Data (1980 through 1995)

Accident Type	Southern Study Area			Northern Study Area		
	Total Accidents	**Study Rate[1]**	**State Avg.[1,2,3]**	**Total Accidents**	**Study Rate[1]**	**St Avg**
Fatal Accidents Fatalities	16 18	2.7	2.5	20 23	**6.3[4]**	2.
Injury Accidents Persons Injured	203 359	33.9	74.6	257 453	81.1	79
Property Damage Acc.	223	37.3	62.2	228	72.0	68
Total Number of Accidents	442	73.8	139.3	505	159.4	15

Notes: 1. Accident rates are presented as number of accidents per 100 million vehicle miles (MV of travel.
2. Because of the differences in existing shoulder widths and intensity of adjacent development, the statewide averages for the two study area sections are not the same.
3. The statewide average accident rates are derived from a database of all Maryland roadv For roads with similar characteristics (e.g. similar functional classification, roadway cr section, traffic operations), an accident average is computed. Hundreds of roads were i in computing the statewide accident rate for US 113.
4. The Fatal Accident Rate for the northern study area is **significantly** higher statistically the statewide average (shown **bold** above).

Table I-3 presents a detailed analysis for the 370 accidents which occurred along the two-lane portions of US 113 for the **6-year period from 1990 through 1995 inclusive** (1996 data will not be available until mid-1997). In addition to presenting the broad categories of accident type for the 16-years of data shown in Table I-2, Table I-3 also provides considerable details on accident types (angle collision, rear end collision, etc.), time of day, weather, alcohol related, intersection related, and truck involvement. The purpose of Table I-3 is to address detail characteristics for the 370 accidents which have occurred along the two-lane portions of US 113 for the 6-year period from January 1990 through December 1995.

The following observations may be drawn from the 6-years of detailed accident data as shown in Table I-3.

- the fatal accident rate is equal to or higher than the statewide average rate for **both study areas** (and **significantly** greater statistically in the **northern study area**).

- the overall accident rate in the **northern study area** is greater than the statewide average rate.

- the accident rates in the **northern study area** for angle collisions, fixed object, opposite direction and pedestrian accidents are greater than the similar statewide average, and **significantly** statistically greater for angle collisions and fixed object accidents. By calculating the percentage of total accidents for these four accident types in the northern study area, angle collisions represent 18% of the total accidents (i.e. 35 divided by 195), fixed object accidents represent 37%, opposite direction accidents represent 7%, and pedestrian accidents represent 2%.

- furthermore, in the **northern study area,** the wet surface related accidents and alcohol related accidents are statistically **significantly** greater than the statewide average rate.

Table I-3: Detail Analysis of 6-Years Accident Data (1990 through 1995)

Accident Type	Southern Study Area			Northern Study Area		
	Total Accidents	Study Rate[1]	State Avg.[1,2,3]	Total Accidents	Study Rate[1]	State Avg.[1,2,3]
Fatal Accidents Fatalities	7 9	2.4	2.4	10 10	**7.3[4]**	**2.4**
Injury Accidents Persons Injured	80 141	26.9	68.8	107 211	78.1	73.6
Prop. Damage Accidents	88	29.6	57.9	78	56.9	63.3
TOTAL ACCIDENTS	175	58.9	129.1	195	142.3	139.4

Table I-3 continued on next page.

See next page for footnotes.

Table I-3 continued: Detail Analysis of 6-Years Accident Data (1990 through 1995)

Accident Type	Southern Study Area			Northern Study Area		
	Total Accidents	Study Rate[1]	State Avg.[1,2,3]	Total Accidents	Study Rate[1]	St Avg
Angle Collision	34	11.4	20.3	35	**25.5**[4,5]	
Rear End	19	6.4	24.1	29	21.2	
Fixed Object	64	21.5	36.5	72	**52.5**[4,5]	
Opposite Direction	16	5.4	8.9	13	9.5	
Sideswipe	5	1.7	5.7	4	2.9	
Left Turn	6	2.0	8.3	9	6.6	
Pedestrian	2	0.7	1.7	3	2.2	
Parked Vehicle	1	0.3	2.3	2	1.5	
Other	28	9.4	21.3	28	20.4	
Nighttime Acc.	55	31%	32%	63	32%	3
Wet Surface Acc.	44	25%	28%	73	**37%**[4,5]	2
Alcohol Related	12	7%	8%	24	**12%**[4,5]	8
Intersection Related	61	35%	na[6]	74	38%	n
% Trucks Involved in Total Accidents	8%	na[6]	na[6]	7%	na[6]	r

Notes:

1. Accident rates are presented as number of accidents per 100 million vehicle miles (M of travel.
2. Because of the differences in existing shoulder widths and intensity of adjacent develop the statewide averages for the southern and northern study area sections are not the s
3. The statewide average accident rates are derived from a database of all Maryland roac For roads with similar characteristics (e.g. similar functional classification, roadway section, traffic operations), an accident average is computed. Hundreds of roads wer in computing the statewide accident rate for US 113.
4. **Significantly higher than the statewide average rate** for similar State main highways.
5. During the compilation and analysis of the above accident statistics, significanc determined by computing the 'Morin's Upper Control Limit'. In this rural and tigh community, many families know someone who has been personally affected as a re these fatal accidents. (RCU) Morin's Upper Control defines the upper limit of the above which a statistic becomes significant. This methodology determined tha accidents, fixed object accidents, wet surface accidents, and alcohol related accidents northern study area are **significantly** higher than the statewide average for similar high

   Mathematically, the expression reads: $RCU = Ra + \sqrt{(K (Ra)/M)} - 1/2M$

   where: Ra = the statewide rate
   K = 1.645 the confidence interval
   M = 100 million vehicle miles traveled
6. "na" means "not applicable or "not available".

-2

4. Fatal Accidents

The primary purpose for conducting this study is fatal accidents. Historically, the fall and summer seasons have experienced the highest number of fatal accidents. As shown on **Table 1-2** for the 16-year period from January 1980 through December 1995, US 113 experienced 16 fatal accidents in the southern study area for a study rate of 2.7 fatal acc/100mvm compared to the statewide average of 2.5 fatal acc/100mvm. During this same 16-year period, the northern study area experienced 20 fatal accidents resulting in a study rate of 6.3 fatal acc/100mvm compared to the statewide average of 2.7 fatal acc/100mvm. Note that while the fatal accident rate in the southern study area is slightly above the statewide average, the fatal accident rate in the northern study area is **significantly** higher statistically than the statewide average.

Similarly, as shown for the 6-years (1990 through 1995) of accident data analyzed in **Table I-3**, this trend has continued wherein the fatal accident rate is equal to or higher than the statewide average for **both study areas** and **significantly** greater statistically for the **northern study area.**

From the period beginning January 1996 through April 1997 (sixteen months), four additional fatal accidents (causing five deaths) have occurred along the two-lane portions of US 113. Table I-4 and Figure I-1 (following page I-10) identify the locations and provide descriptions of the 40 fatal accidents for the 17 year + 4 month period beginning January 1980 and extending through April 1997. Trucks were involved in 20 of these 40 fatal accidents (50%). Thirteen (13) of these fatal accidents were alcohol related (32%).

Table I-4: Tabulation of 17 Years + 4 Months Fatal Accident Data
(January 1980 through April 1997)
(see Figures I-1A through I-1D)

◆ **Distribution of Accidents by Year:**			
1980	1 accident	1990	2 accident
1981	2 accidents	1991	7 accidents
1982	5 accidents	1992	0 accidents
1983	1 accident	1993	1 accident
1984	2 accidents	1994	4 accidents
1985	1 accident	1995	3 accidents
1986	2 accidents	1996	2 accidents
1987	2 accidents	1997 (4 months)	2 accidents
1988	2 accidents		
1989	1 accident	TOTAL	40 accidents

Table I-4 continued on next page.

Table I-4 (continued): Tabulation of 17 Years + 4 Months Fatal Accident Data
(January 1980 through April 1997)
(see Figures I-1A through I-1D)

◆ **Distribution of Accidents by Collision Type**

	See Fig. I-1A	See Fig. I-1B	See Fig. I-1C	See Fig. I-1D	Total
Angle	5	0	0	3	8 (20%)
Rear End	1	1	0	0	2 (5%)
Fixed Object	0	2	1	1	4 (10%)
Opposite Direction	2	6	0	15	23 (57.5%)
Sideswipe	0	0	0	1	1 (2.5%)
Left Turn	0	0	0	0	0 -
Pedestrian	0	0	0	1	1 (2.5%)
Parked Vehicle	0	0	0	0	0 -
Other (Bicycle)	0	0	1	0	1 (2.5%)
Totals	8	9	2	21	40

◆ **Distribution of Accidents by Day/Night**

Day	6	4	2	7	19 (48%)
Night	2	5	0	14	21 (52%)
Totals	8	9	2	21	40

◆ **Distribution of Accidents by Pavement Surface Condition**

Wet	1	3	0	7	11 (28%)
Dry	7	6	2	14	29 (72%)
Totals	8	9	2	21	40

◆ **Distribution of Accidents by Location**

US 113 @ Intersecting Cross Street		11 (28%)
Along US 113 Between Intersections		29 (72%)
	Total	40

◆ **Distribution of Accidents by Driver's Familiarity & Fault**

"At-Fault" Driver	-	Driver #2/Other		
Local		Local		24 (60%)
Local		Out-of-Town		4 (10%)
Local		Fixed Object		4 (10%)
Local Pedestrian		Local		1 (2%)
Out-of-Town		Out-of-Town		3 (8%)
Out-of-Town		Local		3 (8%)
Bicyclist		Out-of-Town		1 (2%)
			Total	40

D. Planning and Project History

Historical information for US 113 is presented in Chapter II Section A. of this document. A project planning study for the dualization of US 113 was originally conducted in the early 1970's and an alignment was selected at that time. Since right-of-way was not preserved, development has occurred along that alignment. The next study began in the late 1980's which addressed the changes in environmental regulations and updated the previous study. Several alternatives and their impacts were identified. An Alternates Public Meeting was held in November of 1990 and shortly thereafter, the project was dropped with the understanding that many of the safety and congestion issues could be resolved through local intersection improvements by SHA's District 1 office. Many local intersection improvements have been implemented and have had positive effects. Several additional improvements have been identified and are scheduled for implementation as funding becomes available. A list of local intersection improvements and their completion dates (some dates are projected) is included in Table II-1 under No-Build improvements.

Fatalities have been occurring along US 113 at an alarming rate. A local citizens group, County Residents Action for Safer Highways (CRASH), have been very vocal in their support for improvements to the two-lane portions of US 113 from Snow Hill to the Delaware state line in order to address the fatal accidents occurring along the corridor. As a direct consequence of the efforts of CRASH, the Governor and study area elected officials (senators, delegates, and mayors) requested that SHA study the characteristics of US 113 and develop solutions that will create a safer roadway. A primary goal of this project has been to identify safety solutions, thereby minimizing future fatal accidents.

SHA held an Alternates Public Workshop on November 30, 1995 from 5:00 to 8:00 PM at the Berlin Middle School to present the preliminary alternatives for public comment. In addition to aerial mapping showing the preliminary TSM and dualization alternatives, a slide show concerning the US 113 planning process and information regarding environmental impacts, accident statistics, and right-of-way acquisition procedures were also available. SHA representatives were available to answer questions. More than 200 citizens attended the meeting, including local politicians and the media. A total of 42 comments were received from mailers, letters, and citizens at wall displays. In general, almost all comments agreed that further improvements are needed throughout, and almost half were in favor of a relocated US 113 in the northern study area. Comments and ideas received at the workshop were incorporated into the development of the detailed alternatives. The following summarizes the comments received at and following this meeting:

- Nine people were in favor of dualizing US 113, with no preferred alternative.
- Two people were opposed to dualizing US 113.
- At the northern end of the project, 16 people were in favor of relocating US 113.
- Two people were in favor of widening US 113, specifically along its current location.
- Several people supported lower speed limits along US 113.
- Several people would like to see the project move along quickly.
- Several people strongly agreed that further spot improvements are needed.

The following responses address comments offered by the public as a result of the Alternates Public Meeting concerning lowering the speed limits and increasing enforcement:

Lowering Speed Limit: The possibility of lowering the speed limit along US 113 was investigated, however, neither the SHA nor the State Police recommend lowering the speed since this may cause additional safety problems. Currently, US 113 is posted for the appropriate speed and lowering the speed below the operating speed would cause some drivers to slow down in order to obey the posted speed while others may not obey the speed limit. This could cause rear-end type collisions or additional accidents by drivers attempting to pass the "slow" moving vehicles.

Increase Enforcement: A special enforcement team has been assigned to US 113 to look for aggressive drivers. A motorcycle team will be working radars in the project area. Use of headlights on "all the time" along the two-lane stretches of US 113 also went into effect on April 30, 1997. Four trucking companies in the area were using headlights prior to this date.

E. County and State Programs

The Comprehensive Development Plan for Worcester County, adopted in 1989, identifies US 113 as a key element of the county's regional arterial highway system. The plan recognizes the need to upgrade US 113 and recommends that Worcester County work with the State of Maryland to develop a plan of improvements along US 113 and MD 90 that meets the needs of the County. This Development Plan calls for US 113 to be upgraded to four lanes throughout its length. This project has been included in the Highway Needs Inventory (HNI) since the early 1960's. In the 1970's, the dualization of the roadway was studied; the present HNI shows dualization of the roadway which would provide continuity along US 113.

The current project planning study is included in the Development and Evaluation Section of the Maryland Department of Transportation 1997-2002 Consolidated Transportation Program (CTP). This project was added to the 1995 program in response to the safety concerns raised by elected officials and the citizens' group, CRASH, which was formed specifically to address improvements that promote safe travel on US 113 and MD 90.

Other related projects included in the 1997-2002 CTP within Worcester County are:

- safety improvements and median barrier along 4.4 miles of MD 90 east of US 113 (funded in construction program).
- safety study along MD 90 between US 50 and US 113.
- bicycle/pedestrian bridge parallel to Verrazano Bridge over Sinepuxent Bay (now under construction).
- other minor roadway surfacing / local intersection improvement projects.

F. Relationship to Other Modes of Transportation

The Worcester County Commission on Aging, located in Snow Hill, operates the general public, elderly and disabled transportation service on demand for the County. The general public service operates seven days per week, providing service between Pocomoke City, Snow Hill, Berlin, Ocean City and Selbyville, Delaware. The demand response service operates Monday through Friday, providing door-to-door service throughout the county.

The Worcester County transportation system operated 162,850 miles providing 23,752 trips during FY 1995. The Commission on Aging utilizes six buses to operate its general public service and ten vehicles to provide its demand response service.

At this time, there are no immediate plans to expand service. In FY 1997, however, a Transportation Development Plan (TDP) will be completed. The TDP will evaluate current service, recommend changes to improve efficiency and to meet any unmet demand. In addition, future service for the next five years will be considered and appropriate recommendations will be made.

Currently, there are no Park-n-Ride facilities in the area served by transit.

Throughout the study area, the Maryland and Delaware Railroad (MDDE) line between Frankford, Delaware and Snow Hill, Maryland is parallel to US 113 (including grade crossings near Bishop and Newark). The rail line consists of a single track and accommodates train operations up to 25 miles per hour (meeting Federal Railroad Administration Class 2 standards). The MDDE provides only freight service on this line and serves customers in Bishop, Berlin and Snow Hill. Service is provided two to three days per week and usually occurs on weekdays during daylight hours. Service is occasionally provided over three consecutive days, however, including weekends, to meet special needs of shippers in the Snow Hill area. All MDDE traffic on this line is currently interchanged with the Consolidated Rail Corporation at Frankford, Delaware.

II.
ALTERNATIVES CONSIDERED

US 113 Planning Study
Snow Hill, Maryland to Delaware State Line

Office of Planning and Preliminary Engineering
Maryland State Highway Administration

II. ALTERNATIVES CONSIDERED

A. History of US 113

The US 113 project corridor follows a very old north-south route along the high ground between the Pocomoke River and Sinepuxent Bay. A road was in place by 1697 and was cited as "... the Road going up along the Sea Side" (Torrence 1935:p.243). Patents for land in the area of Snow Hill had been issued as early as 1670 and the town was created by a legislative decree in 1686. An early map (1670) by Augustine Herrman was the first to show European settlements along the Pocomoke River and plantations on both sides of the river from the bay to Dividing Creek in the south part of Worcester County. Based on the Herrman map and other evidence, it appears that the project vicinity was first settled by Europeans after 1670, but not in significant numbers until the late 1680's.

As the Eastern Shore was settled, a network of dirt roads connected the various towns. By the 1700s, a north-south highway, roughly following US 13 and US 113 of today, started at Newcastle, passed through Dover, Milford and Georgetown in Delaware, and then St. Martin's, Snow Hill and Pocomoke in Maryland, before proceeding down the Eastern Shore of Virginia to Cape Charles. This gave the lower Eastern Shore a direct route to the North (Source: *A History of Road Building in Maryland* State Roads Commission of Maryland, 1958).

US 113 was an earth and shell road until 1906, when the portion at Snow Hill was paved during the 1906 through 1921 time period. By 1912, US 113 between Snow Hill and Berlin was paved; Berlin to Showell was paved between 1916 and 1917; and Showell to the Delaware state line was paved by 1921. (Source: *Construction Record for Roadlife Studies,* State Roads Commission Statewide Highway Planning Survey).

Today, US 113 links the widely separated major population centers of Pocomoke City, Snow Hill, Berlin, and Ocean City (via US 50 or MD 90) within Worcester County. Both Worcester County residents and interstate travelers rely on US 113 to serve their long-distance travel needs through the eastern position of Delmarva.

Recognizing this travel characteristic, US 113 is designated a Principal Arterial on the Federal Functional Classification System of Highways, which was jointly developed by Worcester County and the SHA and approved by FHWA. It is an Intermediate Arterial on the State Functional Classification System of Highways. Since these functions serve the long distance traveler, a high degree of mobility is the most important factor in designing future improvements. Arterials have high design speeds to facilitate the movement of traffic over long distances and to provide better safety features. Control of access is particularly desirable on the highest classes of arterials to limit the side friction land access causes. Since many arterials are also often high volume roadways, a divided highway with the appropriate degree of access control is the preferred design when warranted by traffic demand.

As an important regional arterial, US 113 is part of the State Primary Highway System, a limited mileage system of highways deemed essential to Maryland's economic and social well being. This 1,280 mile system links the state's major urban centers and county seats via mostly dualized highways, many with access controls. Perhaps even more important, US 113 has been designated as a National Highway System route. This is a selective system of nationally important highways that has a specified FHWA funding source provided by Congress.

B. Preliminary Alternatives

On the basis of the project need as discussed in Chapter I and environmental constraints identified in the project corridor as shown in Chapter III of this document, preliminary alternatives for improvements to the existing two-lane portions of US 113 were developed. These preliminary alternatives were presented during the Alternates Public Meeting Workshop, held in November 1995, using aerial photography showing all of the known environmental features and alignments. Following this Workshop, alignments were retained for further engineering and environmental studies. The alternatives presented in this Draft Environmental Impact Statement (DEIS) have been presented at public meetings and to the environmental approval agencies (federal and state).

As shown on Figure S-1 and Figures S-2A through 2D, the US 113 planning study consists of two study areas:

- The **southern study area** extends from the existing dualized portion of US 113 just south of Snow Hill to the existing dualized portion of US 113 just south of Berlin, a distance of approximately 16.3 miles. Alternatives in the southern study area are designated with an "**S.**"

- The **northern study area** extends from the existing dualized portion of US 113 just north of Berlin to the Delaware state line, a distance of approximately 7.5 miles. Alternatives in the northern study area are designated with an "**N.**"

Development of project alternatives began in early 1995 with the preparation of an environmental inventory of resources in the study area. Environmental constraints mapping was developed using existing data sources including National Wetland Inventory (NWI) maps, Federal Emergency Management Agency (FEMA) 100-year floodplain maps, and Maryland Historical Trust (MHT) files. The results of field work further refined wetland boundaries shown on the NWI and Department of Natural Resources (DNR) Wetland Inventory mapping, verified known and previously unknown historic sites, and assessed the potential for archeological resources.

State and federal regulatory agencies have had the opportunity to review and comment on development of this study. Interagency Review meetings, hosted by the Maryland State Highway Administration (SHA), have served as a forum for interaction between the agencies and the study team on the project's purpose and need and the alternatives retained for detailed study. The goal of the Interagency Review meetings is to identify critical issues and resolve problems early in the planning process. The following agencies have participated in the Interagency Review meetings:

- Federal Highway Administration
- US Army Corps of Engineers
- US Environmental Protection Agency
- US Fish and Wildlife Service
- National Marine Fisheries Service
- Maryland Department of the Environment
- Maryland Department of Natural Resources
- Maryland Historical Trust
- Maryland Office of Planning

A summary of the issues addressed at each Interagency Review and Field Review meeting is provided in Chapter VI, Comments and Coordination.

SHA has met on several occasions with local public officials, representatives from the County Residents Action for Safer Highways (CRASH) organization, and local communities including Friendship to provide information regarding the status of the project and to obtain input from local citizens on alternative modifications.

C. Alternatives Presented at the Alternates Public Workshop

1. Introduction

SHA held an Alternates Public Workshop on November 30, 1995 to present the preliminary alternatives for public comment. Comments and ideas received at the workshop were incorporated into the development of the detailed alternatives.

Preliminary alternatives considered for the **southern study area** included the No-Build (Alternative 1S), TSM (Alternative 2S), and dualization along the existing alignment (Alternative 3S). The TSM Alternative provided local intersection improvements such as signing, lighting, and marking as well as turning and acceleration/deceleration lanes, and bypass lanes. Alternative 3S, a Dualization Alternative, included the construction of a two-lane roadway parallel to the existing road resulting in a four-lane divided roadway with a 34-foot median. Figures II-1A through 1D depicts the preliminary alignment of Alternative 3S.

In the **northern study area**, the preliminary alternatives considered included No-Build (Alternative 1N), TSM (Alternative 2N), dualization along the existing alignment (Alternative 3N) and dualization along new alignment (Alternative 4N with options). The No-Build and TSM Alternatives, as well as the dualization along the existing alignment (Alternative 3N) were similar in concept to those alternatives developed for the southern study area. The dualization on new alignment (Alternative 4N with options) involved the construction of a new four-lane, divided roadway on new location away from the existing US 113 alignment. Alternative 4N departed existing US 113 north of US 50, headed in a northerly direction along the west side of the existing roadway in the Friendship/Jones area, and traversed through the graded area reserved for the previously planned US 113/MD 90 interchange. It then crossed existing US 113 and ran to the east of the existing roadway through the Showell area. From

this point, it ran parallel to the east side of US 113 crossing over to the west side in the Bishop area, and tied back into the existing roadway just before the Delaware state line. In addition to the primary alignment (Alternative 4N), two options were developed (Options A and B). Options A and B would both left the Alternative 4N alignment just north of the graded US 113/MD 90 interchange area, ran with, and then to the east of the existing roadway and tied back into Alternative 4N just north of Showell. Figure II-1D shows the preliminary alignments of Alternatives 3N and 4N as well as Options A and B.

2. No-Build Alternatives (Alternatives 1S and 1N)

The No-Build Alternatives did not provide any significant safety or capacity improvements. Minor improvements would occur as part of normal maintenance and safety operations. The routine maintenance operations would not measurably affect roadway capacity or reduce the accident rate.

The No-Build Alternative has been retained for detailed study. Although this alternative does not meet the project need for safety and capacity improvements, it provides a basis for comparison of the impacts of the other alternatives. A list of improvements included under the No-Build Alternative is presented in Table II-1. Each improvement listed as part of the No-Build has been, or is currently programmed for, implementation.

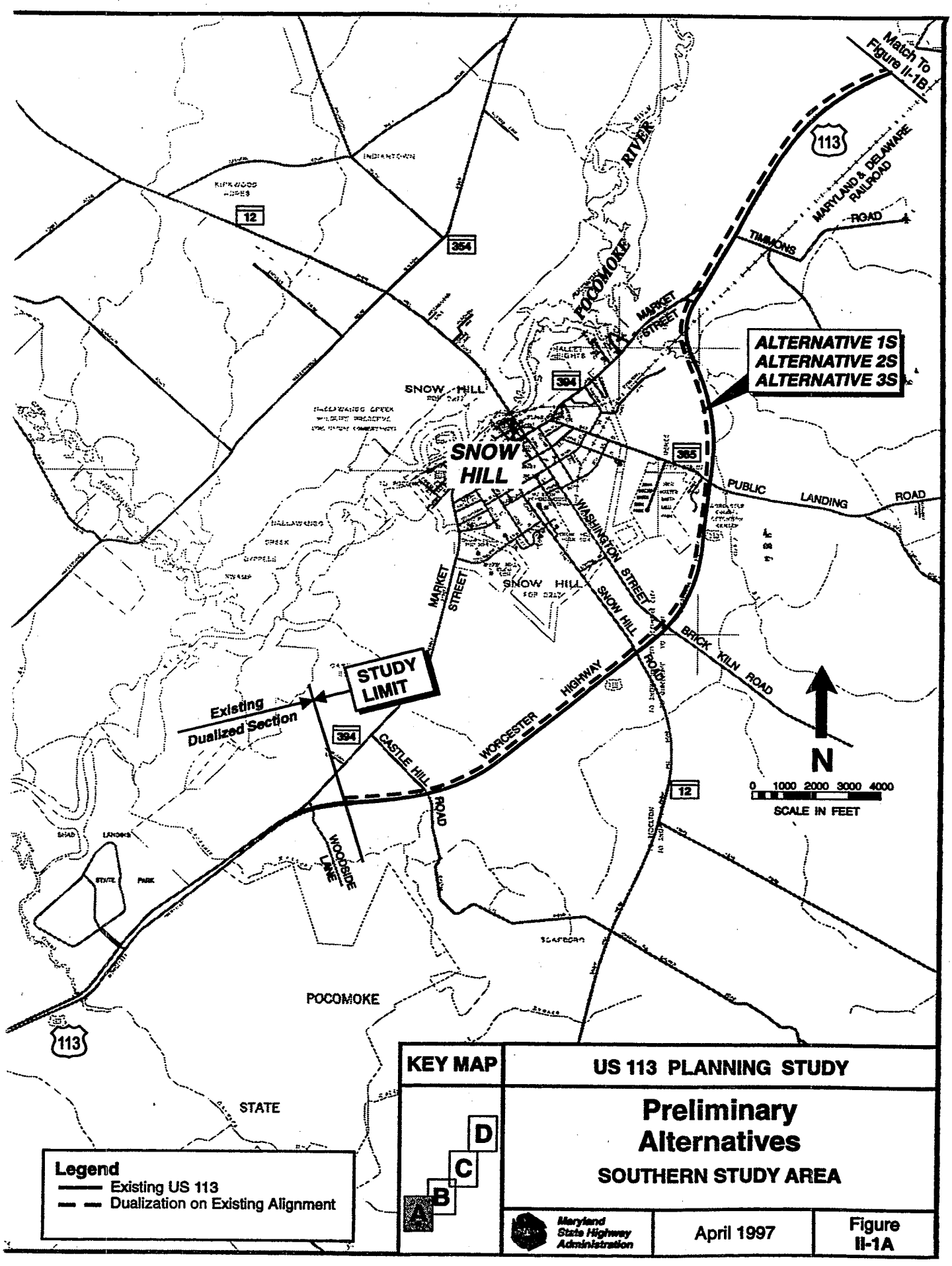
3. Transportation Systems Management Alternative (Alternatives 2S and 2N)

The Transportation Systems Management (TSM) Alternative provided local intersection improvements to the existing US 113 roadway. These improvements would be part of an integrated plan of phased safety and capacity improvements, as well as traffic management strategies to provide relatively low cost refinements to the existing transportation system. The TSM Alternatives included short-term spot improvements such as signing and marking, street lighting, warning flashers, traffic signals and intersection relocation, as well as longer-term improvements such as additional turning, acceleration/deceleration, and bypass lanes; skid resistant pavement overlays; rumble slots along the median and along the outside edges of pavement; and the limiting of passing through some areas.

The TSM Alternative has been retained for detailed study. Like the No-Build Alternative, the TSM Alternative does not address all of the safety issues along US 113 but does provide a low cost option to improve safety and operations at intersections along US 113.

Following the initial review of alternatives retained for detail study, additional feasible alternatives were identified that could possibly satisfy the need of the project and are analyzed in later sections of this Chapter. These Alternatives called for the inclusion of a median along the entire length of the two-lane roadway, with intersection improvements/turn lanes and passing lanes provided.

.2

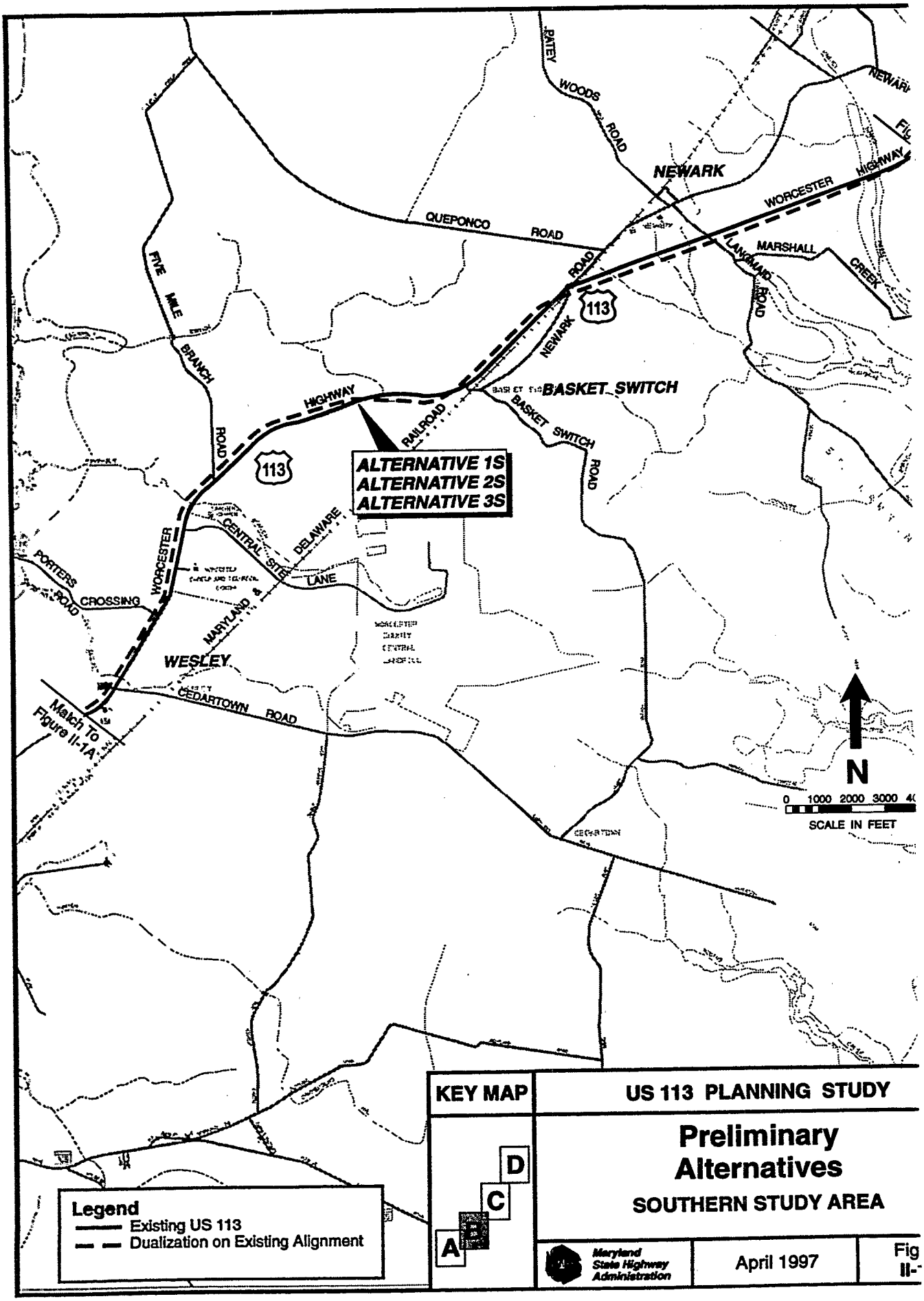


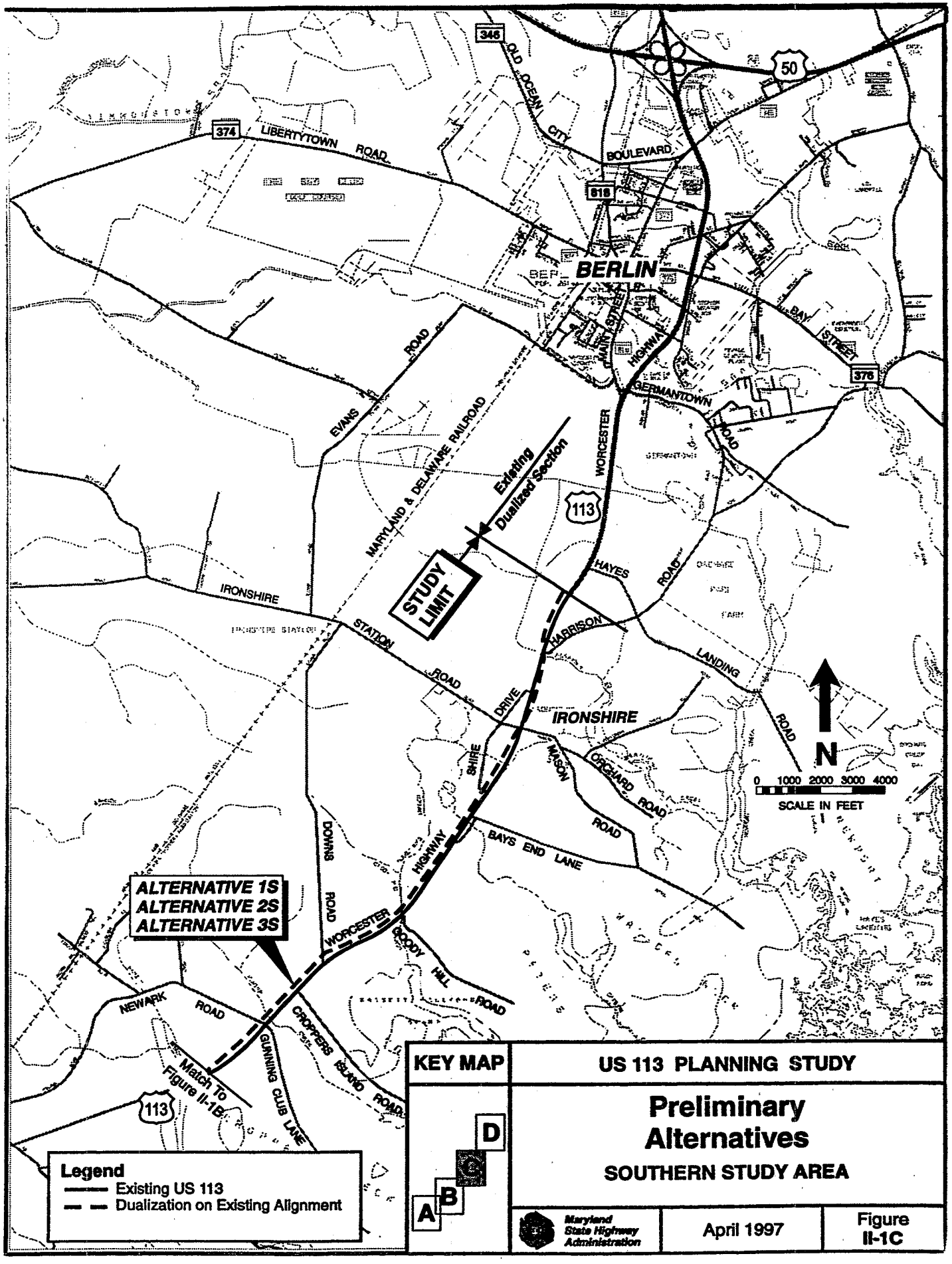
US 113 PLANNING STUDY

Preliminary Alternatives

SOUTHERN STUDY AREA

Maryland State Highway Administration | April 1997 | Figure II-1A


RATEY
WOODS ROAD
NEWARK
QUEPONCO ROAD
WORCESTER HIGHWAY
MARSHALL CREEK
LANGFORD ROAD
FIVE MILE BRANCH
ROAD
113
NEWARK
BASKET SWITCH
BASKET SWITCH ROAD
HIGHWAY
RAILROAD
ALTERNATIVE 1S
ALTERNATIVE 2S
ALTERNATIVE 3S
CENTRAL SITE
DELAWARE
LANE
PORTERS ROAD
CROSSING
WORCESTER
MARYLAND
WESLEY
CEDARTOWN ROAD
Match To Figure II-1A
N
0 1000 2000 3000
SCALE IN FEET
Legend
Existing US 113
Dualization on Existing Alignment
KEY MAP
A
C
D
US 113 PLANNING STUDY
Preliminary Alternatives
SOUTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Fig II-


346
OLD OCEAN CITY BOULEVARD
50
374
LIBERTYTOWN ROAD
818
BERLIN
MAIN STREET
BAY STREET
376
GERMANTOWN ROAD
EVANS ROAD
MARYLAND & DELAWARE RAILROAD
Existing Dualized Section
WORCESTER HIGHWAY
113
STUDY LIMIT
HAYES ROAD
IRONSHIRE STATION ROAD
HARRISON LANDING ROAD
IRONSHIRE
MASON DRIVE
ORCHARD ROAD
BAYS END LANE
DOWNS ROAD
WORCESTER HIGHWAY
GOODY HILL ROAD
ALTERNATIVE 1S
ALTERNATIVE 2S
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NEWARK ROAD
CROPPERS ISLAND ROAD
GUNNING CLUB LANE
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113
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Dualization on Existing Alignment
KEY MAP
A
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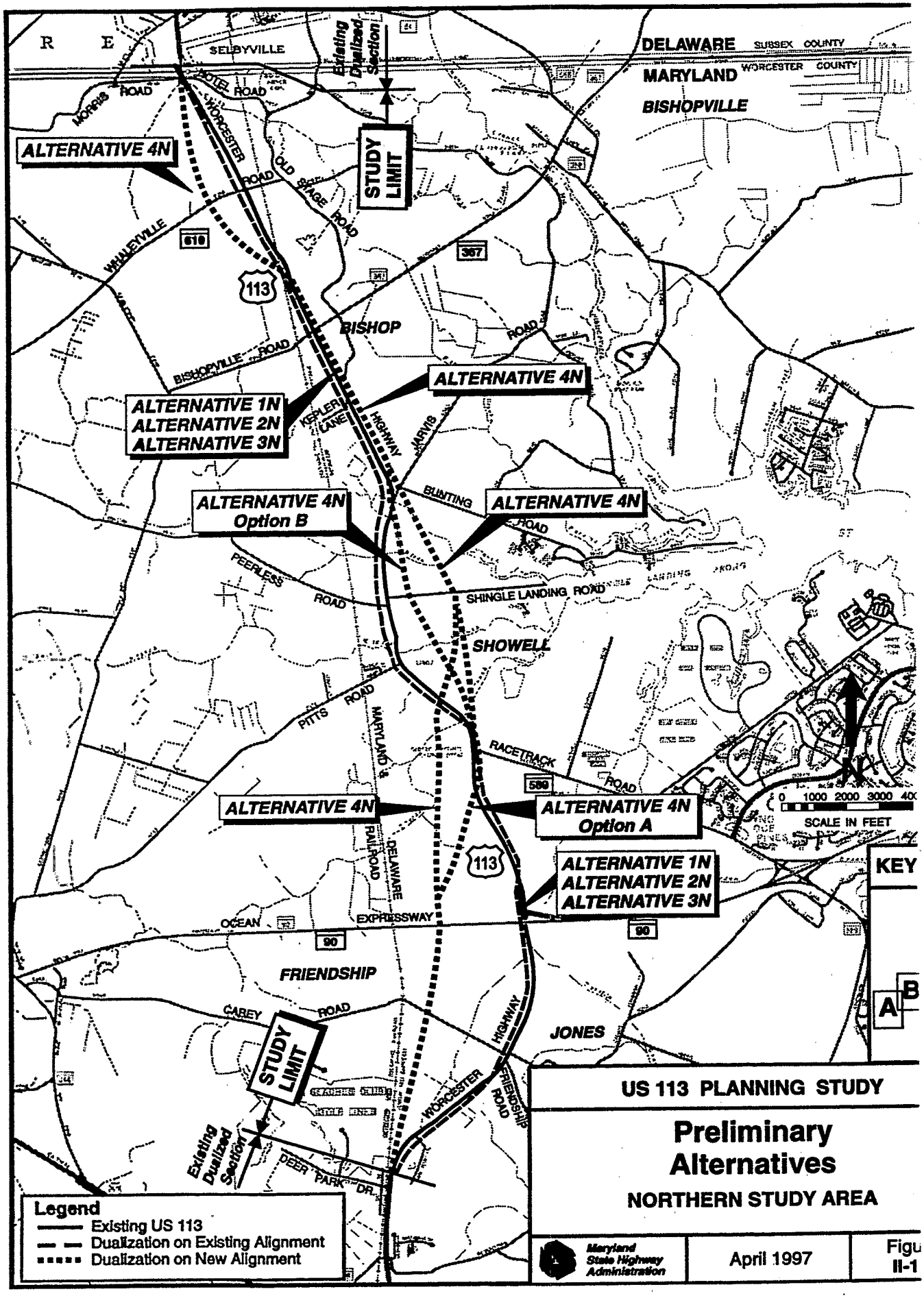
US 113 PLANNING STUDY
Preliminary Alternatives
SOUTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Figure II-1C


DELAWARE
SUSSEX COUNTY
MARYLAND
WORCESTER COUNTY
BISHOPVILLE
SELBYVILLE
Existing Dualized Section
STUDY LIMIT
ALTERNATIVE 4N
ALTERNATIVE 1N
ALTERNATIVE 2N
ALTERNATIVE 3N
ALTERNATIVE 4N Option B
ALTERNATIVE 4N Option A
SHOWELL
FRIENDSHIP
JONES
BISHOP
SHINGLE LANDING ROAD
PEERLESS ROAD
PITTS ROAD
RACETRACK ROAD
CAREY ROAD
OCEAN EXPRESSWAY
DELAWARE RAILROAD
MARYLAND
HIGHWAY
WORCESTER HIGHWAY
FRIENDSHIP ROAD
DEER PARK DR.
BUNTING ROAD
KEPLER LANE
JARVIS
WHALEYVILLE
BISHOPVILLE ROAD
OLD STAGE ROAD
HOTEL ROAD
MORRIS ROAD
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SCALE IN FEET
KEY
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Legend
Existing US 113
Dualization on Existing Alignment
Dualization on New Alignment
US 113 PLANNING STUDY
Preliminary Alternatives
NORTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Figu
II-1

Median widths evaluated as a part of this concept included a 6-foot median with a traffic barrier, a 20-foot median with traffic barrier, and a 34-foot depressed grass median.

The original TSM Alternatives are referred to as Alternatives 2S and 2N in this document. These alternatives now include a full-length pavement overlay and raised pavement markers.

On the basis of the higher traffic volumes and capacity problems for any two-lane concept in the northern study area, no further evaluations of Alternative 2N-Median were made and it was dropped from detailed study. In the southern study area, the 6-foot median option was dropped because of the inability to provide left turn lanes or "shelter" vehicles within the 6-foot wide median as well as the unacceptably too narrow offset distance between the travel lanes and the face of the barrier (2-feet). While the 34-foot wide median was supported by some agencies for improved water quality, it too was dropped from further consideration because its environmental impacts were nearly identical to the already developed Alternative 3S with 20-foot wide median. The 34-foot wide median could be considered as a design option. The two-lane concept with a 20-foot wide median and traffic barrier was retained for the southern study area and is presented as Alternative 2S-20' Median. A detailed description of the Alternative 2S-20' Median is included in the next section of this Chapter (Section II-D.4).

4. Dualization Alternatives

All the dualization alternatives were proposed as four-lane divided roadways with access partially controlled. Median and roadside landscaping would also be included.

◆ Dualization on Existing Alignment (Alternatives 3S and 3N)

Dualization of existing US 113 involved the construction of a new two-lane roadway adjacent to the existing facility and the retention of the existing roadway where possible as either the northbound or southbound roadway. These alternatives used existing right-of-way to the extent possible. The new roadway would be constructed on either the east or west side of the existing roadway to minimize impacts to the natural environment and reduce the number of residential and commercial displacements. The typical roadway section would consist of two 12-foot travel lanes in each direction, a 34-foot depressed grass median, 10-foot outside shoulders, and 20-feet of safety grading where possible.

Following the initial review of alternatives retained for detail study, additional feasible alternatives were identified that could possibly satisfy the need of the project and are analyzed in later sections of this Chapter. One alternative called for a 20-foot wide median with traffic barrier. These new alternatives are referred to as Alternatives 3S-20' Median and 3N-20' Median.

Consequently, the previous Alternatives 3S and 3N have been renamed Alternatives 3S-34' Median and 3N-34' Median.

In addition to these median width options, safety grading options were also evaluated in only the northern study area (i.e. 50 MPH or 60 MPH design speeds).

Each of these alternatives is described in detail in the next section of this Chapter (Section II-D).

- **Dualization on New Alignment (Alternative 4N with Options)**

The dualization on new alignment involved the construction of a new four-lane divided roadway away from the existing US 113 facility. The roadway would be constructed on new location to minimize impacts to residential and commercial properties. The typical roadway section consisted of two 12-foot travel lanes in each direction, a 34-foot depressed grass median, 10-foot outside shoulders, and 20-feet of safety grading on both sides of the roadway.

Alternative 4N left existing US 113 north of US 50, headed in a northerly direction on the west side of the existing roadway in the Friendship area and traversed through the graded area reserved for the previously planned MD 90 interchange. It then crossed existing US 113 and continued on the east side of the existing roadway through the Showell area. From this point, it continued parallel to and just on the east side of US 113 crossing over to the west side in the Bishop area, and tied back into the existing roadway just before the Delaware state line.

Alternative 4N had two optional alignments in the Showell area. Options A and B both left the Alternative 4N alignment just north of the graded US 113 / MD 90 interchange area, followed with, and then on the east side of the existing roadway and tied back into Alternative 4N just north of Showell.

Following the Alternates Public Workshop, SHA made the decision to carry only portions of the new alignment Dualization Alternatives ahead for detailed study. The rational for dropping the other roadway segments is as follows:

North of the MD 90 interchange, the original Alternative 4N alignment was dropped to avoid a residential displacement, reduce right-of-way costs by approximately $500,000, reduce wetland impacts at the proposed Church Branch crossing by 0.6 acres, reduce woodland impacts by 2.4 acres, reduce farmland impacts by 5.5 acres, reduce forested habitat fragmentation in the vicinity of Church Branch, and avoid impacts to the historic Saint Martin's Church. The Alternative 4N Modified alignment retained for detailed study has been shifted slightly from the original Alternative 4N Option A/B alignment to avoid a residential displacement while not creating any additional impacts in the vicinity.

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From North of Racetrack Road (MD 589) to Jarvis Road, the remaining portions of Alternative 4N and Alternative 4N Option A were dropped from detailed study to reduce forested habitat fragmentation and wetland impacts (approximately 1.4 acres) associated with Middle and Birch Branches and to avoid conflicts with on-going and proposed residential development along Shingle Landing Road. Alternative 4N Option B was realigned for Alternative 4N Modified to tie back into existing US 113 just north of Shingle Landing Road to avoid five residential displacements and minimize conflicts with the on-going development to the east.

From Jarvis Road to just north of Bishopville Road (MD 367), the original Alternative 4N has been shifted to use existing US 113 as the proposed southbound roadway, thereby reducing the required right-of-way and the associated natural and socioeconomic impacts. North of Bishopville Road, the original Alternative 4N diverged from existing US 113 to the west to avoid three residential and two business displacements. The Alternative 4N Modified alignment uses a flatter curve to reduce wetland impacts by 1.5 acres and reduce forested habitat fragmentation.

Following the initial review of alternatives retained for detail study, additional feasible alternatives were identified that could possibly satisfy the need of the project and are analyzed in later sections of this Chapter. This alternative called for a 20-foot wide median with traffic barrier. This new alternative is referred to as Alternative 4N Modified-20' Median, with the previous alternative now referred to as Alternative 4N Modified-34' Median.

Each of these alternatives is described in detail in the next section of this Chapter (Section II-D).

D. Alternatives Currently Under Consideration

1. Introduction

As previously discussed in the Summary, a total of fifteen (15) alternatives are under consideration for the US 113 study area. Text and typical sections for these alternatives are presented in this Chapter; plans at a scale of 1"=400' are presented in Appendix A (Figures 1 through 7 for Alternative 2S-20' Median; Figures 8 through 17 for the dualization alternatives). Impacts associated with these alternatives are fully addressed in Chapters IV and V of this document and are compared on Table S-1.

All reasonable alternatives are now under consideration; a decision will be made after the alternatives' impacts and comments on the DEIS and from the public hearing have been fully evaluated. The following lists the fifteen (15) alternatives presented in detail in this document:

◆ **Southern Study Area: 16.3 miles**

- **Alt. 1S:** No Build - retain existing one lane per direction.
- **Alt. 2S:** Transportation Systems Management (TSM) - one lane per direction with intersection improvements
- **Alt. 2S-20' Median:** One lane per direction with 20-foot wide median/guardrail and passing lanes (and 60 MPH design speed).
- **Alt. 3S-20' Median:** Dualization to provide 4 lanes along existing US 113 and 20-foot wide median/guardrail (and 60 MPH design speed).
- **Alt. 3S-34' Median:** Dualization to provide 4 lanes along existing US 113 and 34-foot wide median (and 60 MPH design speed).

◆ **Northern Study Area: 7.5 miles**

- **Alt. 1N:** No Build: retain existing one lane per direction.
- **Alt. 2N:** Transportation Systems Management (TSM) - one lane per direction with intersection improvements.
- **Alt. 3N-20' Median/50 MPH:** Dualization to provide 4 lanes along existing US 113 with 20-foot wide median/guardrail and 50 MPH design speed.
- **Alt. 3N-34' Median/50 MPH:** Dualization to provide 4 lanes along existing US 113 with 34-foot wide median and 50 MPH design speed.

- **Alt. 3N-20' Median/60 MPH:** Dualization to provide 4 lanes along existing US 113 with 20-foot wide median/guardrail and 60 MPH design speed.

- **Alt. 3N-34' Median/60 MPH:** Dualization to provide 4 lanes along existing US 113 with 34-foot wide median and 60 MPH design speed.

- **Alt. 4N Modified-20' Median:** Dual highway in new location to provide 4-lanes with 20-foot wide median/guardrail (and 60 MPH design speed)

- **Alt. 4N Modified-34' Median:** Dual highway in new location to provide 4-lanes with 34-foot wide median (and 60 MPH design speed)

- **Alt. 3N/4N Modified-20' Median:** Combination of Alts. 3N & 4N Modified to provide 4 lanes with 20-foot wide median/guardrail (and 60 MPH design speed)

- **Alt. 3N/4N Modified-34' Median:** Combination of Alts. 3N & 4N Modified to provide 4 lanes with 34-foot wide median (and 60 MPH design speed)

2. No-Build Alternatives (Alternatives 1S and 1N) - Baseline

The No-Build Alternatives would not provide major improvements to the existing US 113 roadways. Minor improvements would occur as part of normal maintenance and safety operations. These improvements, however, do not provide features that would prevent further opposite direction collisions where the probable cause is identified as the failure to drive in the designated lane or failure to keep right of the centerline. Specific improvements recently implemented or programmed for implementation are listed in Table II-1, locations of these improvements are shown on Figures II-2A through II-2D. Typical sections are shown on Figure II-3. The routine maintenance operations would not measurably affect roadway capacity or reduce the accident rate. Spot improvements would continue as funding becomes available. Although the No-Build Alternatives will not meet the project need, they are being used as a basis of comparison for analysis of the other alternatives.

3. Transportation Systems Management Alternatives Alternatives 2S and 2N

The Transportation Systems Management (TSM) Alternatives would provide improvements along the existing roadway to enhance safety and reduce traffic congestion without major alteration to the existing two-lane highway. The proposed TSM improvements include intersection improvements and additional measures to improve the safety of the existing two-

lane roadway. While these improvements are not presently programmed for implementation, they would be part of an integrated plan of phased safety and capacity improvements. The TSM Alternatives include the continued short-term spot improvements such as signing and marking, street lighting, warning flashers, and addresses longer-term improvements with additional turning, acceleration/deceleration, and bypass lanes; skid resistant pavement overlays; rumble slots along the centerline and along the outside edges of pavement; and, the limiting of passing through some areas. The improvements would be prioritized by SHA during the final design phase. Specific TSM improvements are listed in Table II-1, locations of these improvements are shown on Figures II-2A through II-2D. Typical sections are shown on Figure II-3.

The estimated construction costs for the TSM Alternatives 2S and 2N are as follows:

- **Alternative 2S** (see Tables II-1A, -1B, -1C and Figures II-2A, -2B, -2C)

  Total Cost for Improvements = $6.4 M

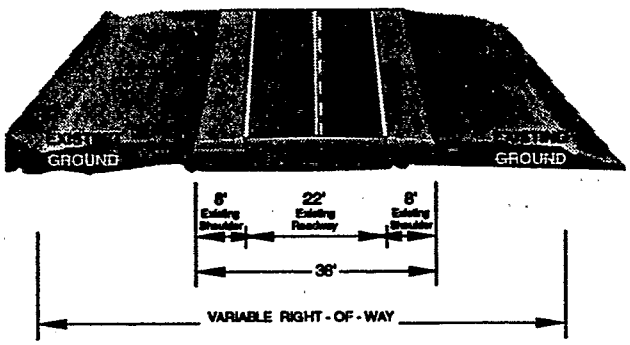
  This cost includes installing a skid resistant pavement overlay and Hazard Warning Rumble Slots along the length of the study area on the center line and on the outside edges of pavement and spot intersection improvements.

- **Alternative 2N** (see Table II-1D and Figure II-2D)

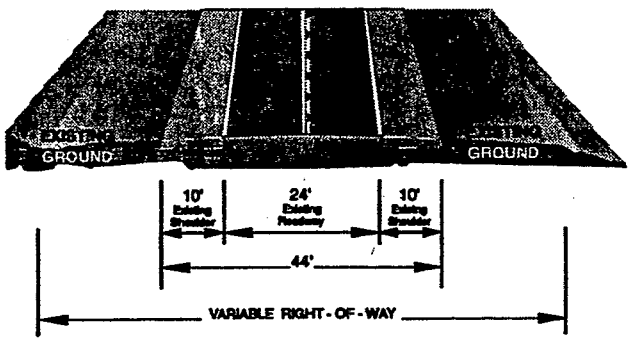
  Total Cost for Improvements = $2.2 M

  This cost includes installing a skid resistant pavement overlay and Hazard Warning Rumble Slots along the length of the study area on the center line and on the outside edges of pavement and spot intersection improvements.

2



ALTERNATIVE 1N - NO BUILD
ALTERNATIVE 2N - TSM



ALTERNATIVE 1S - NO-BUILD
ALTERNATIVE 2S - TSM

NOTE: TSM includes full width skid resistant pavement overlay with rumble slots in shoulders and along centerline.

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

US 113 PLANNING STUDY

Typical Sections
Alternatives 1S & 1N No-Build
Alternatives 2S & 2N TSM

Maryland State Highway Administration	April 1997	Figure II-3

4. Alternative 2S-20' Median (see Appendix A, Figures 1 through 7)

Improvement alternatives along the existing US 113 alignment which provided a median but retained the one-travel lane per direction configuration were developed in early 1997 following an initial review of the environmental impacts of the alternatives then under consideration. These new alternatives addressed a two-lane roadway with various median widths, passing lanes as required, and 10-foot shoulders. The median widths evaluated were:

- a 6-foot median with a traffic barrier
- a 20-foot median with a traffic barrier
- a 34-foot depressed grass median

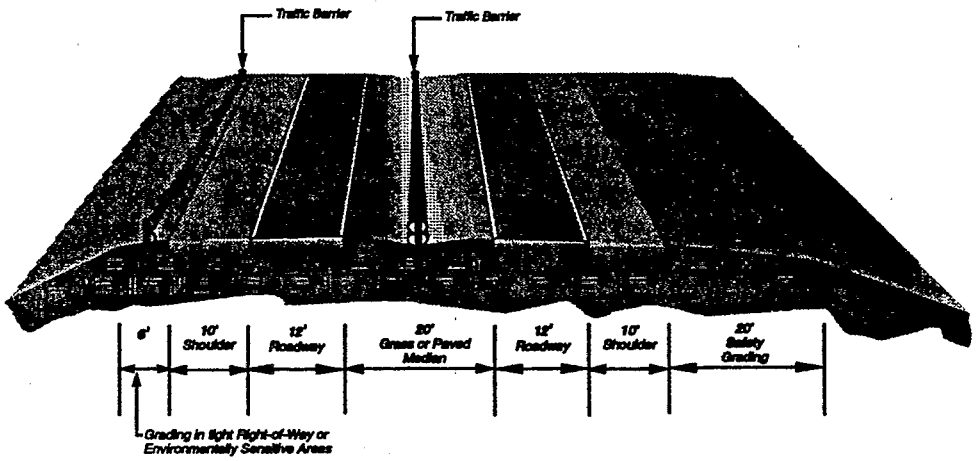
While intersection improvements would also be incorporated into these designs, these alternatives do not address all of the safety issues along US 113. These alternatives would introduce some new safety concerns and do not fully address capacity/operational problems, however, they would provide relatively low cost options to improve safety at intersections along US 113 and improve safety along the roadway.

As previously discussed in Section II.C.3 of this document, the 6-foot wide median option was not evaluated further because of the inability to provide left turn lanes or "shelter" vehicles at intersections within the narrow median. Also, the 34-foot median option was not further evaluated, primarily because its impacts would be nearly identical to the already developed Alternative 3S-20' median. A two-lane typical section with a 34-foot wide median could be considered as a design option. And finally, the higher traffic volumes and capacity problems in the northern study area precluded further consideration of Alternative 2N-Median options.

Consequently, only Alternative 2S-20' Median is addressed in this document. Typical sections for Alternative 2S-20' Median are shown on Figure II-4. Detailed plans for the Alternative 2S-20'-Median, at a scale of 1" = 400', are presented in Appendix A, Figures 1 though 7.

On the south, Alternative 2S-20' Median begins approximately 1,000' north of Woodside Lane as a transition from two travel lanes per direction separated by a 75-foot± wide median to one travel lane per direction separated by a 20-foot wide median with traffic barrier. Through the first curve, the alignment would stay on the east side of the existing roadway.

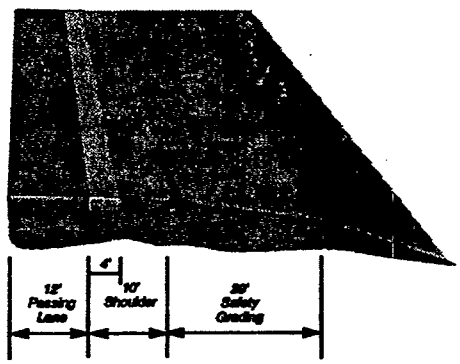
Continuing north, the new northbound lane would be constructed parallel to and east of the existing roadway (to become the new southbound lane) utilizing existing US 113 as the southbound lane. This section of the alignment intersects with Castle Hill Road, Snow Hill Road (MD 12), Washington Street/Brick Kiln Road, and Public Landing Road (MD 365), and passes over Purnell Branch, intersects with the Maryland and Delaware Railroad, Market Street (MD 394N) and Timmons Road. Immediately north of Public Landing Road (MD 365), a northbound passing lane 12-feet in width and approximately 1 mile in length would be provided. This lane would end just past the Market Street (MD 394N) intersection. As shown on Appendix A, Figures 1, 2 and 3, the majority of the right-of-way for this alternative is already in place.



ALTERNATIVE 2S - 20' MEDIAN (2 - LANES DIVIDED)

NOTE:
Passing lanes 12-feet in width and approximately 1 to 1.25 miles in length would be provided at the following locations:

- Northbound between Public Landing Road (MD365) and Market Street (MD 394N)
- Southbound between Timmons Road and Cedartown Road
- Northbound between Basket Switch Road and Langmaid Road
- Southbound between Langmaid Road and Gunning Club Road/Newark Road



ALTERNATIVE 2S - 20' MEDIAN (SHOWING PASSING LANE)

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

US 113 PLANNING STUDY

Typical Sections
Alternative 2S - 20' Median

Maryland State Highway Administration	April 1997	Figure II-4

Alternative 2S-20' Median then curves to the east, 3,600 feet north of Timmons Road, passing in front of the Snow Hill Mennonite Church along the west side of US 113. Between Timmons Road and Cedartown Road, a southbound passing lane 12-feet in width and approximately 1 mile in length would be provided.

Continuing in a northeasterly direction to 1,300 feet south of Cedartown Road, this alternative parallels the existing roadway to the west, utilizing existing US 113 as the northbound lane. The alignment then curves to the north, intersecting with Cedartown Road.

Continuing in an northeasterly direction, this alternative parallels existing US 113 on the west, utilizing approximately 8,800 feet of existing US 113 as the northbound lane. This section of the alignment crosses over both Poorhouse Branch and Five Mile Branch, and intersects with Porters Crossing Road, Central Site Lane and Five Mile Branch Road. Approximately 200 linear feet of Five Mile Branch Road would be reconstructed to improve its intersection with US 113.

The alignment then curves to the east and stays on the west side of existing US 113. To accomplish this transition, approximately 1,600 linear feet of the existing roadway would be reconstructed.

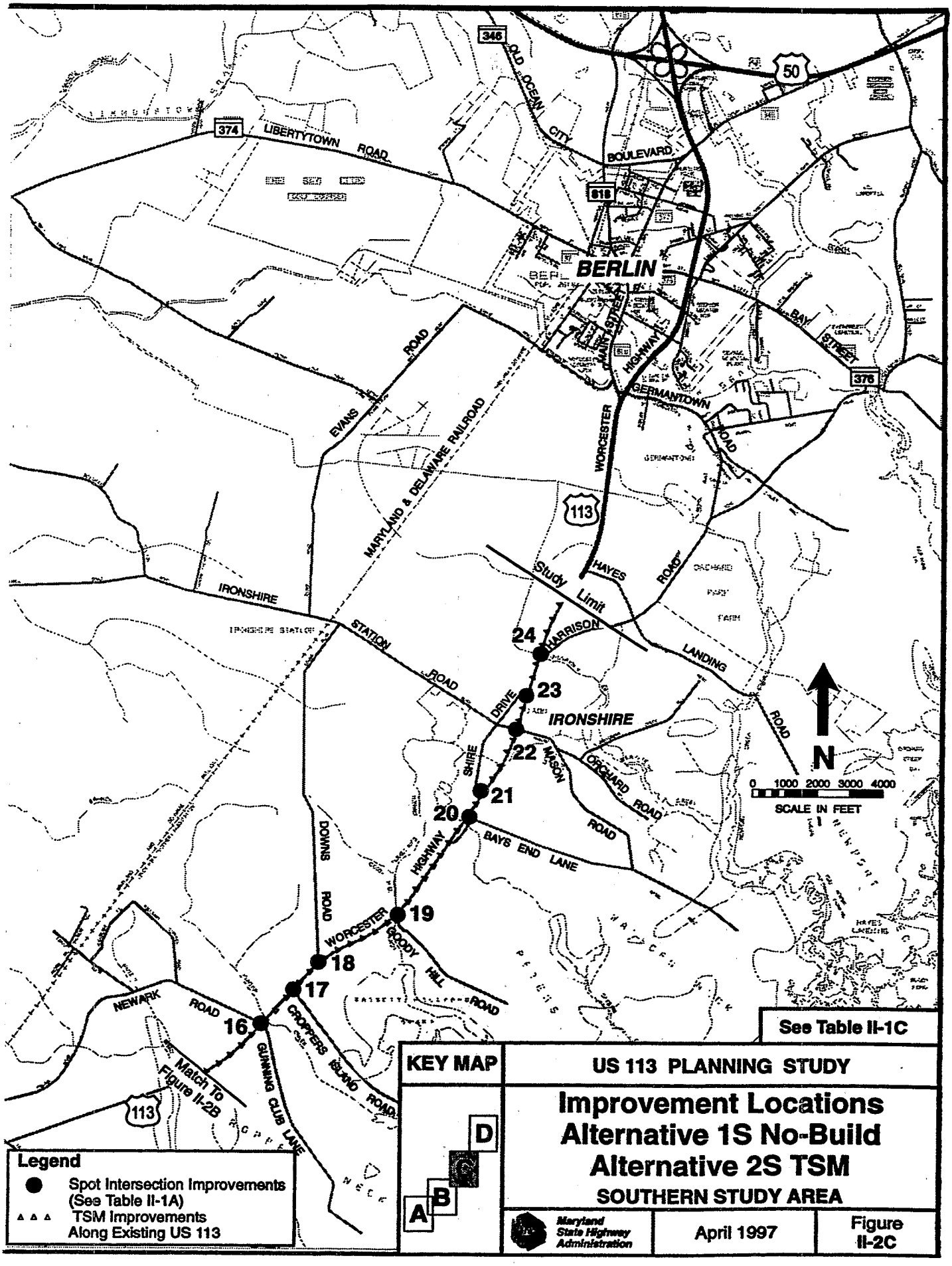
Continuing in an easterly then northeasterly direction, the alignment parallels existing US 113 to the west up to Basket Switch Road, where it transitions to the east side of US 113. This section of the alignment intersects with Basket Switch Road, Newark Road, the Maryland and Delaware Railroad track, Langmaid Road, Newark Road/Gunning Club Lane, and passes over Massey Branch and Porter Creek. Between Basket Switch Road and Langmaid Road, a northbound passing lane 12-feet in width and approximately 1 mile in length would be provided. A similar southbound passing lane would also be provided between Langmaid Road and Newark Road.

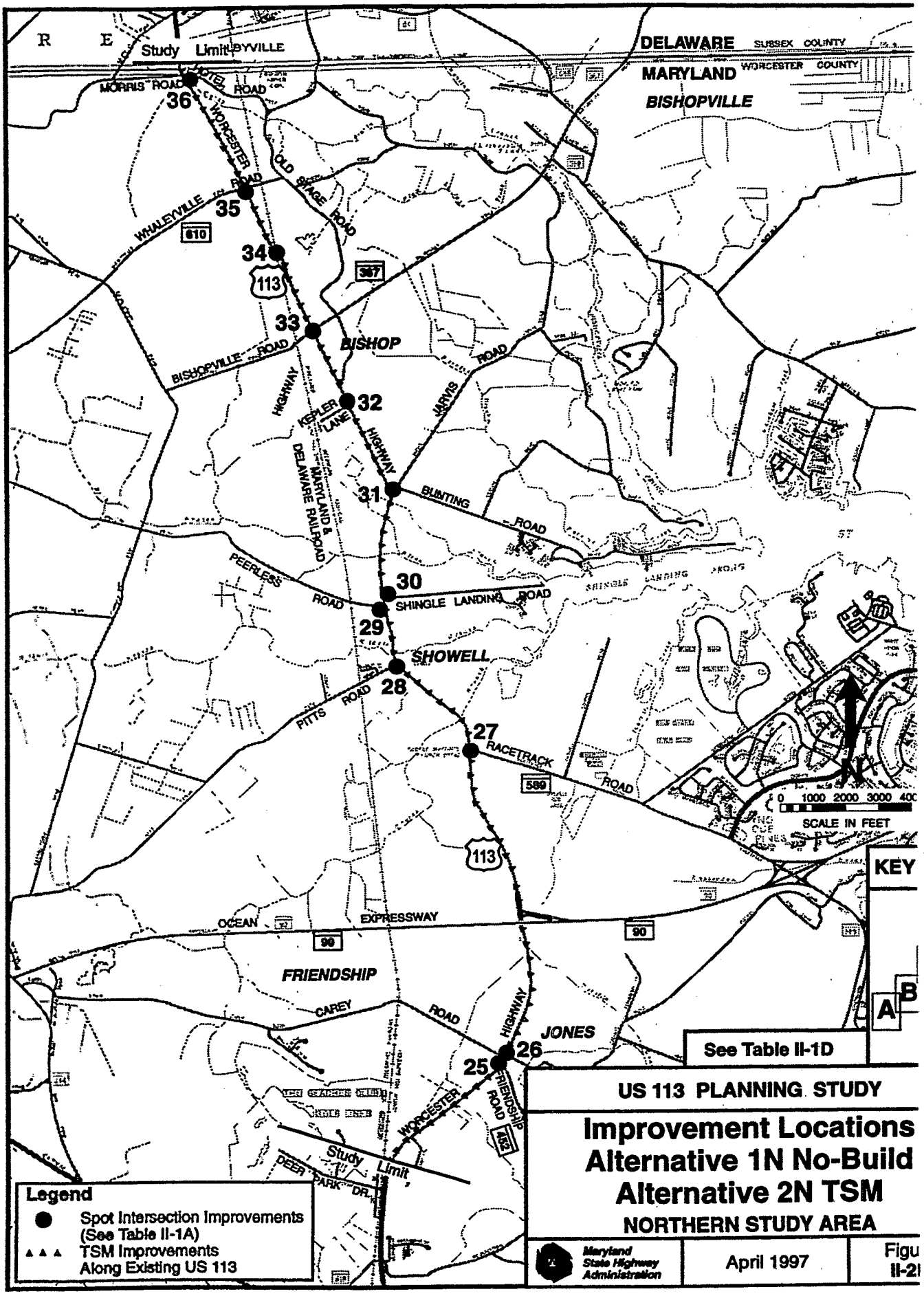
Continuing in a northeasterly direction, Alternative 2S-20' Median transitions from the east side to the west side of the existing roadway between Gunning Club Lane and Croppers Island Road. This alternative continues in a northeasterly direction, paralleling existing US 113 to the west. This section of the alternative intersects with Croppers Island Road, Downs Road, Goody Hill Road, Bays End Lane, both ends of Shire Drive, Ironshire Station/Mason Road and Harrison Road, and crosses over Goody Hill Branch and Poplartown Branch. Alternative 2S-20' Median along the existing two-lane portions of US 113 meets the existing dualized US 113 at Hayes Landing Road.

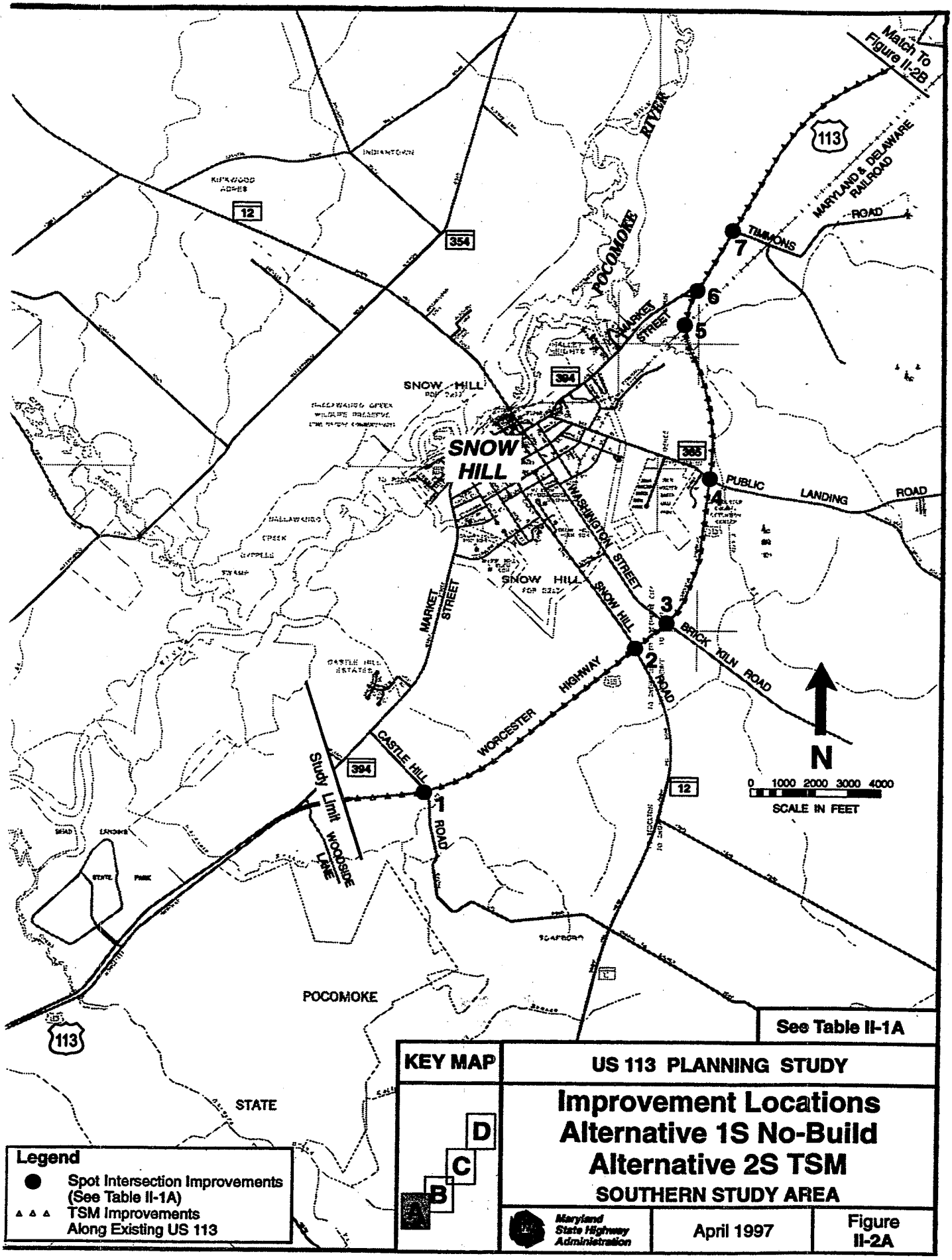
◆ **Summary of Alternative 2S 20' Median:**

- Alternative 2S would typically be along the centerline of the existing two-lane US 113; shifts would occur so as to avoid/minimize displacements and sensitive environmental features (streams and wetlands). One travel lane would be provided per direction.

'6


346
OLD OCEAN CITY BOULEVARD
50
374
LIBERTYTOWN ROAD
618
BERLIN
MAIN STREET
HIGHWAY
BAY STREET
376
GERMANTOWN ROAD
WORCESTER
EVANS ROAD
MARYLAND & DELAWARE RAILROAD
113
HAYES ROAD
Study Limit
IRONSHIRE
STATION ROAD
24 HARRISON
LANDING ROAD
23
DRIVE
IRONSHIRE
22
SHIRE
MASON
ORCHARD ROAD
21
20
BAYS END LANE
ROAD
DOWNS ROAD
HIGHWAY
19
WORCESTER
GROODY HILL ROAD
18
17
NEWARK ROAD
16
CROPPERS ISLAND ROAD
GUNNING CLUB LANE
Match To Figure II-2B
113
N
0 1000 2000 3000 4000
SCALE IN FEET
See Table II-1C
Legend
Spot Intersection Improvements (See Table II-1A)
TSM Improvements Along Existing US 113
KEY MAP
A
B
D
US 113 PLANNING STUDY
Improvement Locations
Alternative 1S No-Build
Alternative 2S TSM
SOUTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Figure II-2C


Study Limit
DELAWARE
SUSSEX COUNTY
MARYLAND
WORCESTER COUNTY
BISHOPVILLE
MORRIS ROAD
HOTEL ROAD
WORCESTER ROAD
OLD STAGE ROAD
WHALEYVILLE RD
610
367
113
BISHOPVILLE ROAD
BISHOP
HIGHWAY
KEPLER LANE
MARYLAND & DELAWARE RAILROAD
JARVIS ROAD
BUNTING ROAD
PEERLESS ROAD
SHINGLE LANDING ROAD
SHOWELL
PITTS ROAD
RACETRACK ROAD
589
OCEAN EXPRESSWAY
90
FRIENDSHIP
CAREY ROAD
JONES
FRIENDSHIP ROAD
452
DEER PARK DR.
36
35
34
33
32
31
30
29
28
27
26
25
SCALE IN FEET
KEY
A
B
See Table II-1D
US 113 PLANNING STUDY
Improvement Locations
Alternative 1N No-Build
Alternative 2N TSM
NORTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Figu
II-2
Legend
Spot Intersection Improvements (See Table II-1A)
TSM Improvements Along Existing US 113


Match To Figure II-2B
SNOW HILL
POCOMOKE
MARKET STREET
WASHINGTON STREET
SNOW HILL ROAD
PUBLIC LANDING ROAD
BRICK KILN ROAD
MARYLAND & DELAWARE RAILROAD
TIMMONS ROAD
WORCESTER HIGHWAY
CASTLE HILL ROAD
Study Limit
WOODSIDE LANE
STATE PARK
STATE
12
354
394
385
113
1
2
3
4
5
6
7
N
0 1000 2000 3000 4000
SCALE IN FEET
See Table II-1A
KEY MAP
A
B
C
D
Legend
Spot Intersection Improvements (See Table II-1A)
TSM Improvements Along Existing US 113
US 113 PLANNING STUDY
Improvement Locations
Alternative 1S No-Build
Alternative 2S TSM
SOUTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Figure II-2A

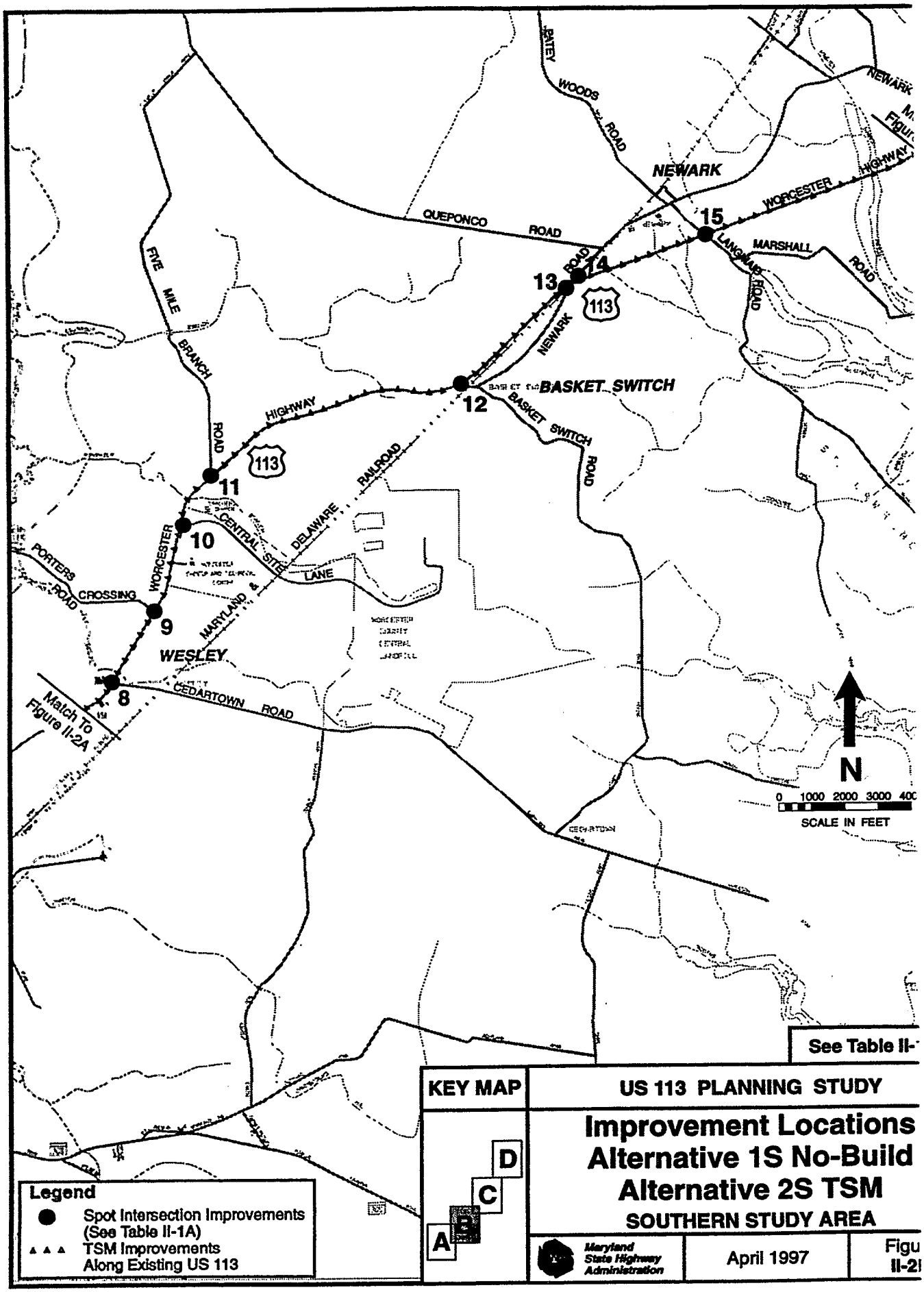

NEWARK
WOODS ROAD
BATEY
QUEPONCO ROAD
FIVE MILE BRANCH ROAD
NEWARK HIGHWAY
WORCESTER HIGHWAY
MARSHALL ROAD
LANGMAID ROAD
BASKET SWITCH
BASKET SWITCH ROAD
RAILROAD
DELAWARE
CENTRAL
STATE LANE
MARYLAND
WORCESTER
PORTERS CROSSING ROAD
WESLEY
CEDARTOWN ROAD
113
15
14
13
12
11
10
9
8
Match To Figure II-2A
N
0 1000 2000 3000 400
SCALE IN FEET
See Table II-
Legend
Spot Intersection Improvements (See Table II-1A)
TSM Improvements Along Existing US 113
KEY MAP
A
B
C
D
US 113 PLANNING STUDY
Improvement Locations
Alternative 1S No-Build
Alternative 2S TSM
SOUTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Figu
II-2

Table II-1A: No-Build and TSM Alternatives (see Figure II-2A)

ID Number	US 113 Improvement Location	No-Build Improvements Alternative 1S	Status	TSM Improvements Alternative 2S
1	US 113 at Castle Hill Road	Install intersection flashing beacon	Complete	none
2	US 113 at Snow Hill Road/MD 12	Install street lighting Install intersection flashing beacon Install oversized intersection warning signs and stop signs	Complete Complete Complete	none
3	US 113 at Washington Street/Brick Kiln Road	Install intersection flashing beacon	Complete	none
4	US 113 at Public Landing Road / MD 365	Install street lighting Install northbound and southbound bypass lanes Install stop sign ahead sign Install intersection flashing beacon	Complete Complete Complete Complete	none
5	US 113 at RR Crossing (south of MD 394)	none		Install mechanical crossing arms
6	US 113 at MD 394	Install street lighting Install intersection flashing beacon Install improved signing	Complete Complete Complete	Construct northbound bypass lane; Install new bypass lane markings
7	US 113 at Timmons Road	Install street lighting	Planned	Construct southbound bypass lane Install new bypass lane markings Install stop line on Timmons Road

Note: No-Build improvements are currently funded for implementation. TSM improvements would be implemented if a TSM Alternative were selected, but are not currently funded for construction.

Table II-1B: No-Build and TSM Alternatives (see Figure II-2B)

ID Number	US 113 Improvement Location	No-Build Improvements Alternative 1S	Status	TSM Improvements Alternative 2S
8	US 113 at Cedartown Road	Install street lighting Mark intersection for no passing	Complete Complete	Construct southbound bypass lane Install new bypass lane markings
9	US 113 at Porters Crossing Road	Install street lighting	Complete	Construct northbound bypass lane Install new lane markings
10	US 113 at Central Site Lane	Install southbound intersection warning sign	Complete	Install street lighting
11	US 113 at Five Mile Branch Road	Install street lighting Mark intersection for no passing	Complete Complete	Construct northbound bypass lane Install new lane markings
12	US 113 at Basket Switch Road	Install street lighting	Complete	Construct southbound bypass lane Install new lane markings
13	US 113 at Newark Road (South)	Install street lighting Mark intersection for no passing	Complete Complete	Construct northbound and southbound bypass lane Install new bypass lane markings
14	US 113 at RR Crossing (north of Newark Road)	none		Install mechanical crossing arms
15	US 113 at Langmaid Road	Install northbound and southbound bypass lanes Install street lighting Install intersection flashing beacon Mark intersection for no passing	Complete Complete Complete Complete	none

Note: No-Build improvements are currently funded for implementation. TSM improvements would be implemented if a TSM Alternative were selected, but are not currently funded for construction.

Table II-1C: No-Build and TSM Alternatives (see Figure II-2C)

ID Number	US 113 Improvement Location	No-Build Improvements Alternative 1S	Status	TSM Improvements Alternative 2S
16	US 113 at Gunning Club Lane/Newark Road (north)	Install stop lines on side roads Construct northbound bypass lane Install street lighting	Complete Complete Complete	Install concrete channelization island
17	US 113 at Croppers Island Road	Install street lighting	Complete	Construct southbound bypass lane Install new lane markings
18	US 113 at Downs Road	Install street lighting	Complete	Construct northbound bypass lane Install new lane markings
19	US 113 at Goody Hill Road	Install street lighting	Complete	Construct southbound bypass lane Install new lane markings
20	US 113 at Bays End Lane	Mark intersection for no passing	Complete	Construct southbound bypass lane Install new lane markings
21	US 113 at Shire Road (south)	Install street lighting Mark intersection for no passing Install stop line on Shire Road	Complete Complete Complete	Construct northbound bypass lane Install new lane markings
22	US 113 at Ironshire Station Road/Mason Road	Install street lighting Mark intersection for no passing Install stop line on Mason Road	Complete Complete Complete	none
23	US 113 at Shire Road (north)	Install street lighting Install stop line on Shire Road Mark intersection for no passing	Complete Complete Complete	Construct northbound bypass lane Install new bypass lane markings
24	US 113 at Harrison Road	Install street lighting Install stop line on Harrison Road Mark intersection for no passing	Complete Complete Complete	Construct southbound bypass lane Install new bypass lane markings
25	US 113 at Friendship Road / MD 452	Construct acceleration and deceleration lanes along northbound US 113 Construct southbound US 113 bypass lane	Planned Planned	none

Note: No-Build improvements are currently funded for implementation. TSM improvements would be implemented if a TSM Alternative were selected, but are not currently funded for construction.

Table II-1D: No-Build and TSM Alternatives (see Figure II-2D)

ID Number	US 113 Improvement Location	No-Build Improvements Alternative 1N	Status	TSM Improveme Alternative 2N
26	US 113 at Jones Road/Carey Road	none		Install stop lines on Jones Road and Carey Road
27	US 113 at Racetrack Road / MD 589	Provide acceleration/deceleration lanes on northbound US 113 Install traffic signal with advance warning signs and flashing beacon	Complete Complete	none
28	US 113 at Pitts Road	Widen Pitts Road to provide left and right turn lanes Install intersection flashing beacon	Complete Complete	none
29	US 113 at Peerless Road	none		Construct northbound by lane Install stop line and stop on Pearless Road
30	US 113 at Shingle Landing Road	none		Install street lighting
31	US 113 at Bunting Road/Jarvis Road	Relocate the Jarvis Road/Bunting Road intersection Construct southbound US 113 left turn lane	Planned Planned	none
32	US 113 at Kary Asphalt Entrance	Widen southbound US 113 shoulder to extend acceleration lane Widen northbound US 113 shoulder to provide bypass lane Overlay with 1 ½" bituminous concrete	Planned Planned	none
33	US 113 at Bishopville Road / MD 367	Provide northbound and southbound bypass lanes on US 113 Construct westbound MD 367 right turn lane Install street lighting	Planned Planned Planned	Mark intersection for no passing
34	US 113 at RR Crossing (south of MD 610)	none		Install mechanical crossir gates
35	US 113 at Whaleyville Road/ MD 610	Install northbound and southbound left turn lanes; Install southbound right turn lane; Install traffic signal	Complete Complete Complete	Install additional street lighting Construct curbing in southeast quadrant of intersection
36	US 113 at Morris Road/Hotel Road	none		Construct acceleration lar along southbound US 11 Install oversized intersect warning signs and stop si

Note: No-Build improvements are currently funded for implementation. TSM improvements would be implemented if a TSM Alternative were selected, but are not currently funded for construction.

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- Design Speed would be 60 MPH.

- Median width would provide 8-feet of recovery area for vehicles that leave the roadway toward the center.

- The paved outside shoulders would be 10-feet wide and 20-feet of safety grading would be provided. In sensitive areas (such as a wetland or stream crossing), guardrail would be provided in place of the roadside grading to minimize impacts.

- Left turn lanes and median breaks would be provided at the following intersections:

  - Castle Hill Road
  - Snow Hill Road (MD 12)
  - Brick Kiln Road/Washington Street
  - Public Landing Road (MD 365)
  - Market Street (MD 394N) (T intersection)
  - Timmons Road (T intersection)
  - Cedartown Road (T intersection)
  - Porters Crossing Road (T intersection)
  - Central Site Lane (T intersection)
  - Five Mile Branch Road (T intersection)
  - Basket Switch Road (T intersection)
  - Newark Road
  - Langmaid Road
  - Gunning Club Lane/Newark Road
  - Croppers Island Road (T intersection)
  - Downes Road (T intersection)
  - Goody Hill Road (T intersection)
  - Bays End Lane (T intersection)
  - Shire Road (south) T intersection)
  - Mason Road/Ironshire Station Road
  - Shire Road (north) (T intersection)
  - Harrison Road (T intersection)

- Passing lanes 12-feet in width and approximately 1 to 1.25 miles in length would be placed at the following four locations:

  - Northbound between Public Landing Road (MD 365) and Market Street (MD 394N).
  - Southbound between Timmons Road and Cedartown Road.
  - Northbound between Basket Switch Road and Langmaid Road.
  - Southbound between Langmaid Road and Gunning Club Road/Newark Road.

- Driveways and minor service roads would be provided with a right-in/right-out only.

- Drivers from driveways that need to access the other side of the road would have to turn right and travel to the nearest intersection to make a U-turn (i.e. a driveway on the northbound side of the road that wants to travel southbound would turn right heading northbound, go to the next intersection, and use the left turn lane for a U-turn).

- The estimated cost for Alternative 2S-20' Median is:

Right of Way	$ 1.4 M
Engineering & Construction	$47.4 M
TOTAL (1997 $)	$48.8 M

5. Introduction to Dualization Alternative

The dualization alternatives under consideration for US 113 propose a four-lane divided roadway with a median. Access would be partially controlled where possible and median and roadside landscaping would be provided. The dualization alternatives in the southern study area have been developed for a design speed of 60 MPH with both 20-foot wide and 34-foot wide medians evaluated (the 20-foot wide median was chosen because it represents the minimum separation into which left turn lanes and a narrow divider can be provided; the 34-foot wide median was chosen because it provides the full 30-feet of recovery area width appropriate for this design speed). The dualization alternatives in the northern study area have been developed for design speeds of both 50 MPH and 60 MPH along the existing US 113 alignment, and 60 MPH along the new location alignment. Median widths of 20-feet and 34-feet have been evaluated for all dualization alternatives in the northern study area. In addition, these dualization alternatives in the northern study area have been developed in segments with common end points so that they can be used in various combinations.

The dualization alternatives retained for detailed study are graphically presented on Figures II-5A through II-5D. Typical sections for the dualization alignment with a 20-foot median with traffic barrier (Alternatives 3S-20' Median and 3N-20' Median) are shown on Figure II-6; the typical sections for the dualization alignment with a 34-foot median (Alternatives 3S-34' Median and 3N-34' Median) are shown on Figure II-7; the typical sections for the new location alignments (Alternatives 4N Modified-20' Median and 4N Modified -34' Median) are presented on Figure II-8. Detailed plans of the dualization alternatives, at a scale of 1" = 400', are presented in Appendix A, Figures 8 though 17.

The dualization alternatives were developed and refined to minimize impacts to the natural, socioeconomic, and cultural environment while meeting the project need. Major environmental constraints affecting the location of the project alternatives included wetlands, streams, existing and planned residential and commercial properties, historic sites, and utility locations. In these sensitive areas, outside guardrail will be evaluated during final design so as to reduce the roadside grading area and thus reduce impacts.

6. Dualization Alternatives Along the Existing Alignment in the Southern Study Area (see Appendix A, Figures 8 through 14)

The typical roadway section would consist of two 12-foot travel lanes in each direction, a median, 10-foot outside shoulders, and 20-feet of safety grading on both sides of the roadway where appropriate. This alternative is being designed for a 60 MPH design speed with two alternative median widths and treatments. The proposed typical sections for Alternative 3S are shown on Figure II-6 for 3S-20' Median and Figure II-7 for 3S-34' Median.

Beginning on the south, the dualization for Alternatives 3S-20' Median and 3S-34' Median begin as an extension of the existing dualized US Route 113, approximately 450 feet east of Market Street (MD 394) and Woodside Lane intersection. Through the first curve, the median

transitions from a width of 75-feet ± to the proposed median section, and shifts the alignment to the west of the existing roadway. Approximately 2,300 feet of mainline roadway up to just south of Castle Hill Road would be reconstructed.

Continuing north, a new roadway would be constructed parallel to the existing roadway to the west, utilizing approximately 5.1 miles of existing US 113 as the northbound roadway. This section of the alignment intersects with Castle Hill Road, Snow Hill Road (MD 12), Washington Street/Brick Kiln Road, and Public Landing Road (MD 365), and passes over Purnell Branch, intersects with the Maryland and Delaware Railroad, Market Street (MD 394N) and Timmons Road. Approximately 600 linear feet of southbound Market Street would be reconstructed to meet the proposed dualized roadway. No substantive change in the cross street vertical alignments would be planned. As shown on Appendix A, Figures 8, 9 and 10, the majority of the right-of-way for this dualization is already in place.

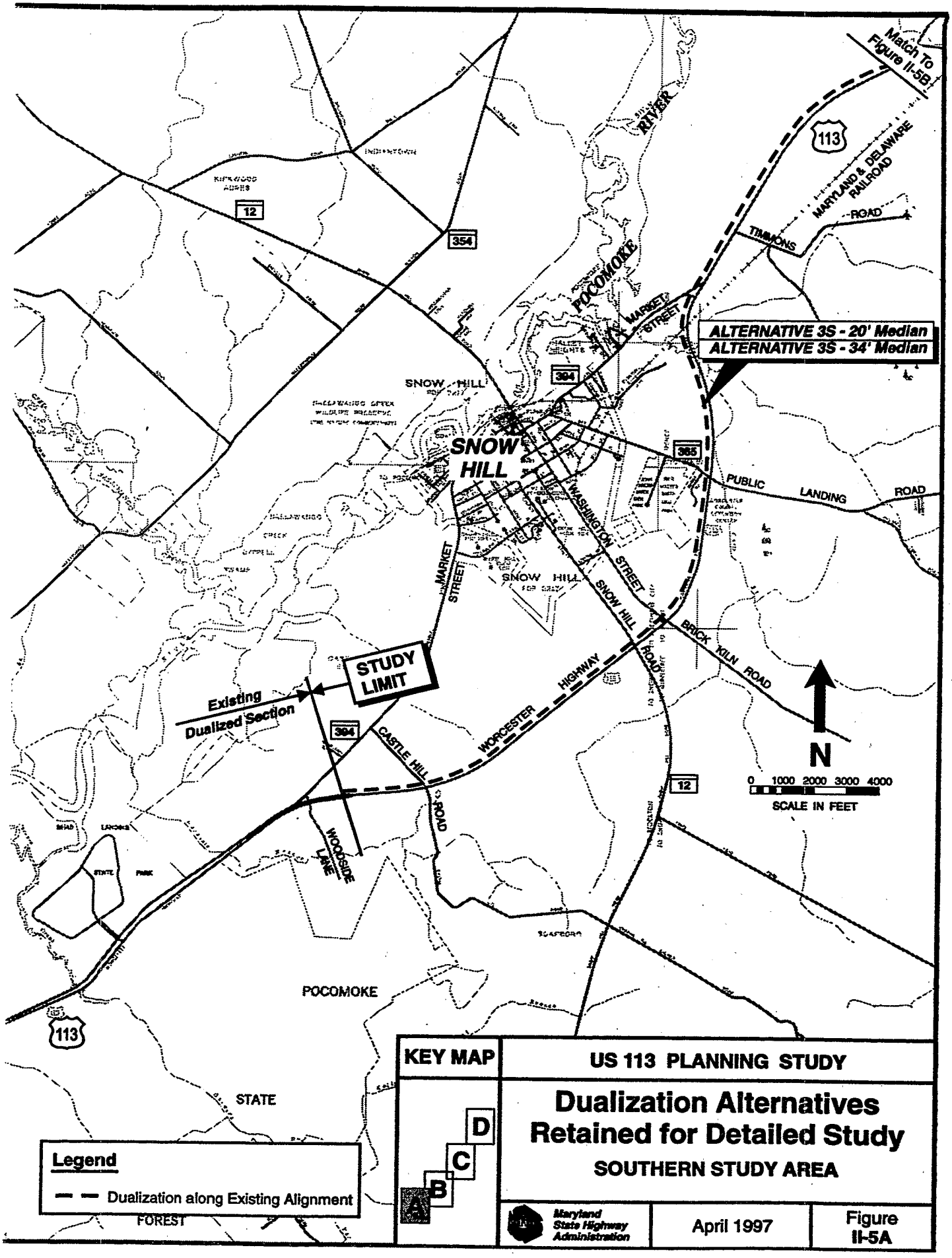
The alignment then curves to the east, 3,600 feet north of Timmons Road, passing to the south of Snow Hill Mennonite Church, and slightly improving the horizontal alignment. Approximately 2,200 linear feet of mainline would be reconstructed to flatten the curve at this location.

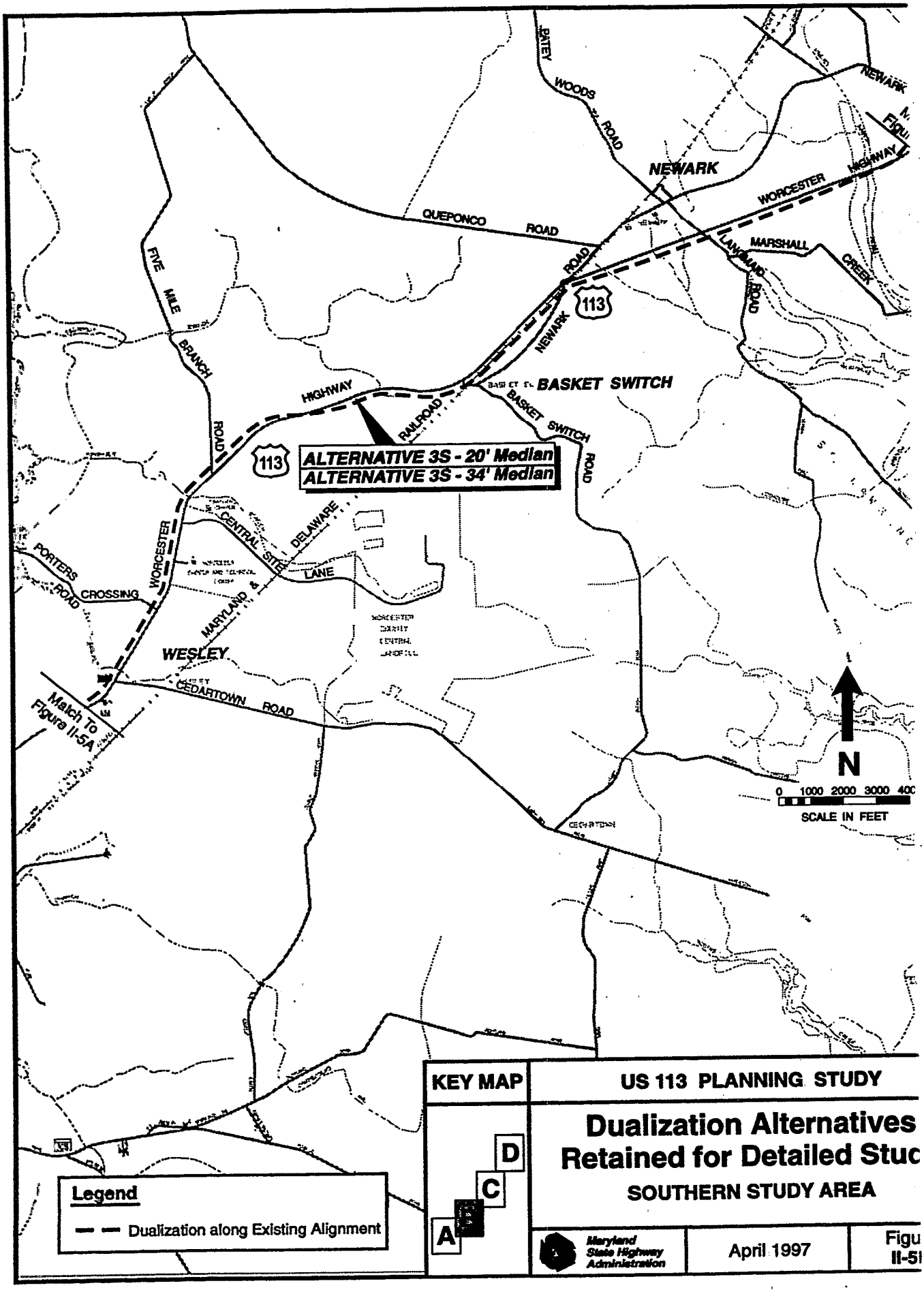
Continuing in a northeasterly direction to 1,300 feet south of Cedartown Road, the alignment parallels the existing roadway to the west, utilizing approximately 1,300 feet of existing US 113 as the northbound roadway. The alignment then curves to the north, intersecting with Cedartown Road. To reduce the horizontal curve, approximately 1,400 linear feet of mainline would be reconstructed up to Cedartown Road.

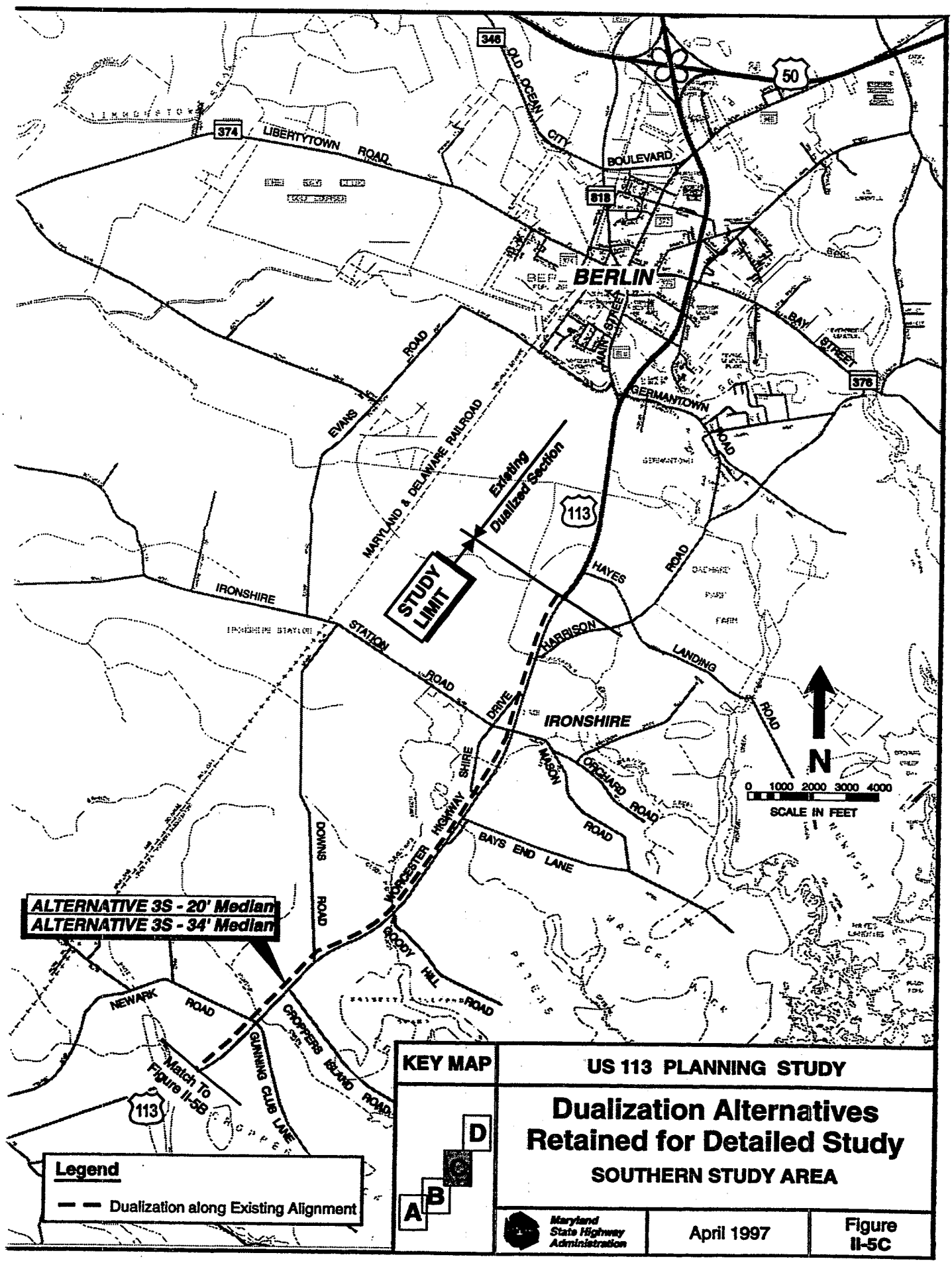
Continuing in an northeasterly direction, the alignment parallels the existing roadway on the west, utilizing approximately 8,800 feet of existing roadway as northbound US 113. This section of the alignment crosses over both Poorhouse Branch and Five Mile Branch, and intersects with Porters Crossing Road, Central Site Lane and Five Mile Branch Road. Approximately 200 linear feet of Five Mile Branch Road would be reconstructed to improve its intersection with US 113.

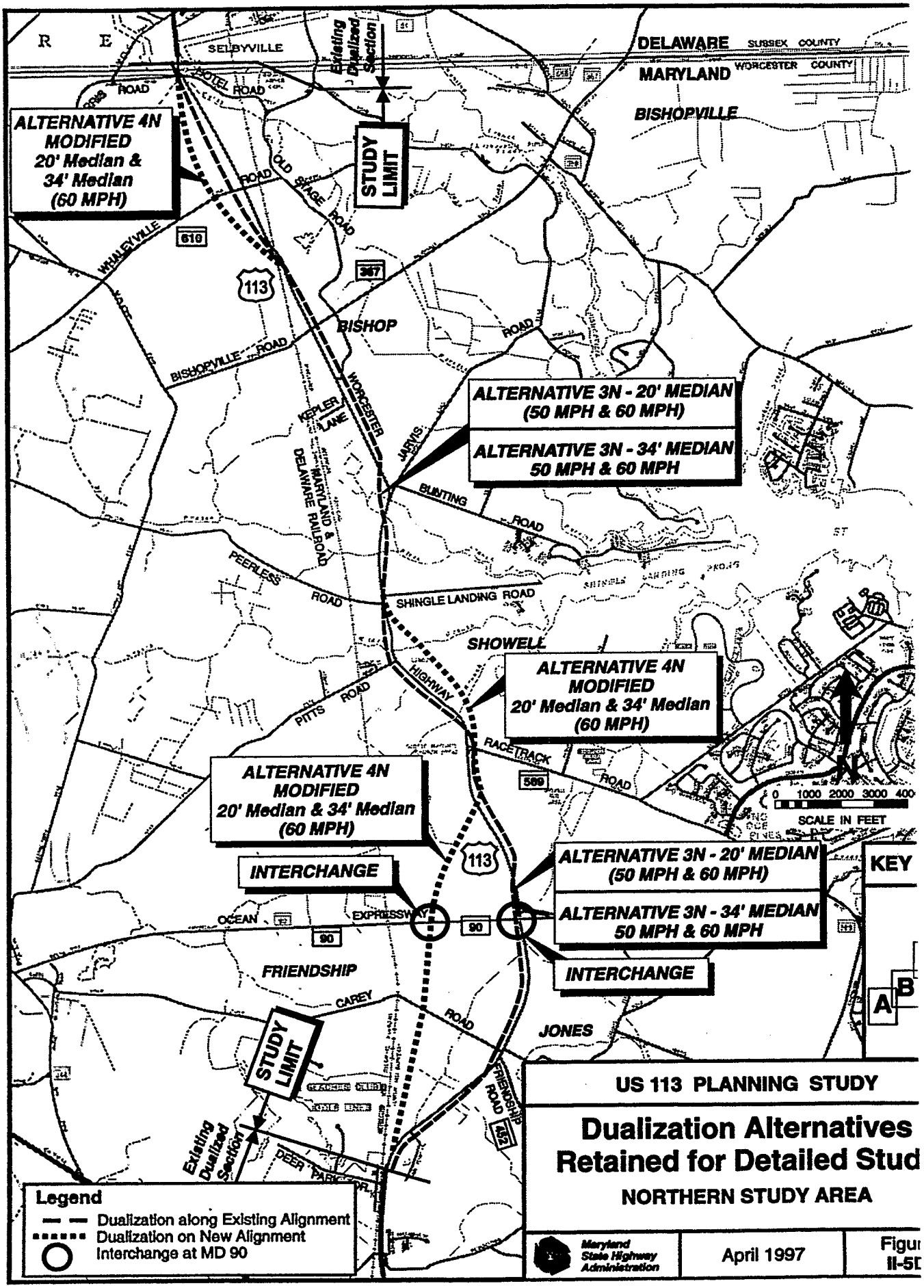
The alignment then curves to the east and transitions from the west side to the east side of the existing US 113 roadway. To accomplish this transition, approximately 1,600 linear feet of the existing roadway would be reconstructed.

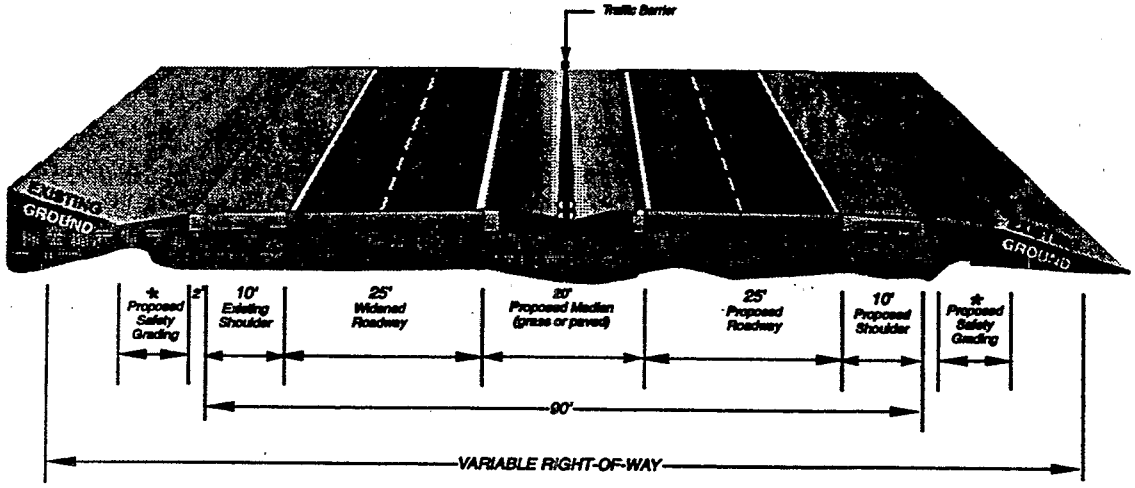
Continuing in an easterly then northeasterly direction, the alignment parallels the existing roadway to the east, utilizing approximately 4.45 miles of existing roadway as southbound US 113. This section of the alignment intersects with Basket Switch Road, Newark Road, the Maryland and Delaware Railroad track, Langmaid Road, Newark Road/Gunning Club Lane, and passes over Massey Branch and Porter Creek. Approximately 300 feet of the east side of Newark Road at the MD and Delaware Railroad crossing will be reconstructed, providing improved intersection sight distance and improving the horizontal alignment of Newark Road.


Match To Figure II-5B
ALTERNATIVE 3S - 20' Median
ALTERNATIVE 3S - 34' Median
SNOW HILL
POCOMOKE
STUDY LIMIT
Existing Dualized Section
MARKET STREET
WASHINGTON STREET
SNOW HILL ROAD
BRICK KILN ROAD
PUBLIC LANDING ROAD
MARYLAND & DELAWARE RAILROAD
TIMMONS ROAD
CASTLE HILL ROAD
WORCESTER HIGHWAY
WOODSIDE LANE
POCOMOKE RIVER
STATE FOREST
STATE PARK
12
354
394
365
113
N
0 1000 2000 3000 4000
SCALE IN FEET
KEY MAP
A
B
C
D
Legend
Dualization along Existing Alignment
US 113 PLANNING STUDY
Dualization Alternatives Retained for Detailed Study
SOUTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Figure II-5A

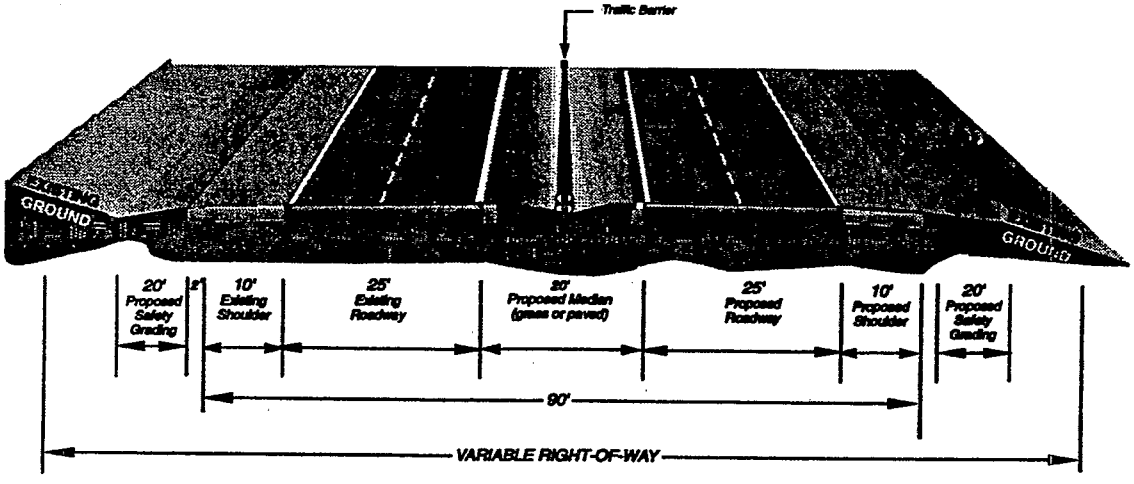

BATEY
WOODS ROAD
NEWARK
NEWARK
WORCESTER HIGHWAY
QUEPONCO ROAD
ROAD
MARSHALL CREEK
LANDMARK ROAD
FIVE MILE BRANCH
ROAD
113
NEWARK
HIGHWAY
BASKET SWITCH
BASKET SWITCH ROAD
RAILROAD
ALTERNATIVE 3S - 20' Median
ALTERNATIVE 3S - 34' Median
CENTRAL DELAWARE SITE
LANE
PORTERS ROAD
CROSSING
WORCESTER
MARYLAND
WESLEY
CEDARTOWN ROAD
Match To Figure II-5A
N
0 1000 2000 3000 400
SCALE IN FEET
Legend
Dualization along Existing Alignment
KEY MAP
A
C
D
US 113 PLANNING STUDY
Dualization Alternatives Retained for Detailed Stuc
SOUTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Figu
II-5


346
OLD OCEAN CITY BOULEVARD
50
374
LIBERTYTOWN ROAD
818
BERLIN
MAIN STREET
BAY STREET
376
GERMANTOWN ROAD
EVANS ROAD
MARYLAND & DELAWARE RAILROAD
Existing Dualized Section
113
STUDY LIMIT
HAYES ROAD
IRONSHIRE
STATION ROAD
HARRISON DRIVE
LANDING ROAD
IRONSHIRE
MASON ORCHARD ROAD
WORCESTER HIGHWAY
BAYS END LANE
DOWNS ROAD
ALTERNATIVE 3S - 20' Median
ALTERNATIVE 3S - 34' Median
NEWARK ROAD
GUNNING CLUB LANE
CROPPERS ISLAND ROAD
Match To Figure II-5B
113
N
0 1000 2000 3000 4000
SCALE IN FEET
Legend
Dualization along Existing Alignment
KEY MAP
A
B
C
D
US 113 PLANNING STUDY
Dualization Alternatives Retained for Detailed Study
SOUTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Figure II-5C


ALTERNATIVE 4N MODIFIED 20' Median & 34' Median (60 MPH)
STUDY LIMIT
Existing Dualized Section
DELAWARE
SUSSEX COUNTY
MARYLAND
WORCESTER COUNTY
BISHOPVILLE
SELBYVILLE
HOTEL ROAD
OLD STAGE ROAD
WHALEYVILLE ROAD
610
113
367
BISHOP ROAD
BISHOPVILLE ROAD
KEPLER LANE
WORCESTER HIGHWAY
MARYLAND & DELAWARE RAILROAD
ALTERNATIVE 3N - 20' MEDIAN (50 MPH & 60 MPH)
ALTERNATIVE 3N - 34' MEDIAN 50 MPH & 60 MPH
BUNTING ROAD
PEERLESS ROAD
SHINGLE LANDING ROAD
SHOWELL
ALTERNATIVE 4N MODIFIED 20' Median & 34' Median (60 MPH)
PITTS ROAD
RACETRACK ROAD
569
ALTERNATIVE 4N MODIFIED 20' Median & 34' Median (60 MPH)
INTERCHANGE
OCEAN EXPRESSWAY
90
ALTERNATIVE 3N - 20' MEDIAN (50 MPH & 60 MPH)
ALTERNATIVE 3N - 34' MEDIAN 50 MPH & 60 MPH
INTERCHANGE
FRIENDSHIP
CAREY ROAD
JONES
STUDY LIMIT
Existing Dualized Section
DEER PARK DR.
FRIENDSHIP ROAD
452
0 1000 2000 3000 400
SCALE IN FEET
KEY
A
B
Legend
Dualization along Existing Alignment
Dualization on New Alignment
Interchange at MD 90
US 113 PLANNING STUDY
Dualization Alternatives Retained for Detailed Stud
NORTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Figu
II-5



ALTERNATIVE 3N - 20' MEDIAN
DUALIZATION ALONG EXISTING ALIGNMENT
(50 MPH & 60 MPH)



ALTERNATIVE 3S - 20' MEDIAN
DUALIZATION ALONG EXISTING ALIGNMENT
(60 MPH)

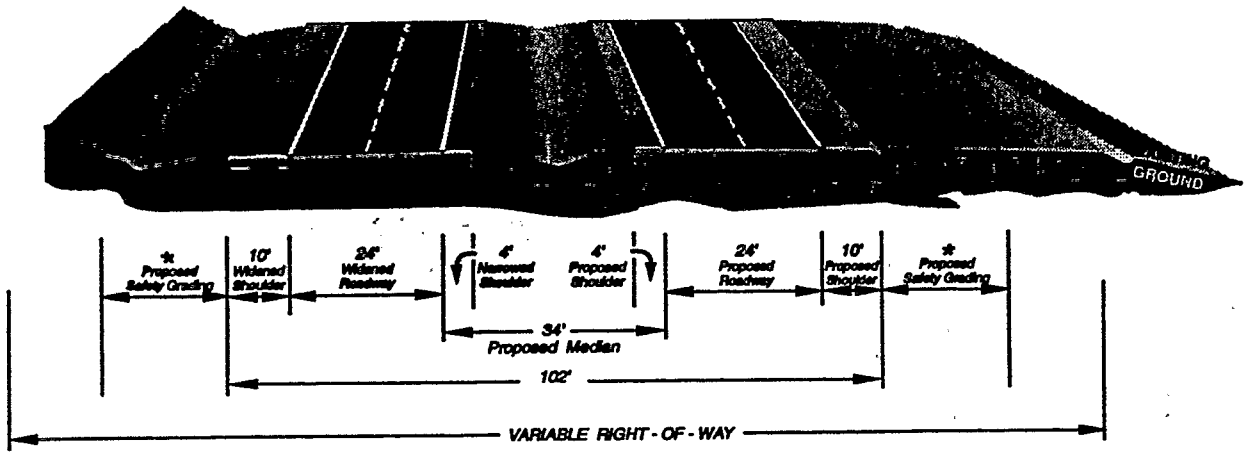
* 50 MPH Design Speed requires 9' of Safety Grading
60 MPH Design Speed requires 20' of Safety Grading

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

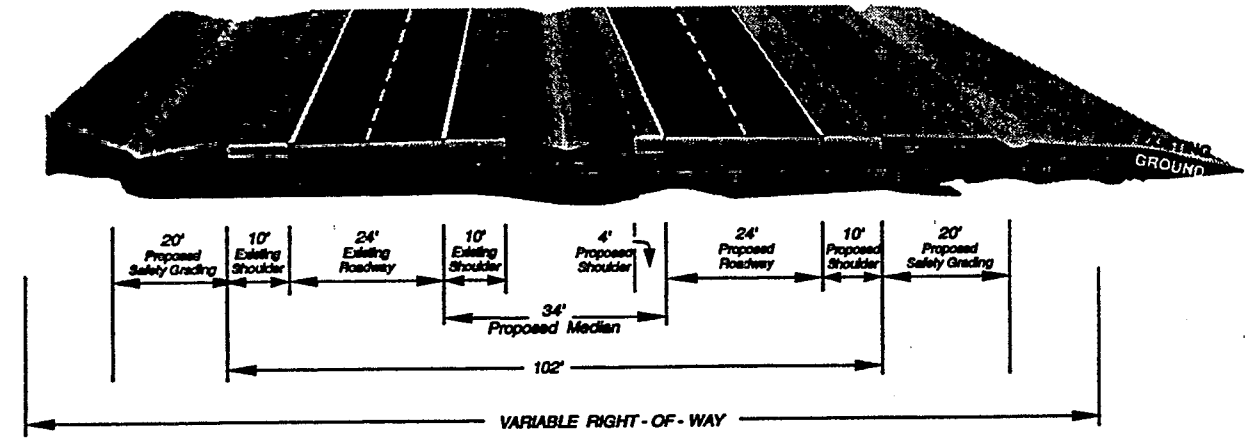
US 113 PLANNING STUDY

Typical Sections
Alternative 3S - 20' Median
Alternative 3N - 20' Median

Maryland State Highway Administration | April 1997 | Figure II-6



ALTERNATIVE 3N - 34' MEDIAN
DUALIZATION ALONG EXISTING ALIGNMENT
(50 MPH & 60 MPH)



ALTERNATIVE 3S - 34' MEDIAN
DUALIZATION ALONG EXISTING ALIGNMENT
(60 MPH)

* 50 MPH Design Speed requires 9' of Safety Grading
60 MPH Design Speed requires 20' of Safety Grading

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

US 113 PLANNING STUDY

Typical Sections
Alternative 3S - 34' Mediar
Alternative 3N - 34' Mediar

Maryland State Highway Administration | April 1997 | Figu II-7

Continuing in a northeasterly direction, the alignment transitions from the east side to the west side of the existing roadway between Gunning Club Lane and Croppers Island Road. Approximately 800 linear feet of mainline would be reconstructed to flatten the curve at this location.

The alignment continues in a northeasterly direction, paralleling the existing roadway to the west, utilizing approximately 3.6 miles of existing US 113 as the northbound roadway. This section of the alignment intersects with Croppers Island Road, Downs Road, Goody Hill Road, Bays End Lane, both ends of Shire Drive, Ironshire Station/Mason Road and Harrison Road, and crosses over Goody Hill Branch and Poplartown Branch. The proposed dualization of the existing two-lane portion of US 113 meets the existing dualized US 113 at Hayes Landing Road.

◆ **Summary of Alternative 3S-20' Median:**

- Alternative 3S would typically be adjacent to the existing two-lane US 113; shifts would occur so as to avoid/minimize displacements and sensitive environmental features (streams and wetlands). The existing pavement section would be utilized for either the northbound or southbound lanes. Two travel lanes would be provided per direction.

- Design Speed would be 60 mph.

- Median width would provide 8 feet of recovery area for vehicles that leave the roadway toward the center.

- The paved outside shoulders would be 10-feet wide and 20-feet of safety grading would be provided. In sensitive areas (such as a wetland or stream crossing), guardrail would be provided in place of the roadside grading to minimize impacts.

- Left turn lanes and median breaks would be provided at the following intersections:

  - Castle Hill Road
  - Snow Hill Road (MD 12)
  - Brick Kiln Road/Washington Street
  - Public Landing Road (MD 365)
  - Market Street (MD 394N) (T intersection)
  - Timmons Road (T intersection)
  - Cedartown Road (T intersection)
  - Porters Crossing Road (T intersection)
  - Central Site Lane (T intersection)
  - Five Mile Branch Road (T intersection)
  - Basket Switch Road (T intersection)
  - Newark Road

- Langmaid Road
- Gunning Club Lane/Newark Road
- Croppers Island Road (T intersection)
- Downes Road (T intersection)
- Goody Hill Road (T intersection)
- Bays End Lane (T intersection)
- Shire Road (south) T intersection)
- Mason Road/Ironshire Station Road
- Shire Road (north) (T intersection)

- Driveways and minor service roads would be provided with a right-in/right-out only.

- Drivers from driveways that need to access the other side of the road would have to turn right and travel to the nearest intersection to make a U-turn (i.e. a driveway on the northbound side of the road that wants to travel southbound would turn right heading northbound, go to the next intersection, and use the left turn lane for a U-turn).

- The estimated cost for Alternative 3S-20' Median is:

Right of Way	$ 1.6 M
Engineering & Construction	$64.2 M
TOTAL (1997 $)	$65.8 M

◆ **Summary of Alternative 3S - 34' Median:**

- **Except for the 34-foot wide median, all other features of Alternative 3S-34' Median would be identical to the previously described Alternative 3S-20' Median.**

- The entire 34 foot median would be available as a recovery area for vehicles that leave the roadway toward the center. Recovery area suggested by FHWA roadside design guidelines is 30 feet.

- The estimated cost for Alternative 3S-34' Median is:

Right of Way	$ 1.7 M
Engineering & Construction	$62.0 M
TOTAL (1997 $)	$63.7 M

7. Dualization Alternatives Along the Existing Alignment in the Northern Study Area (see Appendix A, Figures 15 through 17)

The typical roadway section would consist of two 12-foot travel lanes in each direction, a median, 10-foot outside shoulders, and 20-feet of safety grading on both sides of the roadway where appropriate. This alternative is being evaluated for both a 50 MPH and a 60 MPH design speed with two alternative median widths and safety grading treatments. The 50 MPH design speed alignment basically parallels the existing US 113 roadway and is located either immediately to the east or west of existing US 113. Variation in this condition would only occur at the three (3) locations where the existing horizontal curvature is too sharp. The 60 MPH design speed alignment, while also basically paralleling existing US 113, deviates from a parallel condition at many locations in order to provide more desirable horizontal geometry or avoid impacts to properties or environmental resources located on the **inside** edge of a curve when the new roadway lanes are located on the **outside** edge of the curve. The proposed typical sections for Alternative 3N are shown on Figure II-6 for 3N-20' Median and on Figure II-7 for 3N-34' Median. ***Except where highlighted in the following paragraphs in bold italics, the centerlines of the 50 MPH and 60 MPH alignments for the dualization alternatives along the existing US 113 alignment are essentially the same.***

From south to north, the dualization for Alternative 3N with a 20-foot or 34-foot median begins as an extension of existing dualized US 113 near Deer Park Drive, approximately 0.8 mile north of US Route 50. Through the first curve, the median transitions from a width of 110 feet, matching the existing dualized section, to the proposed median section. Continuing in a northeasterly direction, the alignments parallel the existing roadway to the east, utilizing approximately 0.4 mile of the existing roadway.

The alignments continue in northeasterly direction intersecting with MD 452 (Friendship Road) and Carey Road/Jones Road. Approximately 300 linear feet of Friendship Road would be reconstructed to improve the intersection design by creating a perpendicular intersection at this location. No substantive change in the vertical alignments would be made to the cross streets of Carey Road/Jones Road. Approximately 1,000-feet north of Carey Road/Jones Road, ***the 60 MPH alignment transitions slightly west to flatten a horizontal curve. Approximately 1,800-feet of new dual roadways would be constructed. The 50 MPH alignment stays along existing US 113, constructing only new southbound lanes west of the existing US 113 (which would become the northbound lanes).*** See Figure 15 in Appendix A.

Continuing in a northerly direction, the alignments pass beneath MD 90, requiring a new bridge for MD 90 to accommodate the widened US 113 roadways. During final design, a detailed cost study would be prepared to assess depressing US 113 approximately 2-feet to pass under MD 90 (likely to cause drainage problems) or reconstruct approximately 0.4 mile of MD 90 (and raised as much as 2 feet) to permit US 113 to pass beneath MD 90. The existing loop

and outer ramps in the northeast quadrant of the MD 90 interchange would be reconstructed and new loop and outer ramps would be constructed in the southeast quadrant, resulting in a half cloverleaf interchange configuration.

Continuing in a northerly direction, the alignments follow existing US 113 for approximately 0.6 mile ***where the 60 MPH alignment shifts to an entirely new dual highway east of US 113 and crosses MD 589 (Racetrack Road) approximately 150 feet east of the existing intersection. Horizontal improvements to the MD 589 intersection include the addition of a separate turn lane from southbound US 113 to eastbound MD 589. No substantive change in the MD 589 vertical alignment is planned. Approximately 0.4 mile of existing US 113 would be retained and utilized as a service road fronting two private residences, Rancho Fiesta Estate subdivision and the historic Saint Martin's Episcopal Church.***

The 50 MPH alignment would continue along existing US 113, with new northbound lanes constructed along the east side of US 113. Existing US 113 would become the southbound lanes. The previously referenced private residences, Rancho Fiesta Estate subdivision and historic Saint Martin's Episcopal Church would lie along the southbound lanes of dualized US 113. See Figure 16 in Appendix A.

The alignments continue in a northwesterly direction to the town of Showell, crossing Church Branch, ***where the 60 MPH alignment intersects Pitts Road approximately 100 feet west of the existing intersection, displacing Tony's Country Store (the historic Showell Store) and one residence. No substantive changes in the Pitts Road horizontal or vertical geometry are planned. Approximately 0.5 mile of existing US 113 would be retained and utilized as a service road for several residences and businesses, including the Showell Post Office, Showell Volunteer Fire Department, and the Lemuel Showell House. Continuing in a northerly direction, the alignment crosses Middle Branch, intersects with Peerless/ Shingle Landing roads in approximately the same location as existing, and parallels the existing roadway to the east. No substantive changes in the horizontal or vertical geometry are planned for Peerless or Shingle Landing roads.***

The 50 MPH alignment through Showell would stay along existing US 113, also displacing Tony's Country Store (the historic Showell Store) and one residence plus another business (Used Furniture & Collectibles) and a residence immediately north of the Middle Branch crossing plus another residence south of Peerless Road (but avoiding a residence along Shingle Landing Road which would be taken by the 60 MPH alignment). See Figure 16.

The alignments continue on a tangent in a northerly direction and cross Birch Branch, ***where the 60 MPH alignment leaves existing US 113 to the west, approximately 0.4 mile north of Shingle Landing Road and returns to the existing alignment approximately 0.3 mile north of Jarvis Road.*** SHA is currently planning to reconfigure the existing intersection to improve sight distances. The 60 MPH alignment plans are compatible with the proposed alignment. ***The 50 MPH alignment stays generally along existing US 113, constructing new southbound lanes along the west side of US 113.*** See Figure 16.

Continuing in a northwesterly direction, the alignment parallels existing US 113 to the east, intersecting Kepler Lane, Old Stage Road and MD 367 (Bishopville Road), retaining approximately 1.0 mile of the existing roadway as the southbound roadway. No improvements are planned for Kepler Lane and no substantive changes improvements are planned for Old Stage Road or MD 367. The alignment displaces one of the two existing warehouses south of Old Stage Road. Relocation of the displaced Delmarva Veterinarian Hospital parking lot is planned north of the existing building. See Figure 17.

The alignment continues in a northwesterly direction crossing the Maryland and Delaware Railroad at approximately the same location as the existing crossing. The alignment eliminates the existing triple reversing curves and returns to the existing alignment approximately 300 feet south of MD 610 (Whaleyville Road). The alignment continues in a northwesterly direction, paralleling the existing roadway to the west and crosses MD 610. No substantive changes in the MD 610 horizontal or vertical geometry are planned.

Continuing in a northwesterly direction the alignment ties into the existing dualized roadway and ends at the Delaware state line, crossing Morris and Hotel roads. The proposed 34-foot median transitions to meet the existing 90-foot median through the last horizontal curve. No substantive changes in the horizontal or vertical geometry are planned for Morris or Hotel roads.

◆ **Summary of Alternative 3N-20' Median & 50 MPH:**

- Alternative 3N would typically be adjacent to the existing two-lane US 113; shifts would occur so as to avoid/minimize displacements and sensitive environmental features (streams and wetlands). The existing pavement section would be utilized for either the northbound or southbound lanes. Two travel lanes would be provided per direction.

- Design Speed would be 50 mph.

- Median width would provide 8 feet of recovery area for vehicles that leave the roadway toward the center.

- The paved outside shoulders would be 10 feet wide and 9-feet of safety grading would be provided. In sensitive areas (such as a wetland or stream crossing), guardrail would be provided in place of the roadside grading to minimize impacts.

- Left turn lanes and median breaks would be provided at the following intersections:

  - Friendship Road (MD 452) (T intersection)
  - Carey Road/Jones Road
  - Eastbound MD 90 interchange ramps (T intersection)
  - Westbound MD 90 interchange ramps (T intersection)

- East side service road north of MD 90 (T intersection)
- Racetrack Road (T intersection)
- Pitts Road (T intersection)
- Peerless Road (T intersection)
- Shingle Landing Road (T intersection)
- relocated Jarvis Road (T intersection)
- Bishopville Road (MD 367)
- Whaleyville Road (MD 610)/Hammond Road

- Driveways and minor service roads would be provided with a right-in/right-out only.

- Drivers from driveways that need to access the other side of the road would have to turn right and travel to the nearest intersection to make a U-turn (i.e. a driveway on the northbound side of the road that wants to travel southbound would turn right heading northbound, go to the next intersection, and use the left turn lane for a U-turn).

- The estimated cost for Alternative 3N-20' Median (50 MPH) is:

Right of Way	$11.4 M
Engineering & Construction	$51.9 M
TOTAL (1997 $)	$63.3 M

◆ **Summary of Alternative 3N - 34' Median & 50 MPH:**

- **Except for the 34-foot wide median, all other features of Alternative 3N-34' Median (50 MPH) would be identical to the previously described Alternative 3N-20' Median (50 MPH).**

- The entire 34 foot median would be available as a recovery area for vehicles that leave the roadway toward the center. Recovery area suggested by FHWA roadside design guidelines is 30 feet.

- The estimated cost for Alternative 3N-34' Median (50 MPH) is:

Right of Way	$12.8 M
Engineering & Construction	$59.7 M
TOTAL (1997 $)	$72.5 M

◆ **Summary of Alternative 3N-20' Median & 60 MPH:**

- Alternative 3N would typically be adjacent to the existing two-lane US 113; shifts would occur so as to avoid/minimize displacements and sensitive environmental features (streams and wetlands). The existing pavement section would be utilized for either the northbound or southbound lanes. Two travel lanes would be provided per direction.

- Design Speed would be 60 mph.

- Median width would provide 8 feet of recovery area for vehicles that leave the roadway toward the center.

- The paved outside shoulders would be 10 feet wide and 20-feet of safety grading would be provided. In sensitive areas (such as a wetland or stream crossing), guardrail would be provided in place of the roadside grading to minimize impacts.

- Left turn lanes and median breaks would be provided at the following intersections:

  - Friendship Road (MD 452) (T intersection)
  - Carey Road/Jones Road
  - Eastbound MD 90 interchange ramps (T intersection)
  - Westbound MD 90 interchange ramps (T intersection)
  - East side service road north of MD 90 (T intersection)
  - Racetrack Road
  - Pitts Road
  - Peerless Road/Shingle Landing Road
  - relocated Jarvis Road (T intersection)
  - Bishopville Road (MD 367)
  - Whaleyville Road (MD 610)/Hammond Road

- Driveways and minor service roads would be provided with a right-in/right-out only.

- Drivers from driveways that need to access the other side of the road would have to turn right and travel to the nearest intersection to make a U-turn (i.e. a driveway on the northbound side of the road that wants to travel southbound would turn right heading northbound, go to the next intersection, and use the left turn lane for a U-turn).

- The estimated cost for Alternative 3N-20' Median (60 MPH) is:

Right of Way	$12.8 M
Engineering & Construction	$51.6 M
TOTAL (1997 $)	$64.4 M

◆ **Summary of Alternative 3N - 34' Median & 60 MPH:**

- **Except for the 34-foot wide median, all other features of Alternative 3N-34' Median (60 MPH) would be identical to the previously described Alternative 3N-20' Median (60 MPH).**

- The entire 34 foot median would be available as a recovery area for vehicles that leave the roadway toward the center. Recovery area suggested by FHWA roadside design guidelines is 30 feet.

- The estimated cost for Alternative 3N-34' Median (60 MPH) is:

Right of Way	$14.2 M
Engineering & Construction	$59.5 M
TOTAL (1997 $)	$73.7 M

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8. Dualization Alternatives In New Alignment in the Northern Study Area
(see Appendix A, Figures 15 through 17)

The typical roadway section would consist of two 12-foot travel lanes in each direction, a median, 10-foot outside shoulders, and 20-feet of safety grading on both sides of the roadway where appropriate. This alternative is being designed for a 60 MPH design speed with two alternative median widths and treatments. The proposed typical sections for Alternative 4N Modified are shown on Figure II-8 for 4N-20' Median and for 4N-34' Median.

The dualization on new location would involve the construction of a new four-lane divided roadway away from the existing facility. The roadway would be constructed on new location to minimize impacts to residential and commercial properties.

The preliminary new location alternatives (Alternatives 4N Option A, and 4N Option B) were combined and revised to create the Alternative 4N Modified which was retained for detailed study. Although Alternative 4N Modified generally follows the same alignment as the previous new location alternatives, the modifications have resulted in fewer impacts to the natural and socioeconomic environments.

The Alternative 4N Modified alignment begins as an extension of existing dualized US 113, approximately 0.8 mile north of US 50, near Deer Park Drive. The alignment would leave existing US 113 on a tangent and head in a northerly direction on the west side of the existing roadway in the Friendship area. The existing 110-foot median transitions to the proposed median through the first curve. Existing US 113 north of the new alignment would be relocated to a new T intersection in order to provide access along old US 113 to the north.

Continuing in a northeasterly direction, the alignments cross Carey Road approximately 0.5 mile west of existing US 113. No substantive changes in the horizontal or vertical geometry are planned for the Carey Road intersection. The alignments then continue in a northerly direction through the graded area, reserved for the previously planned US 113/MD 90 interchange, and passes beneath MD 90, approximately 0.4 mile west of the existing US 113/ MD 90 interchange. A full diamond interchange configuration is planned, with consideration for the addition of loop ramps in the future. No additional improvements would be required for MD 90, and the existing bridge previously constructed would be used.

Continuing in a northerly direction, the alignments intersect existing US 113, approximately 0.8 mile north of MD 90. Existing US 113 north of MD 90 would be relocated to intersect with the new location alignment at a T-intersection (existing US 113 north of this point would have access at Racetrack Road (MD 589)). These alignments then parallel the existing roadway approximately 150 feet to the east intersecting MD 589 (Racetrack Road). Horizontal improvements to the MD 589 intersection include the addition of a second left turn lane from southbound US 113 to eastbound MD 589. No substantive change in the MD 589 profile is planned.

Approximately 2.3 miles of existing US 113 would be retained as a local road through Jones and Friendship, serving several residences and businesses located along the existing roadway. The existing roadway would tie into the relocated alignment approximately 0.3 mile north of Deer Park Drive and approximately 0.3 mile south of MD 589. The existing US 113/MD 90 interchange ramps would be removed.

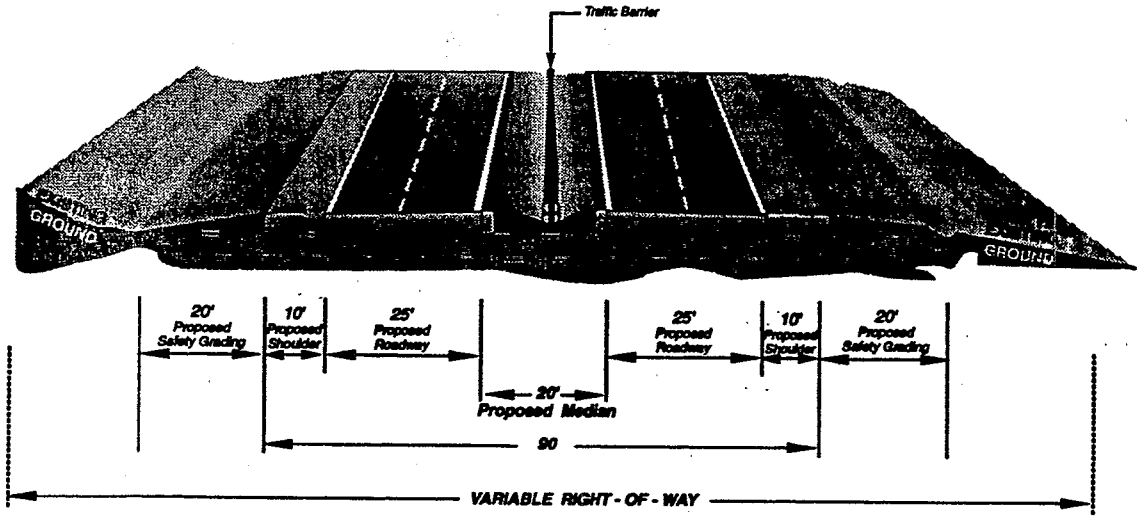
From MD 589, the alignments continue north bypassing the Town of Showell to the east. Alternative 4N Modified would rejoin and parallel the existing roadway to the east for approximately 0.2 mile to north of Shingle Landing Road. Horizontal improvements include the realignment of Shingle Landing Road and the extension of Peerless Road to create a four-legged intersection replacing the two existing T-intersections. No substantive changes in the profiles of Shingle Landing or Peerless Roads are planned.

Approximately 1.4 miles of existing US 113 would be retained as a local road through the Town of Showell, serving several residences, businesses located along the existing roadway. Existing US 113 would tie into the relocated alignments at MD 589 and at Peerless Road.

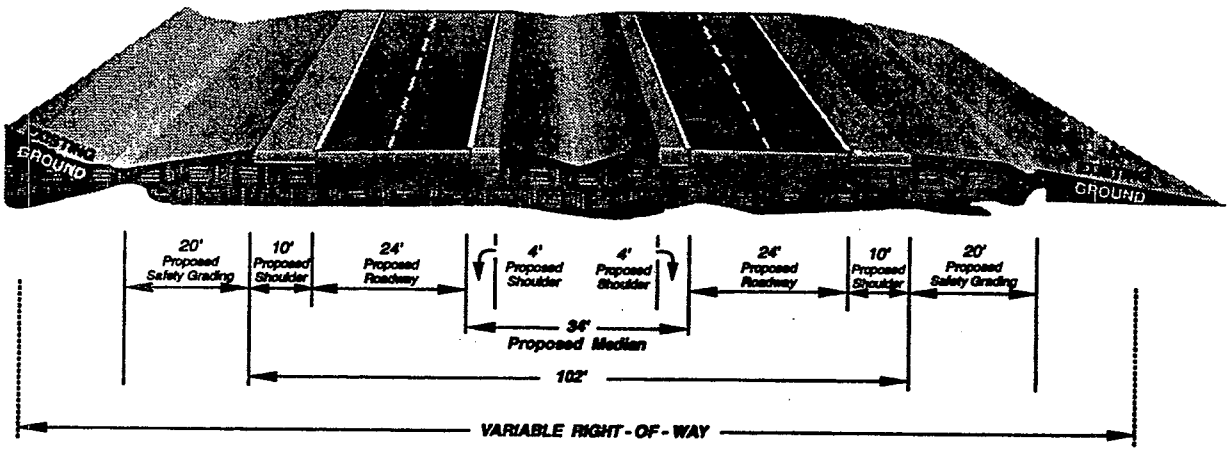
The alignments continue on a tangent in a northerly direction leaving the existing roadway to the west, approximately 0.4 mile north of Shingle Landing Road and returning to the existing alignment approximately 0.3 mile north of Jarvis Road. SHA's plans to reconfigure the existing intersection are compatible with this relocation.

Alternative 4N Modified follows the Alternative 3N alignment, continuing in a northwesterly direction, where the alignment parallels existing US 113 to the east crossing Kepler Lane and Old Stage Road, retaining approximately 0.8 mile of the existing roadway as southbound US 113. No improvements would be planned for Kepler Lane and only minor adjustments in the horizontal and vertical geometry would be planned for Old Stage Road. The alignments displace one of the two existing warehouses south of Old Stage Road. Relocation of the existing Delmarva Veterinarian Hospital parking lot is planned north of the existing building.

The Alternative 4N Modified alignments leave the existing roadway at MD 367 (Bishopville Road) 0.1 mile west of the existing intersection. No substantive change in the horizontal or vertical geometry is planned for MD 367 or MD 610. Approximately 1.0 mile of existing US 113 would be retained as a local road through Bishop, serving several residences and businesses located along the existing roadway. Existing US 113 would be terminated approximately 0.2 mile north of MD 367 and approximately 0.3 mile north of MD 610, utilizing MD 610 as a tie to the relocated alignment. The new location alignments continue in a northerly direction and rejoin the existing alignment approximately 0.2 mile south of Hotel Road, paralleling the existing roadway to the west. The alignments tie into the existing dualized roadway and end at the Delaware state line, near the intersections with Morris and Hotel roads. The proposed median transitions to meet the existing 90-foot wide median in Delaware through the last horizontal curve. No substantive changes in the horizontal or vertical geometry are planned for at-grade intersections with Morris or Hotel roads.



ALTERNATIVE 4N MODIFIED - 20' MEDIAN DUALIZATION ON NEW ALIGNMENT (60 MPH)



ALTERNATIVE 4N MODIFIED - 34' MEDIAN DUALIZATION ON NEW ALIGNMENT (60 MPH)

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

US 113 PLANNING STUDY

Typical Sections
Alternative 4N - 20' Median
Alternative 4N - 34' Median

Maryland State Highway Administration	April 1997	Figure II-8

◆ **Summary of Alternative 4N-20' Median (60 MPH):**

- Alternative 4N would typically be in new location away from the existing two-lane US 113. Two travel lanes would be provided per direction.

- Design Speed would be 60 mph.

- Median width would provide 8 feet of recovery area for vehicles that leave the roadway toward the center.

- The paved outside shoulders would be 10 feet wide and 20-feet of safety grading would be provided. In sensitive areas (such as a wetland or stream crossing), guardrail would be provided in place of the roadside grading to minimize impacts.

- Left turn lanes and median breaks would be provided at the following intersections:

  - Old US 113 near Deer Park Drive (T intersection)
  - Carey Road
  - Eastbound MD 90 interchange ramps
  - Westbound MD 90 interchange ramps
  - Racetrack Road
  - Shingle Landing Road/Peerless Road
  - relocated Jarvis Road (T intersection)
  - Bishopville Road (MD 367)
  - Whaleyville Road (MD 610)

- Access to the new location portions of this alternative would only be provided at public roads (i.e. no private driveways).

- Minor service roads (and driveways along portions of US 113 used for this alignment) would be provided with a right-in/right-out only. Drivers from driveways that need to access the other side of the road would have to turn right and travel to the nearest intersection to make a U-turn (i.e. a driveway on the northbound side of the road that wants to travel southbound would turn right heading northbound, go to the next intersection, and use the left turn lane for a U-turn).

- The estimated cost for Alternative 4N-20' Median (60 MPH) is:

Right of Way	$ 9.4 M
Engineering & Construction	$59.5 M
TOTAL (1997 $)	$68.9 M

'06

◆ **Summary of Alternative 4N - 34' Median (60 MPH):**

- **Except for the 34-foot wide median, all other features of Alternative 4N-34' Median (60 MPH) would be identical to the previously described Alternative 4N-20' Median (60 MPH).**

- The entire 34 foot median would be available as a recovery area for vehicles that leave the roadway toward the center. Recovery area suggested by FHWA roadside design guidelines is 30 feet.

- The estimated cost for Alternative 4N-34' Median (60 MPH) is:

Right of Way	$10.4 M
Engineering & Construction	$60.1 M
TOTAL (1997 $)	$70.5 M

9. Dualization Alternatives Along a Combination of Existing and New Alignments in the Northern Study Area (see Appendix A, Figures 15 through 17)

A Combination Alternative which uses portions of Alternative 3N and Alternative 4N Modified is also being considered. The typical sections and alignments for the Combination Alternative would be the same as those used for Alternatives 3N and 4N Modified. This alternative is being designed for a 60 MPH design speed with two alternative median widths and treatments. The Combination Alternative follows the Alternative 4N Modified alignment from US 50 through the previously graded MD 90 interchange area across existing US 113 at MD 589 and bypasses the Town of Showell to the east. Like Alternative 4N Modified, the Combination Alternative ties back into existing US 113 just north of Showell, but then follows Alternative 3N along the existing alignment of US 113 to the northern project terminus at the Delaware state line.

The alignment of the Combination Alternative (following the Alternative 4N Modified alignment) begins as an extension of existing dualized US 113, approximately 0.8 mile north of US 50, near Deer Park Drive. The alignment would leave existing US 113 on a tangent and head in a northerly direction on the west side of the existing roadway in the Friendship area. The existing 110-foot median transitions to the proposed median through the first curve. Existing US 113 north of the new alignment would be relocated at a new T intersection, in order to provide access along old US 113 to the north.

Continuing in a northeasterly direction, the alignments cross Carey Road approximately 0.5 mile west of existing US 113. No substantive changes in the horizontal or vertical geometry are planned for the Carey Road intersection. The alignments then continue in a northerly direction through the graded area, reserved for the previously planned US 113/MD 90 interchange, and passes beneath MD 90, approximately 0.4 mile west of the existing US 113/MD 90 interchange. A full diamond interchange configuration is planned, with consideration for the addition of loop ramps in the future. No additional improvements would be required for MD 90, and the existing bridge previously constructed would be used.

Continuing in a northerly direction, the alignment intersects existing US 113, approximately 0.8 mile north of MD 90. Existing US 113 north of MD 90 would be relocated to intersect with the new location alignment at a T-intersection (existing US 113 north of this point would have access at Racetrack Road (MD 589)). These alignments then parallel the existing roadway approximately 150 feet to the east intersecting MD 589 (Racetrack Road). Horizontal improvements to the MD 589 intersection include the addition of a second left turn lane from southbound US 113 to eastbound MD 589. No substantive change in the MD 589 profile is planned.

Approximately 2.3 miles of existing US 113 would be retained as a local road through the communities of Jones and Friendship, serving several residences and businesses located along the existing roadway. The existing roadway would tie into the relocated alignment approximately 0.3 mile north of Deer Park Drive and approximately 0.3 mile south of MD 589. The existing US 113/MD 90 interchange ramps would be removed.

From MD 589, the alignments continue north bypassing the Town of Showell to the east. The Combination Alternative (still following the Alternative 4N Modified alignment) would rejoin and parallel the existing roadway to the east for approximately 0.2 mile to north of Shingle Landing Road. Horizontal improvements include the realignment of Shingle Landing Road and the extension of Peerless Road to create a four-legged intersection replacing the two existing T-intersections. No substantive changes in the profiles of Shingle Landing or Peerless Roads are planned.

Approximately 1.4 miles of existing US 113 would be retained as a local road through the Town of Showell, serving several residences and businesses located along the existing roadway. Existing US 113 would tie into the relocated alignments at MD 589 and at Peerless Road.

The alignments continue on a tangent in a northerly direction leaving the existing roadway to the west, approximately 0.4 mile north of Shingle Landing Road and returning to the existing alignment approximately 0.3 mile north of Jarvis Road. SHA's plans to reconfigure the existing intersection are compatible with this relocation.

The Combination Alternative would then follow the Alternative 3N alignment, continuing in a northwesterly direction, where the alignment parallels existing US 113 to the east crossing Kepler Lane and Old Stage Road, retaining approximately 0.8 mile of the existing roadway as southbound US 113. No improvements would be planned for Kepler Lane and only minor adjustments in the horizontal and vertical geometry would be planned for Old Stage Road. The alignments displace one of the two existing warehouses south of Old Stage Road. Relocation of the existing Delmarva Veterinarian Hospital parking lot is planned north of the existing building.

The alignment continues in a northwesterly direction, crossing the Maryland and Delaware Railroad at approximately the same location as the existing US 113 crossing. These alignments eliminate the existing triple reversing curves and returns to the existing US 113 alignment approximately 300 feet south of MD 610 (Whaleyville Road). The alignments then continue in a northwesterly direction, paralleling the existing roadway to the west and crosses MD 610. No substantive changes in the MD 610 horizontal or vertical geometry are planned.

Continuing in a northwesterly direction the alignments tie into the existing dualized roadway and end at the Delaware state line, crossing Morris and Hotel roads. The proposed median transitions to meet the existing 90-foot wide median in Delaware through the last horizontal curve. No substantive changes in the horizontal or vertical geometry are planned for Morris or Hotel roads.

◆ **Summary of Combination Alternatives 3N/4N Modified - 20' Median (60 MPH):**

- This alternative represents a combination of previously discussed Alternatives 3N-20' Median and 4N Modified -20' Median. Two travel lanes would be provided per direction.

- Design Speed would be 60 mph.

- Median width would provide 8 feet of recovery area for vehicles that leave the roadway toward the center.

- The paved outside shoulders would be 10 feet wide and 20-feet of safety grading would be provided. In sensitive areas (such as a wetland or stream crossing), guardrail would be provided in place of the roadside grading to minimize impacts.

- Left turn lanes and median breaks would be provided at the following intersections:

  - Old US 113 near Deer Park Drive (T intersection)
  - Carey Road
  - Eastbound MD 90 interchange ramps
  - Westbound MD 90 interchange ramps
  - Racetrack Road
  - Shingle Landing Road/Peerless Road

- relocated Jarvis Road (T intersection)
- Bishopville Road (MD 367)
- Whaleyville Road (MD 610)

- Access to the new location portions of this alternative would only be provided at public roads (i.e. no private driveways).

- Minor service roads (and driveways along portions of US 113 used for this alignment) would be provided with a right-in/right-out only. Drivers from these driveways that need to access the other side of the road would have to turn right and travel to the nearest intersection to make a U-turn (i.e. a driveway on the northbound side of the road that wants to travel southbound would turn right heading northbound, go to the next intersection, and use the left turn lane for a U-turn).

- The estimated cost for Combination Alternative 3N/4N Modified-20' Median (60 MPH) is:

Right of Way	$ 8.8 M
Engineering & Construction	$56.6 M
TOTAL (1997 $)	$65.4 M

◆ **Summary of Combination Alternative 3N/4N Modified - 34' Median (60 MPH):**

- **Except for the 34-foot wide median, all other features of Combination Alternative 3N/4N Modified-34' Median (60 MPH) would be identical to the previously described Combination Alternative 3N/4N Modified-20' Median (60 MPH).**

- The entire 34 foot median would be available as a recovery area for vehicles that leave the roadway toward the center. Recovery area suggested by FHWA roadside design guidelines is 30 feet.

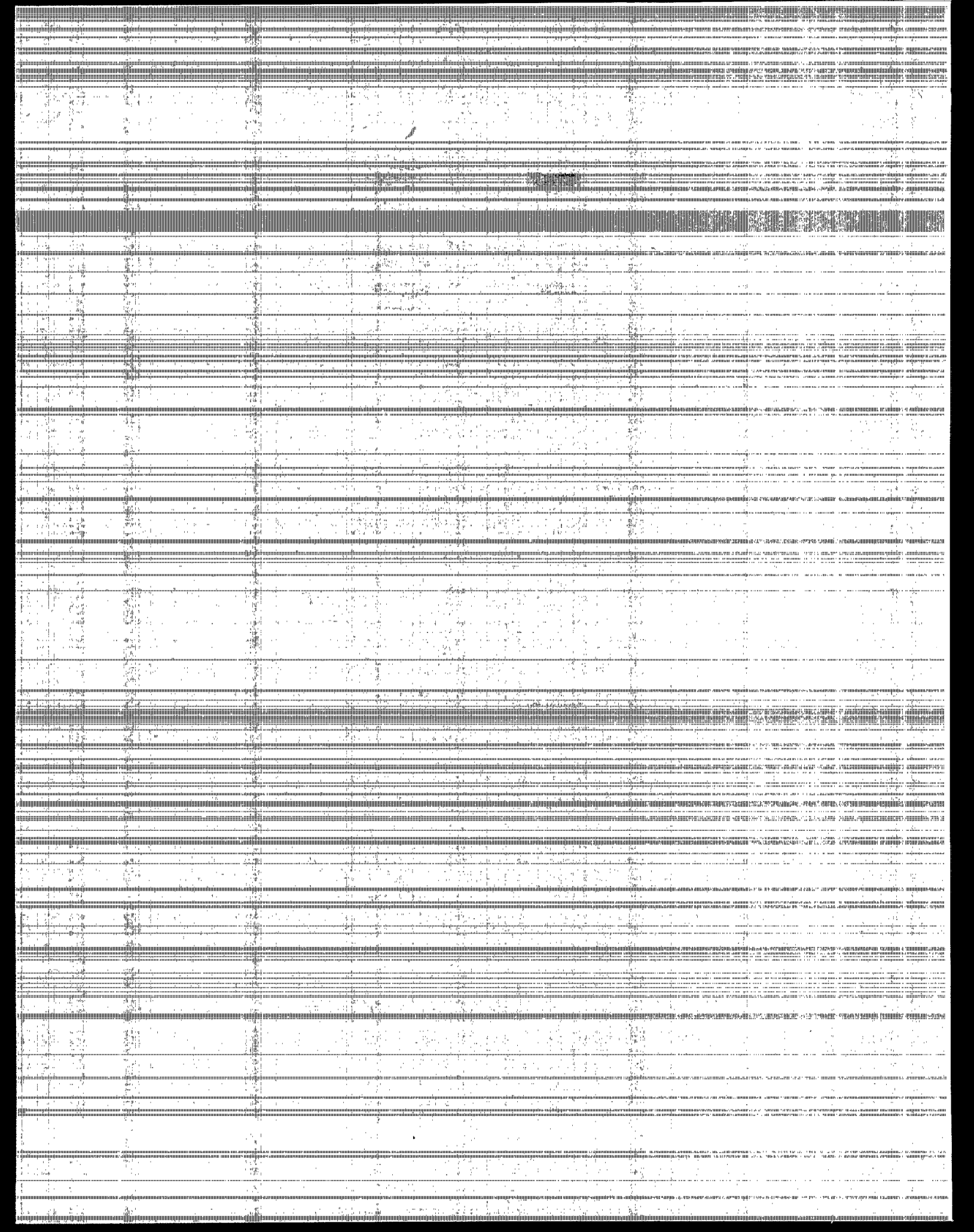
- The estimated cost for Combination Alternative 3N/4N Modified-34' Median (60 MPH) is:

Right of Way	$ 9.8 M
Engineering & Construction	$57.0 M
TOTAL (1997 $)	$66.8 M

III.
AFFECTED ENVIRONMENT

US 113 Planning Study
Snow Hill, Maryland to Delaware State Line

Office of Planning and Preliminary Engineering
Maryland State Highway Administration



III. AFFECTED ENVIRONMENT

The general setting within which the alternatives for improvements to US 113 were developed are described in this chapter of the DEIS. This information provides an inventory of the resources that may be affected by the various alternatives being considered. The alternatives under consideration, as presented in Chapter II, are anticipated to have a variety of direct and indirect impacts on the natural, manmade (built) and socioeconomic environments within the study area. The primary focus of this chapter is to provide a baseline condition against which to assess the location and magnitude of anticipated impacts. The environmental consequences of the various alternatives being considered are presented in Chapters IV and V (Section 4(f) resources).

A. Social, Economic and Land Use

1. Social Environment

a. Population Characteristics

County

Statistical data regarding population demographics was gathered primarily from 1990 US Census data for the project area and Worcester County. An interview with Worcester County Planning Permits, and Inspections (WCPPI) office staff (Hagar, 1996) was conducted to ascertain additional information regarding the study area. The observations provided by WCPPI were then compared with 1990 US Census data and county planning documents and field verified along the US 113 corridor, as appropriate. The only incorporated areas in Worcester County are the towns of Berlin, Snow Hill, Ocean City and Pocomoke City, the latter two are located beyond the project limits.

At the time of the 1990 US census, Worcester County had a population of 35,028. The estimated 1995 population for the County is 41,200 (US Census Bureau, 1996). Worcester County's population is projected to be approximately 46,000 by the year 2000; 58,000 by the year 2010; and 67,000 by the year 2020 (Hagar, 1997). The population growth will be primarily from the in-migration of people to the County. Population growth is expected to be driven by a continued increase in retirees, moving in from the Baltimore/Washington DC area, and residents who commute to jobs outside of the County. The recent population growth has not been evenly distributed throughout the County. The historical and projected population growth rates for the County are identified on Table III-1.

Worcester County has a large number of seasonal residents. This is primarily due to the County's tourism industry, which generates seasonal employment opportunities and attracts vacationers to the County's Atlantic Ocean beaches and other area attractions. Identified on Table III-2 are the average daily seasonal population estimates in Ocean City for the months of January and August for the years 1980 and 1993 (the latest available figures).

Table III-1: Worcester County Population Growth

Decade	1940-50	1950-60	1960-70	1970-80	1980-90	1990-00	2000-10	2010-20
% Increase	8.9 %	2.5 %	2.9 %	26.4 %	13.4 %	23.6 %*	11.3 %*	6.6 %*

* Projected

Sources: Maryland State Data Center
1990 US Census
Maryland Office of Planning

The daily summer population in Ocean City in the year 2000 is projected to be 345,400 (Ocean City Department of Planning and Community Development, 1994).

Table III-2: Average Daily Seasonal Population

Month	1980	1993	Percentage Change
January	11,500	80,000	+ 695 %
August	199,700	313,000	+ 156 %

Source: Ocean City Dept. Of Planning and Community Development

Census Tract and Election Districts

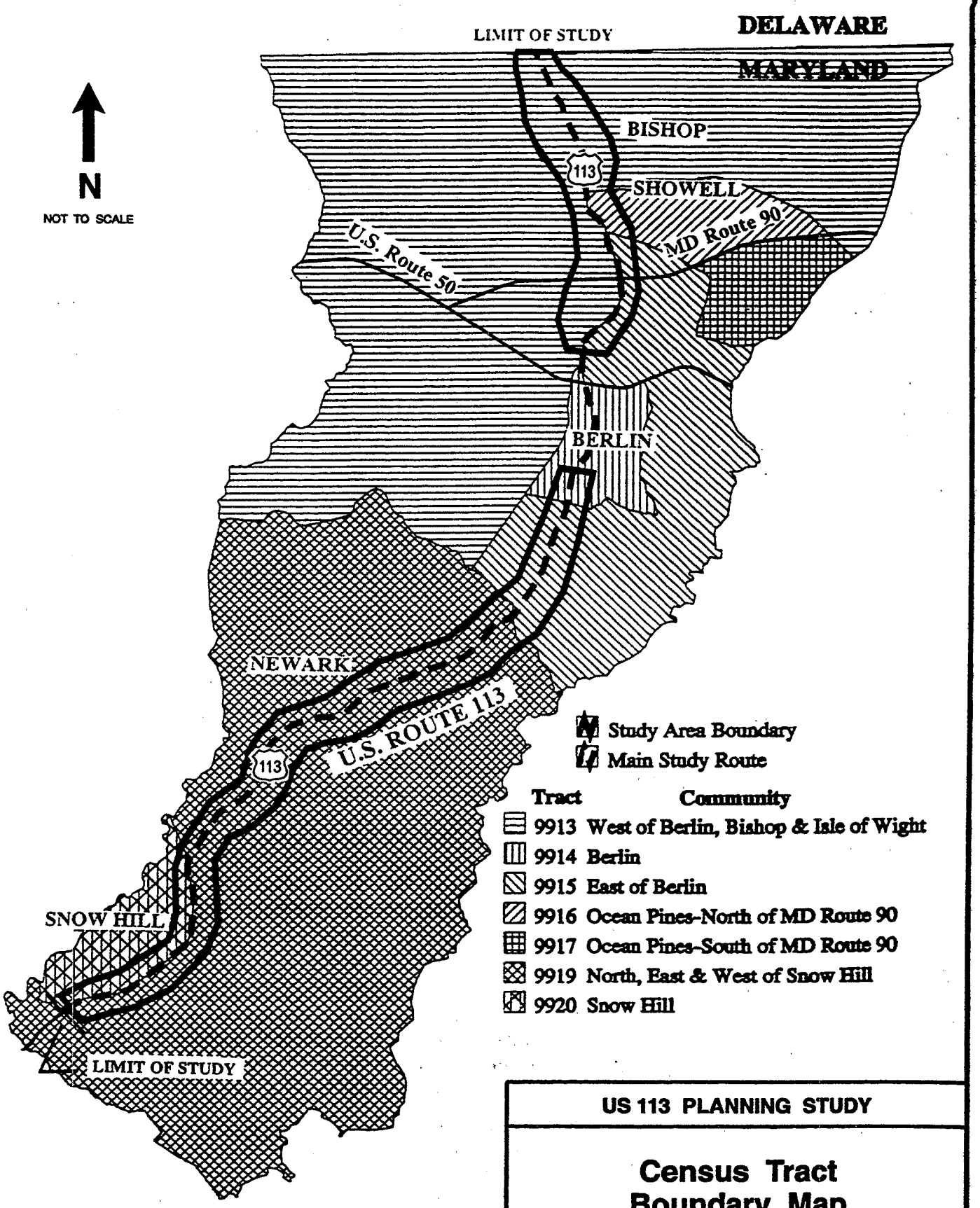
The boundaries for Worcester County census tracts are presented on Figure III-1. Typically, a census tract covers a geographic area which is similar in size to a municipality. Worcester County, however, consists primarily of non-incorporated land. Table III-3 shows the census tract information for the tracts located within the study area.

Table III-3: Census Tract Population Information

Census Tract	9913	9914	9915	9916	9917	9919	9920
Population	3,709	3,409	1,759	2,609	1,781	2,780	2,777

Source: 1990 US Census

Local demographic information and population projections were gathered from planning documents published by Worcester County.



US 113 PLANNING STUDY

Census Tract Boundary Map

Maryland State Highway Administration | April 1997 | Figure III-1

Local population growth information is available based on election districts and is presented in Table III-4. A map showing the election districts at a scale comparable to the scale of this document was unavailable. The election district map is currently being reviewed by the Worcester County Commission.

Table III-4: Local Population Growth, 1985 - 1995

1985-1995	Election District				
	Ocean City	Berlin	St. Martins	Newark	Snow Hill
Population Increase	2,925	1,985	486	265	296
Growth Rate	27.7 %	22.6 %	27.7 %	27.7 %	6.0 %

Source: Worcester County Planning Permits and Inspections Office

Election districts within the study area experienced an increase in population between 1985 and 1995. The greatest numerical increase in population occurred in the northeastern part of the County, namely Ocean City, Berlin and St. Martins. This is largely due to an influx of retirees into the communities in and around Ocean City and the development of suburban-style "bedroom communities" for residents who commute to jobs outside the County (i.e., southern Delaware and Salisbury, Wicomico County). The County is attractive due to inexpensive housing costs and a low cost of living.

Age Distribution

According to the WCPPI office, Worcester County has a higher number of older residents relative to most counties on the lower Eastern Shore, and a lower number of young adult residents. The high number of older residents is due to the large number of retirees who live full time in the communities in and around Ocean City. Many of these retirees are former government employees over age 55 who previously worked and lived in the Baltimore/Washington DC area. According to the 1990 US Census, 29.8 percent (6,383) of Worcester County residents are age 55 and older. Approximately 18.2 percent of the County residents are 65 years old or older. The low number of young adult residents is due to the lack of non-seasonal entry level employment opportunities within the County. Young adults who wish to pursue skilled positions or employment which requires a college education typically must move out of the County or work in neighboring counties and commute.

The age distribution in the study area census tracts is located in Table III-5. According to the 1990 US Census, Census Tract 9916 had the highest percentage of people age 65 and over (21.7). Census Tract 9919 had the lowest percentage (14.2).

Table III-5: Age Distribution In Study Area Census Tracts

Age	Tract 9913		Tract 9914		Tract 9915		Tract 9916		Tract 9917		Tract 9919		Tract 9920	
<5	213	6%	279	8%	118	7%	168	6%	141	8%	173	6%	200	7%
5-13	398	11%	466	14%	219	12%	206	8%	214	12%	381	14%	322	12%
14-21	320	9%	276	8%	182	10%	173	7%	130	7%	252	9%	305	11%
22-44	1,340	36%	1,086	32%	617	35%	816	31%	622	35%	952	34%	923	33%
45-54	438	12%	310	95	196	11%	241	9%	160	9%	379	14%	282	10%
55-64	407	11%	299	9%	173	10%	437	17%	237	13%	248	9%	267	10%
65 + over	593	16%	693	20%	254	14%	568	22%	277	16%	396	14%	478	17%
TOTAL	3,709	100%	3,409	100%	1,759	100%	2,609	100%	1,781	100%	2,781	100%	2,777	100%

Source: 1990 US Census

Income

According to the WCPPI, low, middle and high income households are intermingled throughout the County, and there is no singular concentration of low or high income households. The 1990 median household income for the State of Maryland was $39,386, while it was $27,586 for Worcester County (Table III-6). The study area census tracts with the highest median household incomes are North Ocean Pines (tract 9916) and South Ocean Pines (tract 9917), with median household incomes of $40,740 and $36,884, respectively. The study area census tract with the lowest median household income is Berlin (tract 9914) with a median income of $21,835.

Table III-6 shows the percentage of persons under the US Department of Health and Human Services poverty level standard ($6,310 for one person) as of the 1990 census. Worcester County's rate of persons below poverty (11.0%) was higher than the state's rate (8.3%). Half of the census tracts (tracts 9914, 9915, 9919 and 9920) in the study area had a rate higher than the state. Only two tracts (tracts 9914 and 9915) in the study area had a higher rate that the Worcester County rate.

Table III-6: State, County, and Census Tract Economic Information

Category	MD	Worcester County	Tract 9913	Tract 9914	Tract 9915	Tract 9916	Tract 9917	Tract 9919	Tract 9920
Median Household Income ($1,000)	39.4	27.6	31.5	21.8	26.8	40.7	36.9	31.4	25.2
% Persons Under Poverty Level	8.3	11.0	7.3	17.6	15.1	2.6	4.6	10.2	10.3

Note: The annual poverty income standard for one person in 1989 was $6,310. As of March 10, 1997, the US Department of Health and Human Services annual poverty income standard for one person was $7,890.

Source: 1990 US Census

Racial Characteristics

The WCPPI office has indicated that the only sizable racial groups within the County are African-Americans and Caucasians. The African-American population (1,602 as of the 1990 census) is distributed throughout the County, and does not constitute a majority in any census tract (see Table III-7). According to the 1990 census, the racial breakdown for Worcester County was 21.2 percent African-American and 78.4 percent Caucasian, with other ethnic groups averaging less than 1 percent. The census tracts with the highest percentage of African-Americans were in the vicinity of Snow Hill (tract 9920) with 40.7 percent, and Berlin (tract 9914) with 43.4 percent. The census tracts with the lowest amount of African-American populations were located in Ocean Pines (tracts 9916 and 9917) with 1.1 percent and 1.6 percent, respectively. This grouping suggests that the African-American population is more prevalent in the established communities, primarily in the southern portion of the study area.

The only predominant minority community observed in the study area is located just south of Bishop adjacent to US 113 near Old Stage Road. The community consists of twelve houses inhabited by African-American residents.

Table III-7: Racial Population Characteristics

Category	MD	Worcester County	Tract 9913	Tract 9914	Tract 9915	Tract 9916	Tract 9917	Tract 9919	Tract 9920
	Percentage								
Caucasian	71.0	78.4	83.9	54.2	71.2	98.4	98.4	75.2	58.6
African-American	24.9	21.2	15.6	43.4	28.4	1.1	1.6	24.1	40.7
Other Minorities (American Indian, Eskimo, Aleut, and Asian or Pacific Islander)	4.1	0.4	0.5	2.3	0.4	0.5	0.0	0.8	0.7

Source: 1990 US Census

b. Environmental Justice

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations issued on February 11, 1994, requires federal agencies "to identify and address as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations..." Minority is defined as "individual(s) who are members of the following population groups: American Indian or Alaskan Native, Asian or Pacific Islander, Black, not of Hispanic origin, or Hispanic". Also, low income populations should be identified as the median income below the Department of Health and Human Services poverty guidelines. These populations are to be provided access to public information and an opportunity to participate in matters relating to the environment.

The purpose of Environmental Justice (EJ) is to identify and address "disproportionately high and adverse impacts" on minority populations and low income populations resulting from alternatives under consideration and to provide the opportunity for these populations to be involved in the public participation process.

To identify minority and low income populations, a census tract analysis was first conducted. Census tract 9914 has the highest percentage of minorities (43.4) and the highest percentage of individuals (17.6) under the poverty level. Census tract 9920 has the second highest percentage of minorities (40.7) and 10.3 percent of the population under the poverty level. Census tract 9915 has the third highest percentage of minorities (28.4) and the second highest percentage of persons below the poverty level (15.1). Based on this analysis, it can be

generally concluded that the highest concentrations of the minority population and lower income groups are located in the older, established communities such as Berlin and Snow Hill, with the newer, more affluent communities such as Ocean Pines having fewer minority and lower income populations.

In a public outreach effort to supplement the census tract information, the SHA sent correspondence to area churches requesting their assistance in informing their members of the project and helping identify minority and low income concentrations in the project area. SHA also offered to meet with the churches to discuss the project.

c. Neighborhoods

The study area for the US 113 corridor is rural in nature with much of the land being used for agriculture. Within the project corridor are several communities and two urban centers. Ironshire, Basket Switch, and Wesley in the southern study area and Jones, Friendship, Showell and Bishop in the northern study area are small, predominantly residential crossroad communities located along US 113. One and two story single family detached houses are the dominant housing types in these communities. In Showell, there is a Perdue Chicken poultry processing facility and a hatchery. In Bishop, there are some neighborhood businesses, including a couple of restaurants, a veterinarian hospital and a boat repair business. Other industries in Bishop include a poultry processing and feed mill operation and an asphalt plant.

Newark in the southern study area is the only community with village zoning. As a village, Newark displays the architectural and development history characteristics of the County. New development is to be carefully considered for its impact on the existing community character.

Ocean Pines, located east of study area, is a high density residential development. This private community is located along the central coastal bay area of the county. Some retail businesses and fueling stations are located near this community at the MD 589/MD 90 interchange.

Berlin and Snow Hill are the two urban centers in the US 113 corridor where most of the community facilities and services, retail businesses and central business districts in the US 113 study area are located. Residential densities range from low density single family units to multi-family housing in these two towns. In addition, Snow Hill is the seat of government for Worcester County. Many of the public agencies of the Federal, state and county governments are located here.

The Town of Ocean City, located east of the project area, is a popular tourist attraction with ten miles of public beaches along with amusements, lodging, restaurants and other entertainment and recreational opportunities. The population of this ocean resort can swell to approximately 300,000 during the summer months. Ocean Pines, Cape Isle of Wight, St. Martin's Neck and West Ocean City are experiencing increases in residential and commercial development as land available for development in Ocean City becomes scarcer and more costly to develop.

There appears to be little pedestrian and bicycle activity in the study area outside of Berlin and Snow Hill. The View Trail 100 is a scenic bike route, which uses a network of rural County roads, and crosses US 113 just south of Newark.

d. Community Facilities and Services

A field visit to the study area and a review of Worcester County mapping were conducted to identify community facilities and services in the study area. Community facilities and services located in the study area are shown on Figures III-2A through 2D and discussed in greater detail in this section. Some of these facilities are located outside of the project limits but still serve the citizens of the area.

Places of Worship

There are numerous existing and planned places of worship within the study area. Temple Bat Yam (currently under construction), the Calvary Chapel and the future site of Trinity Charismatic Episcopal Church are located near the US 113/MD 90 interchange. The congregation of Trinity Charismatic Episcopal Church currently meets on Sundays at the Showell Elementary School. Friendship United Methodist Church is in the crossroad community of Jones. In the crossroad community of Showell is the Showell United Methodist Church. The St. Matthews Baptist Church and the Calvary Pentecostal Church. are located just north of Bishop. St. Martin's Church, located at the intersection of US 113 and MD 589 does not appear to have an active congregation, but is undergoing historic preservation. St. John Neumann Catholic Church is located to the east of the project area along MD 589, near Ocean Pines. In Newark there are two United Methodist Churches. The Snow Hill Mennonite Church is located along US 113 just north of Snow Hill. Located in Snow Hill are the Mt. Zion Baptist Church, Bates Methodist Church, Makemie Memorial United Presbyterian Church, Snow Hill Church of God, Whatcoat Methodist Church and Snow Hill Christian Church.

e. Emergency Services

Law Enforcement

Barrack V of the Maryland State Police, located on US 50 just west of Berlin, and the Worcester County Sheriff's Department, with stations in Isle of Wight and Snow Hill, are the law enforcement agencies responsible for patrolling the unincorporated areas of the County. Ocean Pines and Snow Hill each have their own police force to patrol within their respective municipality. The Worcester County Detention Center is located on Joyner Road just west of US 113 near Snow Hill.

Fire and Rescue

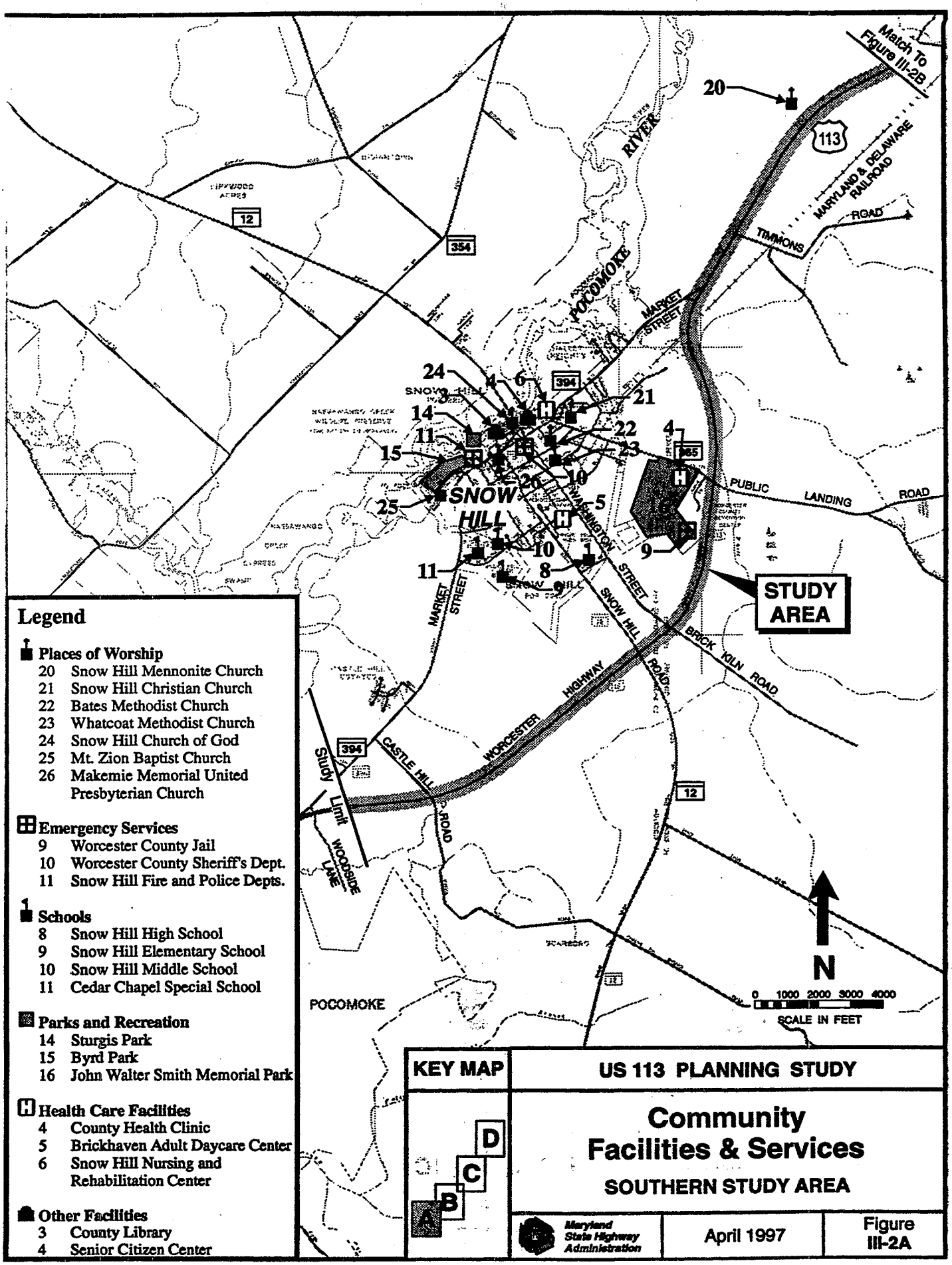
All of the fire companies within the County are volunteer. The fire companies in the study area are located in Bishopville, Showell, Newark, Ocean Pines, and Snow Hill. The Showell Fire Station is the only station located along US 113. Paid emergency medical service personnel are located at the Bishopville and Snow Hill stations. The Worcester County Fire Training Center trains fire department personnel and is located on Central Site Lane north of Snow Hill adjacent to the County's Career and Technology Center (Taylor, 1997).

f. Health Care Facilities

Atlantic General Hospital, the County's only hospital, is a 56-bed facility located in Berlin at the US 113/US 50 interchange (Worcester County Dept. of Economic Development, 1994).

The Worcester County government operates health clinics at various locations primarily for those without health insurance. The Snow Hill clinic is adjacent to the County Detention Center near US 113. A new county clinic is being constructed adjacent to Atlantic General Hospital (Pruitt, 1997). The County Commission on Aging operates the Brickhaven Adult Daycare Center in Snow Hill. The elderly are transported by the Commission on Aging from their residence to and from the facility to receive medical treatment and social services. As of January 1997, the facility has 50 clients (Voss, 1997). Adjacent to the facility is the Pleasant Manor Elderly Housing complex. This is a private 31-apartment residential community for the elderly.

The Snow Hill Nursing and Rehabilitation Center in Snow Hill is the only nursing center in the study area. The facility has a capacity for 62 residents (Snow Hill Nursing and Rehabilitation Center, 1997).



Legend

Places of Worship
- 20 Snow Hill Mennonite Church
- 21 Snow Hill Christian Church
- 22 Bates Methodist Church
- 23 Whatcoat Methodist Church
- 24 Snow Hill Church of God
- 25 Mt. Zion Baptist Church
- 26 Makemie Memorial United Presbyterian Church

Emergency Services
- 9 Worcester County Jail
- 10 Worcester County Sheriff's Dept.
- 11 Snow Hill Fire and Police Depts.

Schools
- 8 Snow Hill High School
- 9 Snow Hill Elementary School
- 10 Snow Hill Middle School
- 11 Cedar Chapel Special School

Parks and Recreation
- 14 Sturgis Park
- 15 Byrd Park
- 16 John Walter Smith Memorial Park

Health Care Facilities
- 4 County Health Clinic
- 5 Brickhaven Adult Daycare Center
- 6 Snow Hill Nursing and Rehabilitation Center

Other Facilities
- 3 County Library
- 4 Senior Citizen Center

KEY MAP

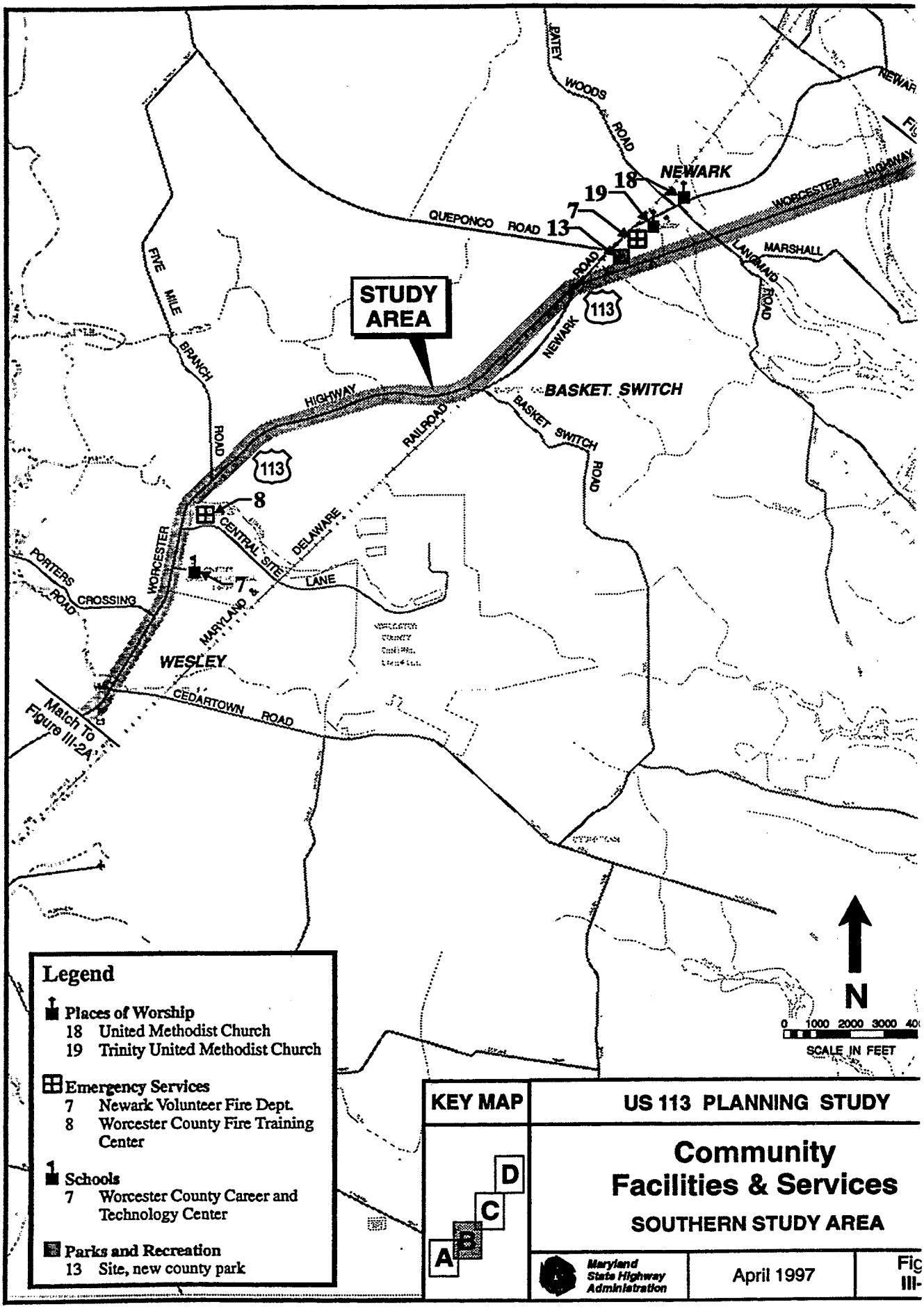
A B C D

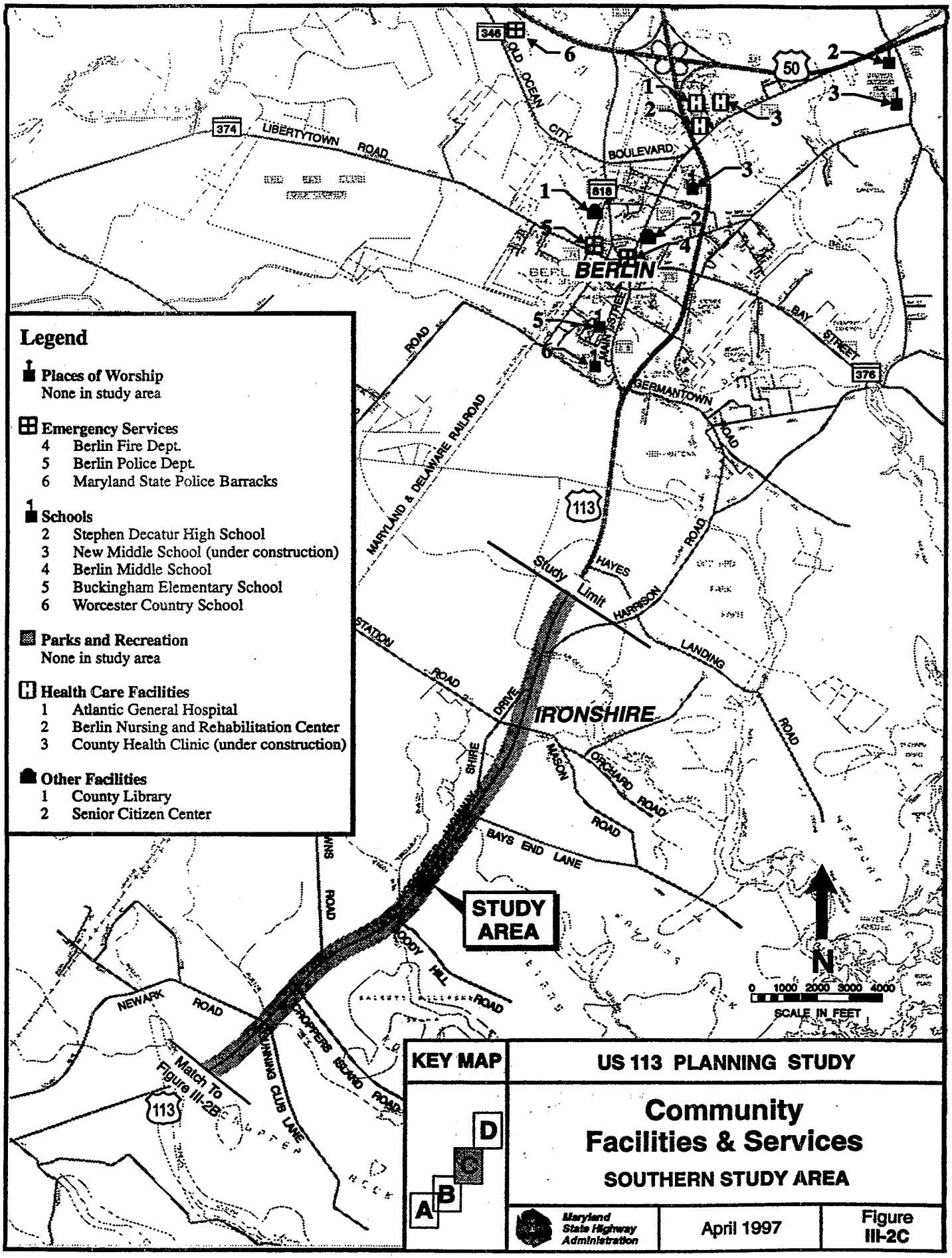
US 113 PLANNING STUDY

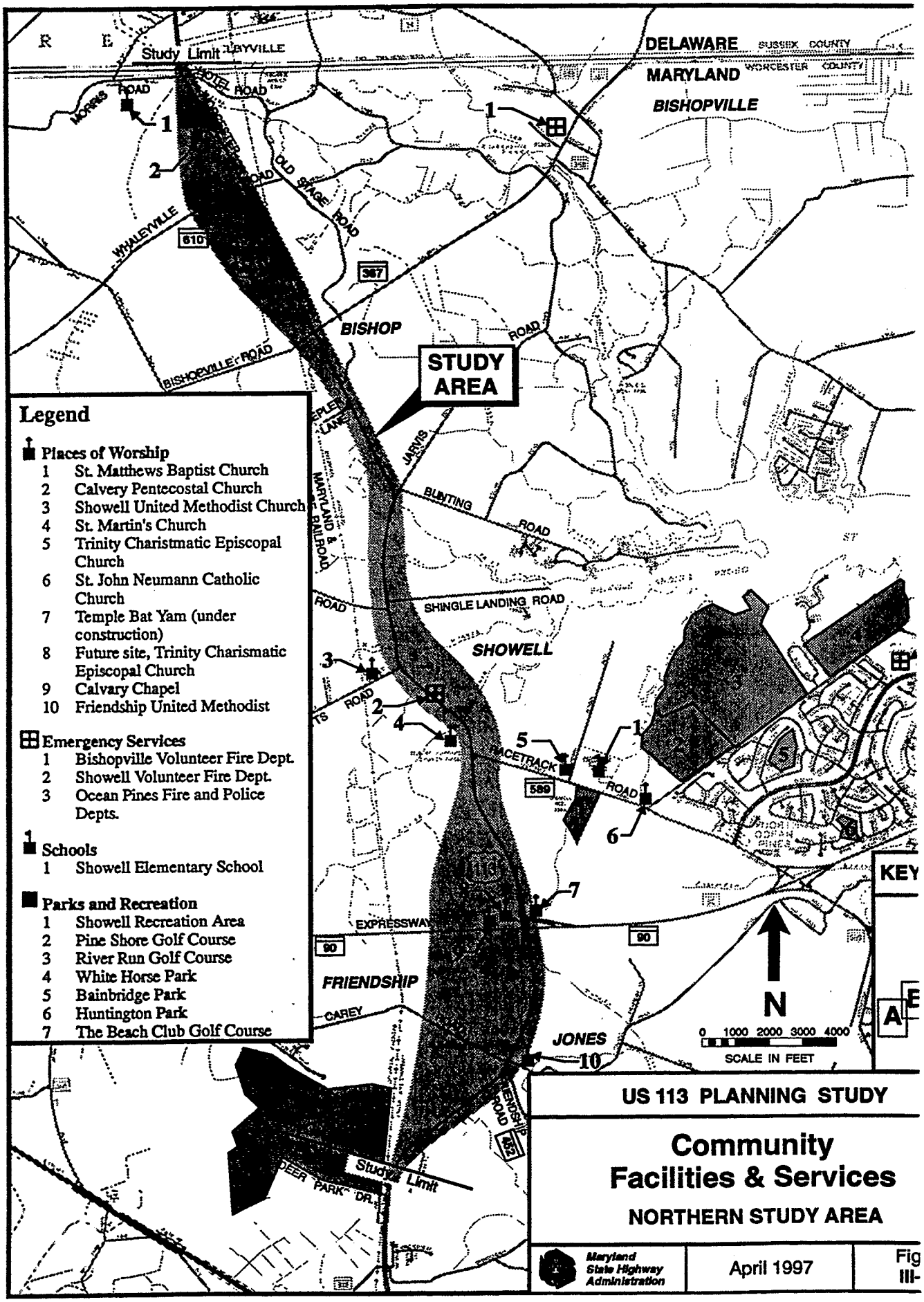
Community Facilities & Services

SOUTHERN STUDY AREA

Maryland State Highway Administration | April 1997 | Figure III-2A


STUDY AREA
NEWARK
BASKET SWITCH
WESLEY
QUEPONCO ROAD
WOODS ROAD
PATEY
FIVE MILE BRANCH ROAD
NEWARK ROAD
BASKET SWITCH ROAD
RAILROAD
HIGHWAY
WORCESTER HIGHWAY
MARSHALL LANGMAID ROAD
CENTRAL SITE
DELAWARE LANE
PORTERS CROSSING ROAD
MARYLAND
CEDARTOWN ROAD
Match To Figure III-2A
113
18
19
7
13
8
1
Legend
Places of Worship
18 United Methodist Church
19 Trinity United Methodist Church
Emergency Services
7 Newark Volunteer Fire Dept.
8 Worcester County Fire Training Center
Schools
7 Worcester County Career and Technology Center
Parks and Recreation
13 Site, new county park
N
0 1000 2000 3000
SCALE IN FEET
KEY MAP
A
B
C
D
US 113 PLANNING STUDY
Community Facilities & Services
SOUTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Fig III-


Legend
Places of Worship
None in study area
Emergency Services
4 Berlin Fire Dept.
5 Berlin Police Dept.
6 Maryland State Police Barracks
Schools
2 Stephen Decatur High School
3 New Middle School (under construction)
4 Berlin Middle School
5 Buckingham Elementary School
6 Worcester Country School
Parks and Recreation
None in study area
Health Care Facilities
1 Atlantic General Hospital
2 Berlin Nursing and Rehabilitation Center
3 County Health Clinic (under construction)
Other Facilities
1 County Library
2 Senior Citizen Center
BERLIN
IRONSHIRE
STUDY AREA
Study Limit
LIBERTYTOWN ROAD
OLD OCEAN CITY BOULEVARD
MAIN STREET
BAY STREET
GERMANTOWN ROAD
MARYLAND & DELAWARE RAILROAD
HAYES ROAD
HARRISON LANDING ROAD
STATION ROAD
DRIVE
MASON ROAD
ORCHARD ROAD
BAYS END LANE
NEWARK ROAD
CROPPERS ISLAND ROAD
WINNING CLUB LANE
Match To Figure III-2B
346
374
376
50
818
113
N
0 1000 2000 3000 4000
SCALE IN FEET
KEY MAP
A
B
C
D
US 113 PLANNING STUDY
Community Facilities & Services
SOUTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Figure III-2C



US 113 PLANNING STUDY

Community Facilities & Services

NORTHERN STUDY AREA

Maryland State Highway Administration | April 1997 | Fig III-

g. Schools

Worcester County operates one high school, one middle school, two elementary schools, one special education school, and a career and technical center within the project area. Snow Hill High School, Snow Hill Middle School and Snow Hill Elementary School are located in the City of Snow Hill. The Cedar Chapel Special School, located next to Snow Hill Middle School, is a County school for handicapped students. Just north of Snow Hill along US 113 is the Worcester County Career and Technology Center. This facility specializes in educating students in trades and technologies. Located between Showell and Ocean Pines along MD Route 589 (Racetrack Road) is Showell Elementary School. Forty-five school buses operate along US 113 during the course of a school day in the project area. Currently, there are twenty-eight bus stops along US 113. School buses operate along US 113 from 7 AM until 4:30 PM. The peak periods of operation for the buses are between 7 AM and 8:15 AM and 2:45 PM and 4:30 PM. (McNabb, 1997).

There are no private schools within the study area.

h. Recreation Opportunities

There are numerous public and private recreational opportunities located throughout Worcester County (see Figures III-2A through 2D). There are 16 public boat ramps located throughout the County. The Worcester County View Trail 100 is a scenic bike route, which is a network of County roads used by bicyclists to traverse rural areas of the County. This is not a dedicated bike trail for use solely by bicyclists but a shared use of the local county road system. The Worcester County Tourism Office does not keep statistics on usage of the View Trail 100. County public recreational facilities include the John Walter Smith Memorial Park, located between Snow Hill and US 113. The facility has baseball and multipurpose fields. The Recreation Area in Showell has tennis courts, a basketball court, three baseball fields, a playground and a picnic pavilion. A new County park has been planned for the Newark community adjacent to the fire department.

The public schools have outdoor recreational facilities open to the public. Snow Hill Elementary School has playground equipment. Snow Hill Middle School has playground equipment, a basketball court, tennis courts and a multipurpose field. Snow Hill High School has basketball courts, tennis courts and a football field. Showell Elementary School has playground equipment and a multipurpose field.

Public recreational facilities in Snow Hill include Sturgis Park and Byrd Park. These are waterfront parks located along the Pocomoke River with picnic tables and pavilions. There is a public boat ramp located at Byrd Park.

i. Utilities

Electricity to the towns and major road corridors is supplied by Delmarva Power and Light. Choptank Electric Cooperative supplies electricity to the rural areas of the County. Pipeline liquid propane gas service is supplied by Eastern Shore Gas Company. Newark and Snow Hill have municipal water and sewer systems. Local telephone service is provided by Bell Atlantic (Maryland Dept. of Business and Economic Development, 1995-96). Cable television is supplied by TCI Cablevision of the Eastern Shore.

j. Other Community Facilities

Worcester County operates a public library and a senior citizens center within the study area in Snow Hill. The Worcester County Commission on Aging operates the senior citizens centers which offer programs in education, crafts, exercise, wellness and entertainment in addition to providing a noontime meal at the centers. The Commission provides transportation for seniors to and from the centers (Mower, 1997).

2. Economic Environment

a. Employment Characteristics

The largest sectors of employment in Worcester County are retail (34.7%), service (26.5%) and government (11.6%). The major industrial employers in the County are Perdue Farms (650 employees), Hudson Foods (600 employees) and Mid-Atlantic Foods (80 employees) (Worcester County Dept. Of Economic Development, 1996). In 1993, tourism generated over $775 million in annual sales, making it the largest industry by sales in the County. Poultry growing and processing followed with $173 million in annual sales. Wood products was the third largest industry in the County, accounting for $7 million in sales (Worcester County Dept. Of Economic Development, 1994). According to the Worcester County Comprehensive Plan, the largest employment opportunities in the year 2000 for the County are projected to be in recreation-oriented industries. Sectors with the greatest projected growth since 1980 are F.I.R.E. (Finance, Insurance and Real Estate) with a 56 percent increase, construction with a 50 percent increase and wholesale/retail trade with a 46 percent increase. Sectors with the least projected growth since 1980 are agriculture with no increase and transportation/utilities with a 20 percent decrease.

As of January 1997, Worcester County's unemployment rate was 19.0 percent, which reflects seasonal conditions of the beach resort area. The state unemployment rate was 4.8 percent and the nation's unemployment rate was 5.9 percent (Maryland Department of Labor, 1997). Worcester County experiences low unemployment during the summer months and high unemployment during the remainder of the year. To illustrate this, the unemployment rate for the County in January 1996 was 17.5 percent while in August 1996, the unemployment

rate was 3.4 percent. This is a reflection of the seasonal employment that occurs within the County's tourism industry. In January 1996, the County's civilian work force was 20,085. By August 1996, the County's civilian work force was 31,812.

US 113 provides access to Ocean City by intersecting with MD 90 and US 50, roadways which link Ocean City to the mainland. Traditionally a summer vacationing spot, Ocean City is becoming more of a year-round tourist destination as more retail, eating, entertainment and lodging establishments are staying open during the winter months. Ocean City is also host to numerous conventions held at its convention center, which is currently being expanded to 125,000 square feet. Scheduled completion is Fall 1997 and is expected to host over 110 events and serve over 380,000 people (Town of Ocean City, Maryland, 1996). The need for businesses to employ seasonal employees increases during the late spring and summer months as more lodging, eating establishments, retail merchants and other businesses open their doors to vacationers.

Projected employment growth in Worcester County is projected to be 13.8 percent between the years 2000 and 2010. The employment sectors with the largest projected growth are Services (23.71%), F.I.R.E. (15.38%) and Retail Trade (13.68%) (Maryland Office of Planning, 1995).

b. Commercial and Industrial Facilities

The towns and communities in the study area are dependent on farming and farming-related industries for their livelihoods. According to the Delmarva Poultry Industry, a trade organization, growth in the poultry industry is expected to occur in western Worcester County, outside of the study area. Perdue Chickens operates a feed mill in Bishop, and a hatchery and processing facility in Showell. Tyson Foods operates a feed mill in Snow Hill. These businesses contract with local farmers to raise chickens and grow crops to be processed for chicken feed. Trucks frequently use US 113 to travel to the farms to retrieve the crops and chickens for processing.

Berlin and Snow Hill are the towns in the study area where most of the commercial establishments, shopping areas and community facilities and services are located. In Bishop, there are some neighborhood businesses, including a couple of restaurants, a veterinary hospital and a boat repair business. Some retail businesses and facility stations are located in Ocean Pines near the MD 589/MD 90 interchange.

There is a state enterprise zone in Snow Hill. Businesses located in the enterprise zone can qualify for economic incentives and tax credits by achieving certain landmarks in capital investment and/or job creation.

The corporate state income tax rate is 7 percent. The state sales tax rate is 5 percent. The state personal income tax rate varies between 2 and 5 percent. The County personal income tax rate is 1.5 percent. (Worcester County Department of Economic Development, 1996).

Real property tax rates in the County are $0.76 per $100 of assessed value. The real property tax rates for Berlin, Ocean City and Snow Hill are $1.44, $1.24 and $1.48, respectively, per $100 of assessed value (Worcester Co. Dept. Of Economic Development, 1996).

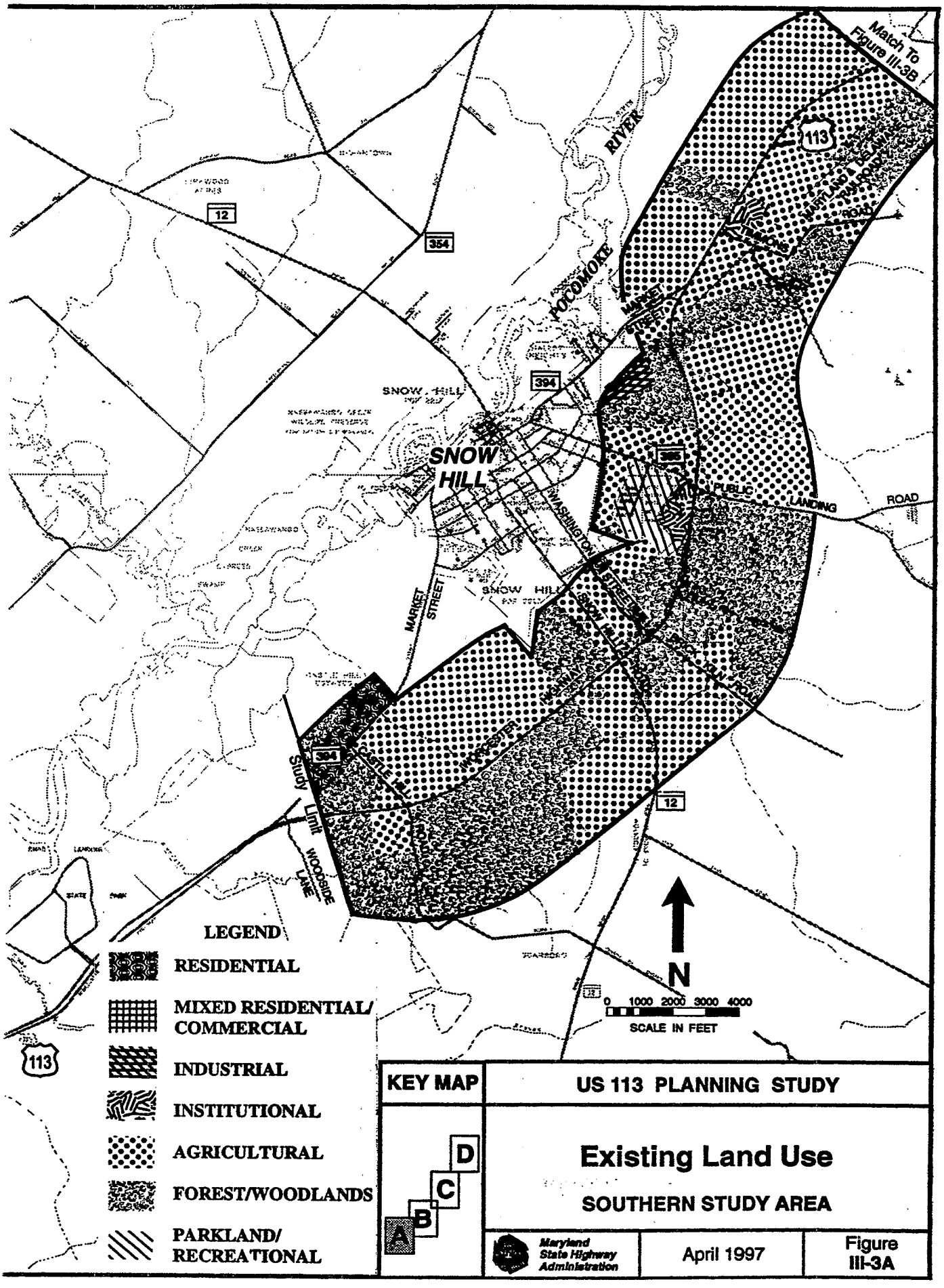
c. Land Use

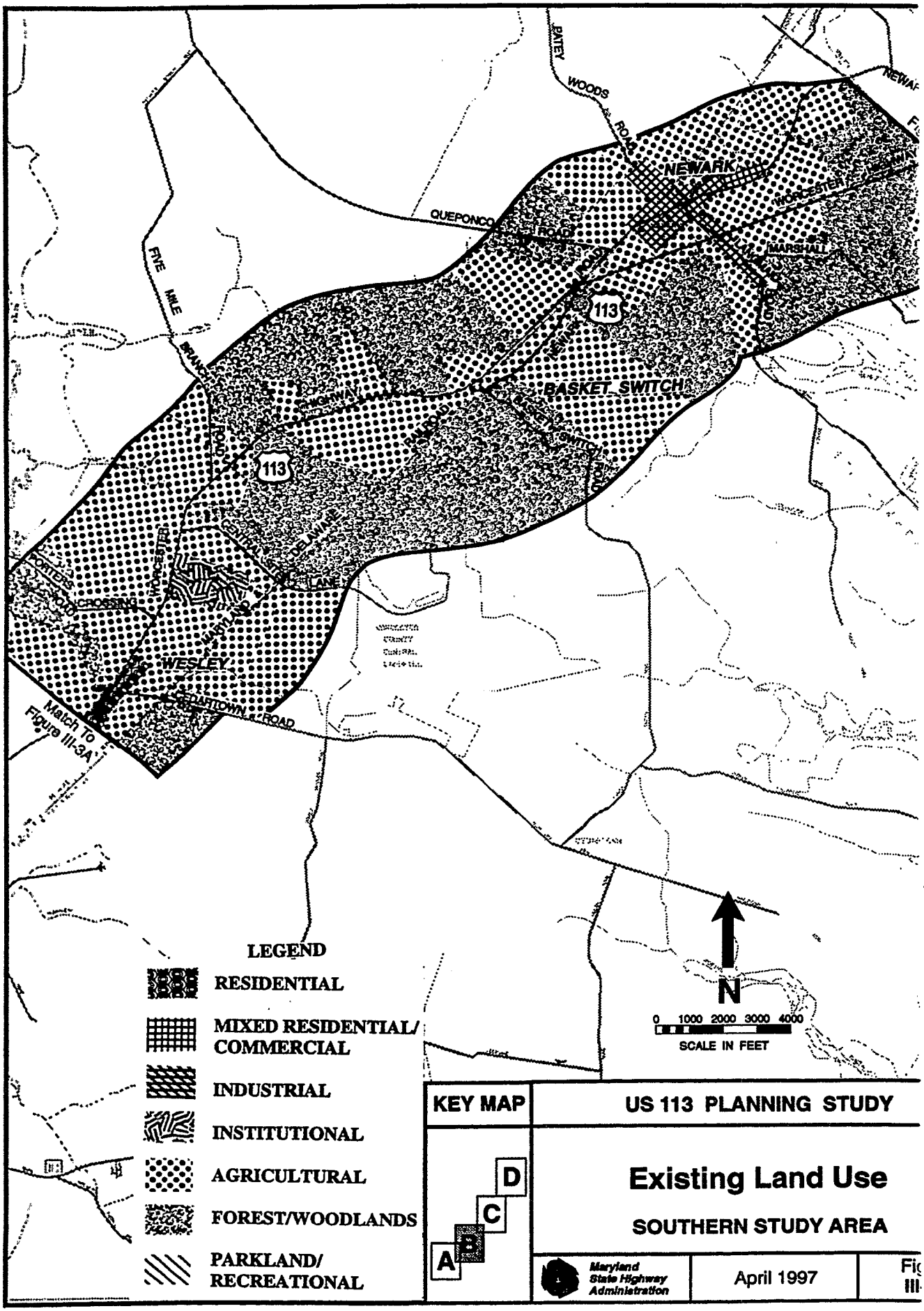
Existing Land Use

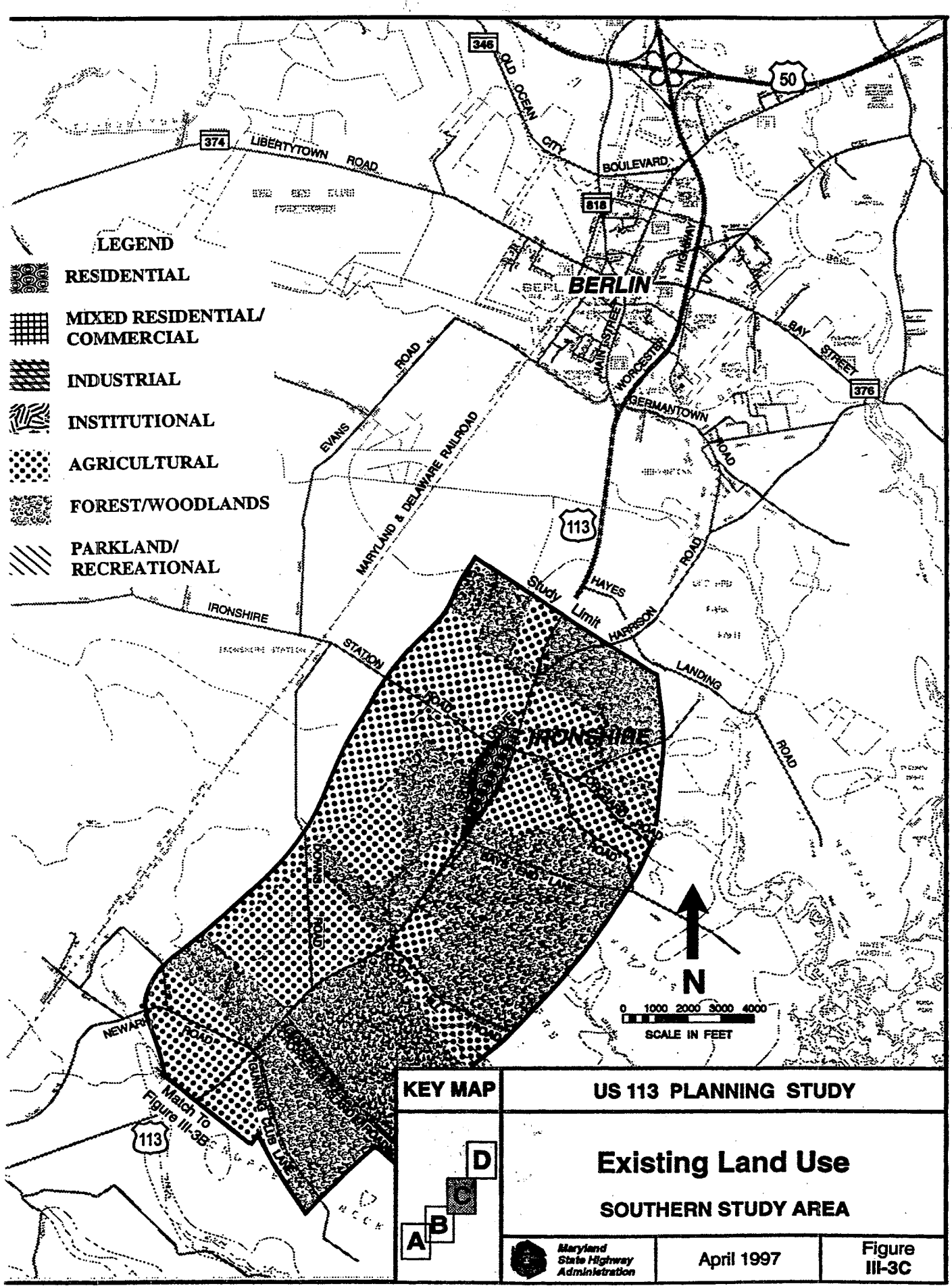
Several communities are located within the US 113 study area. Ironshire, Basket Switch, and Wesley in the southern study area and Jones, Friendship, Showell and Bishop in the northern study area, are small, predominantly residential crossroad communities located along US 113. One and two story single family detached housing are the dominant housing types in these communities. In Showell, Perdue Chickens operates a hatchery and a processing facility. In Bishop, there are some neighborhood businesses, including a couple of restaurants, a veterinary hospital and a boat repair business. Other industries in Bishop include a poultry processing and feed mill operation and an asphalt plant. As the only community in the study area with village zoning, Newark displays the architectural and development history characteristics of the County. New development is to be carefully considered for its impact on the existing community character.

Ocean Pines is a high density, private residential community located east of the study area along the coastal bay. The dominant housing type in this area is a single family detached dwelling unit. Some retail businesses and fueling stations are located near this community near the MD 589/MD 90 interchange.

To regulate and guide land use, Worcester County has adopted a zoning ordinance, subdivision regulations and a comprehensive development plan. The existing land use in the study area is shown on Figures III-3A through 3D. Figures III-4A through 4D show the zoning classifications of the land in the study area. Most of the land in the study area is zoned for agricultural use. Farms are located throughout the project corridor with cultivated fields and chicken houses as the dominant agricultural features in the study area. Corn, wheat, barley and soybeans are the crops grown the most in the study area. Minor subdivisions of five dwelling units per parcel are permitted in agricultural-zoned land areas.


Match To Figure III-3B
SNOW HILL
POCOMOKE RIVER
MARKET STREET
WASHINGTON STREET
PUBLIC LANDING ROAD
MARYLAND DELAWARE RAILROAD
WORCESTER HIGHWAY
CASTLE HILL ROAD
WOODSIDE LANE
Study Limit
12
113
354
394
366
LEGEND
RESIDENTIAL
MIXED RESIDENTIAL/ COMMERCIAL
INDUSTRIAL
INSTITUTIONAL
AGRICULTURAL
FOREST/WOODLANDS
PARKLAND/ RECREATIONAL
N
0 1000 2000 3000 4000
SCALE IN FEET
KEY MAP
A
B
C
D
US 113 PLANNING STUDY
Existing Land Use
SOUTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Figure III-3A


BATEY
WOODS
ROAD
NEWARK
WORCESTER
MARSHALL
QUEPONCO
ROAD
FIVE MILE
BRANCH
113
BASKET SWITCH
HIGHWAY
RAILROAD
SWITCH
ROAD
DELAWARE
LANE
PORTERS
ROAD
CROSSING
WESLEY
DRIVE
DUTTONTOWN
ROAD
Match To
Figure III-3A
LEGEND
RESIDENTIAL
MIXED RESIDENTIAL/
COMMERCIAL
INDUSTRIAL
INSTITUTIONAL
AGRICULTURAL
FOREST/WOODLANDS
PARKLAND/
RECREATIONAL
N
0 1000 2000 3000 4000
SCALE IN FEET
KEY MAP
A
B
C
D
US 113 PLANNING STUDY
Existing Land Use
SOUTHERN STUDY AREA
Maryland
State Highway
Administration
April 1997
Fig
III-

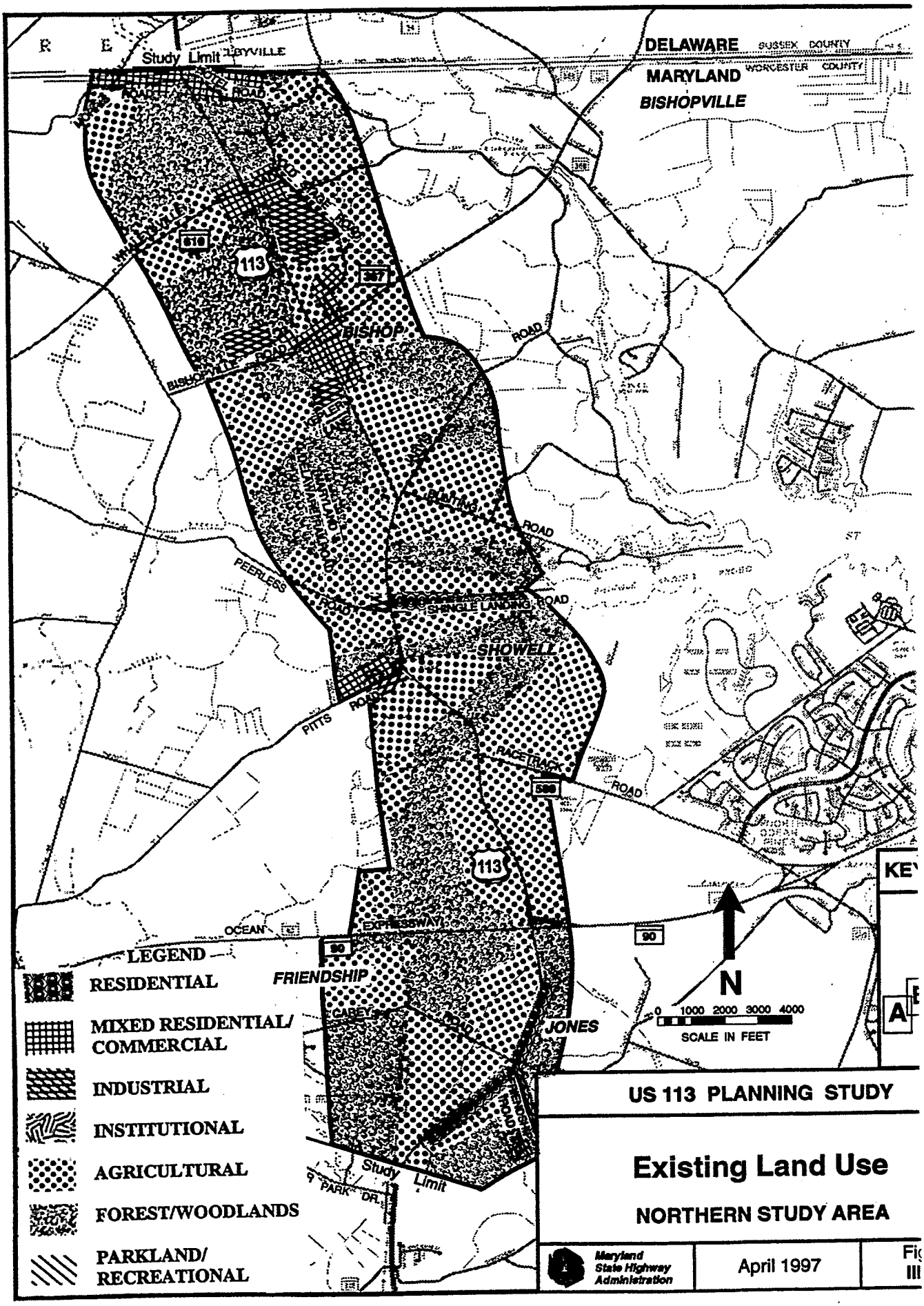


US 113 PLANNING STUDY

Existing Land Use

SOUTHERN STUDY AREA

Maryland State Highway Administration | April 1997 | Figure III-3C



US 113 PLANNING STUDY

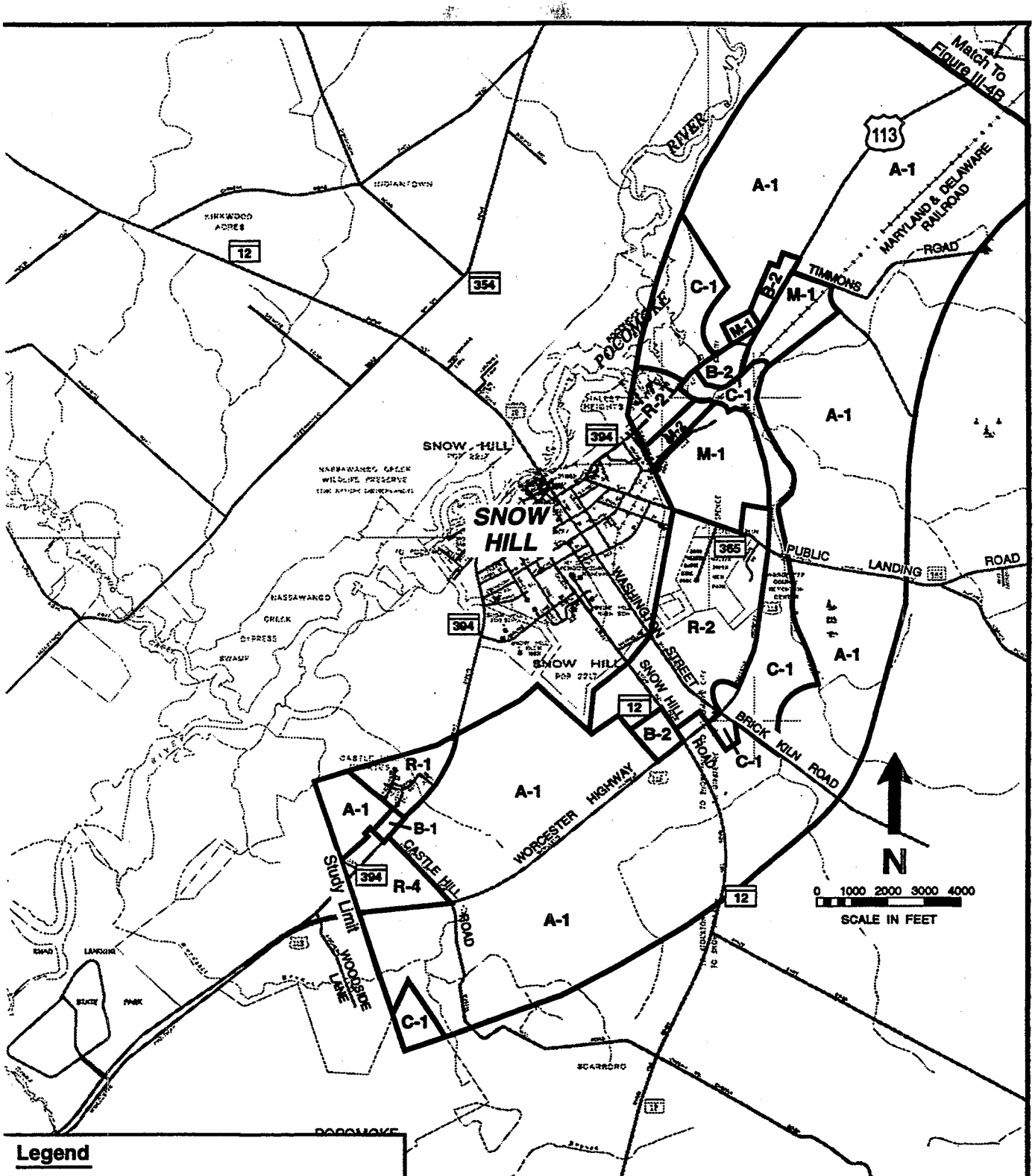
Existing Land Use

NORTHERN STUDY AREA

Maryland State Highway Administration

April 1997

Fig III



Legend

A-1: Agriculture
B-1: Neighborhood Business
B-2: General Business
C-1: Conservation
E-1: Estate - Large Lot, Low Density residential
M-1: Light Industrial
M-2: Heavy Industrial
R-1: Residential - Single Family (1 dwelling per acre)
R-2: Residential - Single Family (1 dwelling per 1/2 acre)
R-3: Residential - Single Family / Multi Family
R-4: Residential - Single Family / Multi Family; Hotel and Motel
V-1: Village

KEY MAP

A B C D

US 113 PLANNING STUDY

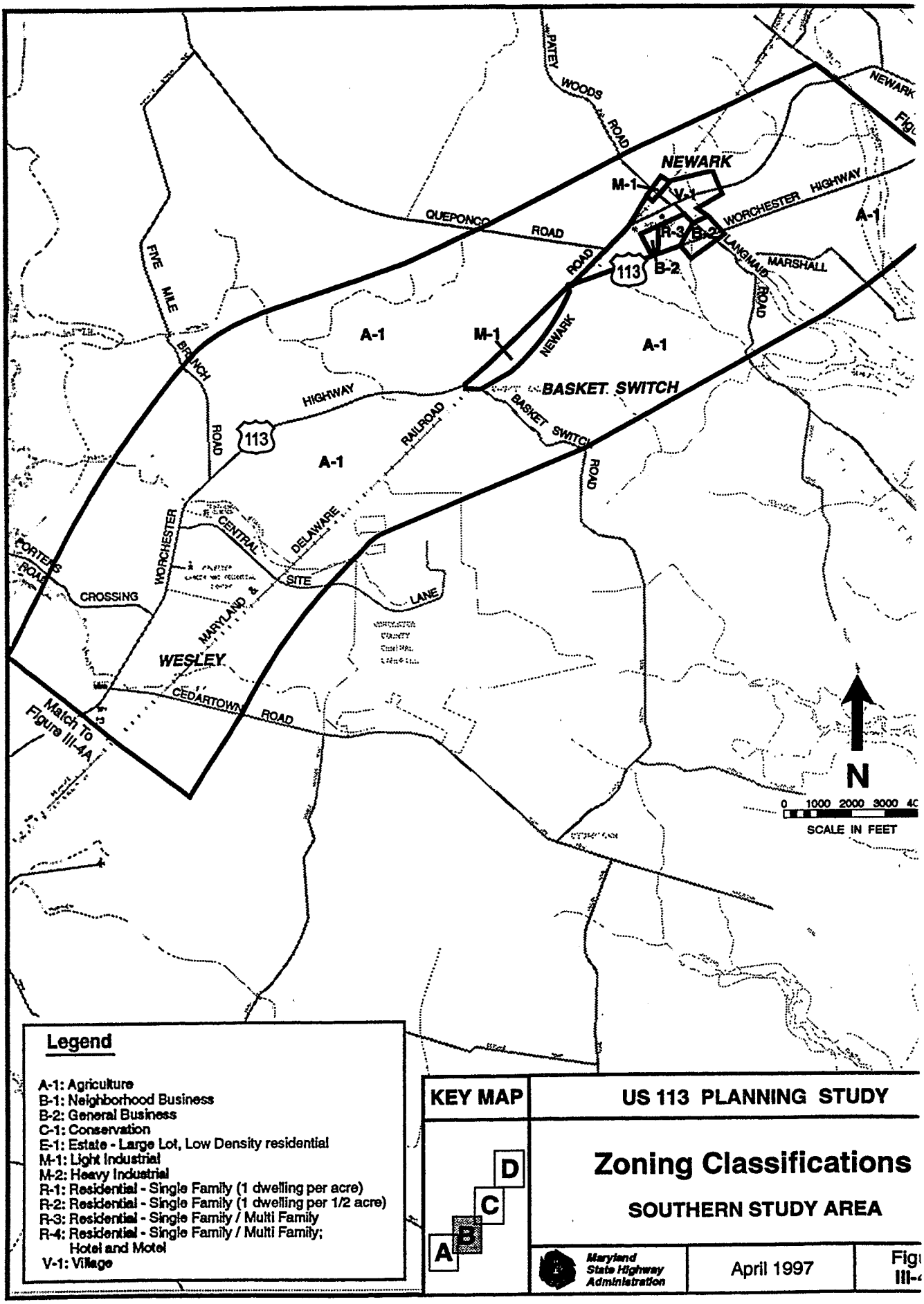
Zoning Classifications

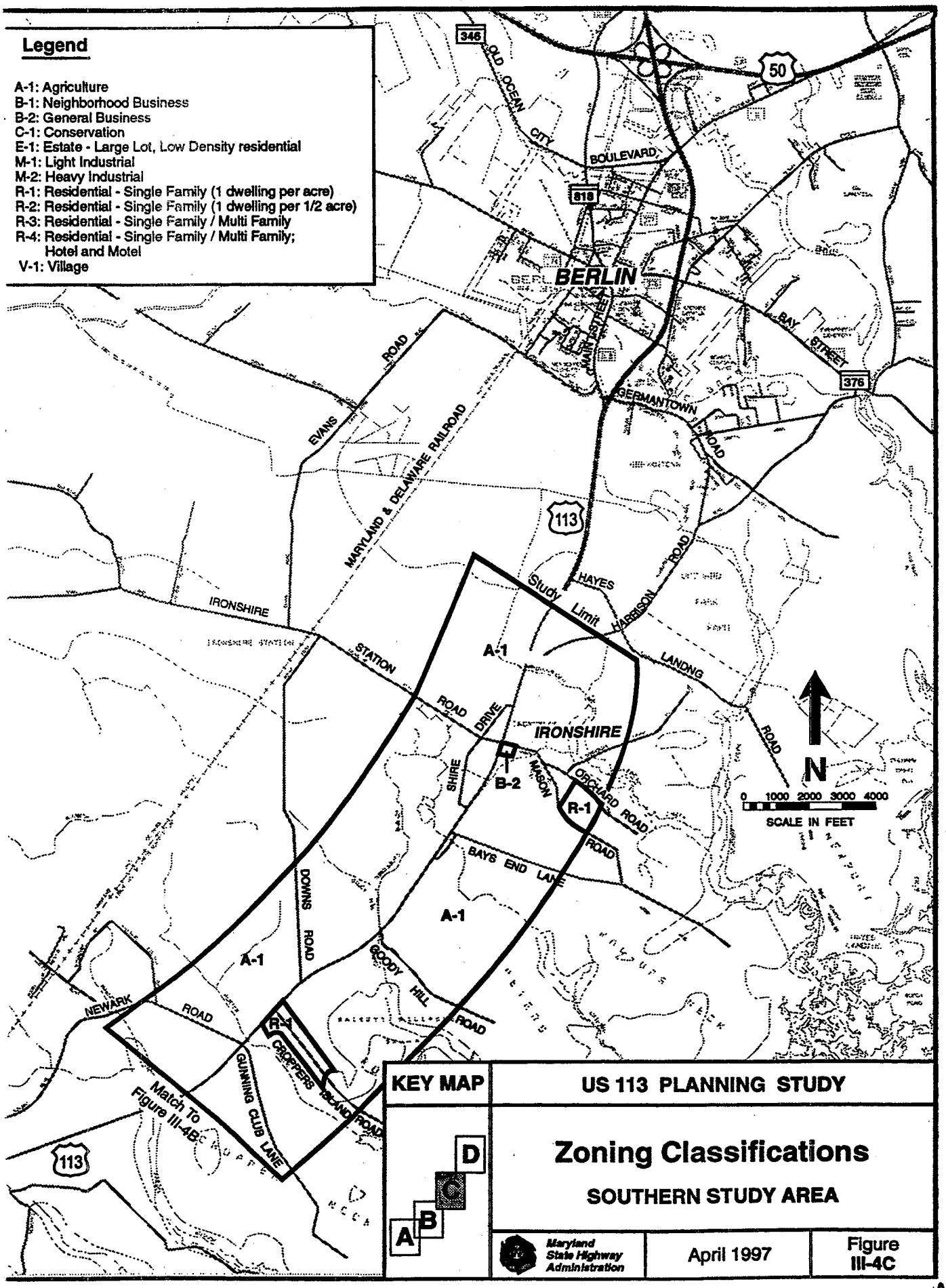
SOUTHERN STUDY AREA

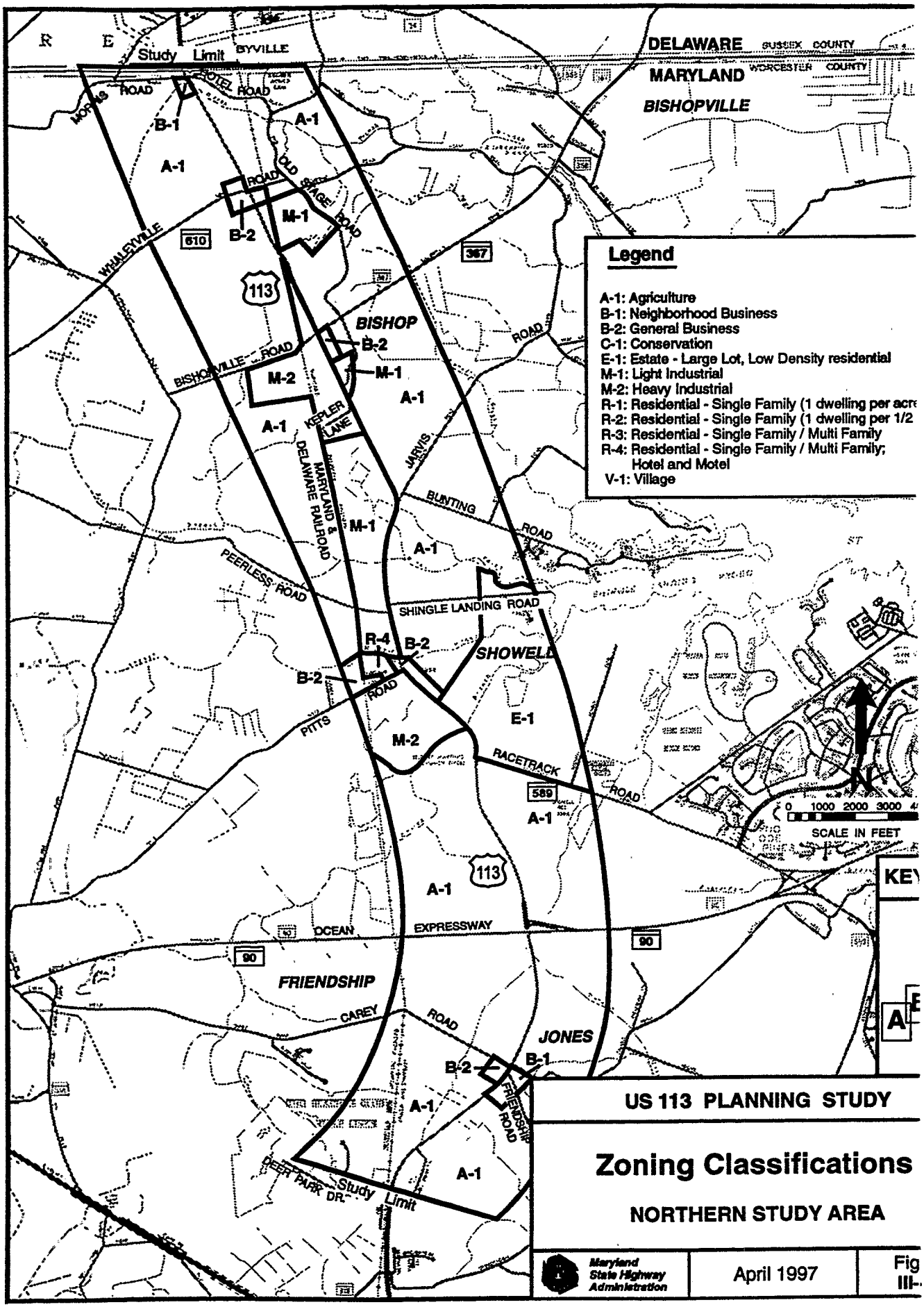
Maryland State Highway Administration

April 1997

Figure III-4A


PATEY
WOODS
ROAD
NEWARK
NEWARK
M-1
V-1
WORCHESTER HIGHWAY
A-1
QUEPONCO
ROAD
R-3
B-2
LANGMAID
MARSHALL
ROAD
ROAD
113
B-2
FIVE MILE
BRANCH
A-1
M-1
NEWARK
A-1
BASKET SWITCH
HIGHWAY
BASKET SWITCH
ROAD
113
ROAD
RAILROAD
A-1
WORCHESTER
CENTRAL
DELAWARE
PORTERS
ROAD
CROSSING
SITE
LANE
MARYLAND &
WESLEY
CEDARTOWN
ROAD
Match To
Figure III-4A
N
0 1000 2000 3000 4
SCALE IN FEET
Legend
A-1: Agriculture
B-1: Neighborhood Business
B-2: General Business
C-1: Conservation
E-1: Estate - Large Lot, Low Density residential
M-1: Light Industrial
M-2: Heavy Industrial
R-1: Residential - Single Family (1 dwelling per acre)
R-2: Residential - Single Family (1 dwelling per 1/2 acre)
R-3: Residential - Single Family / Multi Family
R-4: Residential - Single Family / Multi Family;
Hotel and Motel
V-1: Village
KEY MAP
A
B
C
D
US 113 PLANNING STUDY
Zoning Classifications
SOUTHERN STUDY AREA
Maryland
State Highway
Administration
April 1997
Fig
III-


Legend
A-1: Agriculture
B-1: Neighborhood Business
B-2: General Business
C-1: Conservation
E-1: Estate - Large Lot, Low Density residential
M-1: Light Industrial
M-2: Heavy Industrial
R-1: Residential - Single Family (1 dwelling per acre)
R-2: Residential - Single Family (1 dwelling per 1/2 acre)
R-3: Residential - Single Family / Multi Family
R-4: Residential - Single Family / Multi Family; Hotel and Motel
V-1: Village
346
OLD OCEAN CITY BOULEVARD
50
818
BERLIN
ROAD
EVANS
MARYLAND & DELAWARE RAILROAD
GERMANTOWN ROAD
RAY STREET
376
113
IRONSHIRE
STATION ROAD
HAYES
HARRISON LANDING ROAD
Study Limit
A-1
IRONSHIRE
DRIVE
B-2
MASON
SHIRE
R-1
ORCHARD ROAD
BAYS END LANE
DOWNS ROAD
GOODY HILL ROAD
NEWARK ROAD
GUNNING CLUB LANE
CROPPERS ISLAND ROAD
Match To Figure III-4B
N
0 1000 2000 3000 4000
SCALE IN FEET
KEY MAP
A
B
C
D
US 113 PLANNING STUDY
Zoning Classifications
SOUTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Figure III-4C


DELAWARE
SUSSEX COUNTY
MARYLAND
WORCESTER COUNTY
BISHOPVILLE
Study Limit
BYVILLE
HOTEL ROAD
MORRIS ROAD
OLD STAGE ROAD
WHALEYVILLE ROAD
BISHOPVILLE ROAD
KEPLER LANE
MARYLAND & DELAWARE RAILROAD
JARVIS ROAD
BUNTING ROAD
PEERLESS ROAD
SHINGLE LANDING ROAD
SHOWELL
PITTS ROAD
RACETRACK ROAD
OCEAN EXPRESSWAY
FRIENDSHIP
CAREY ROAD
JONES
FRIENDSHIP ROAD
DEER PARK DR.
Study Limit
610
367
113
589
90
A-1
B-1
B-2
M-1
M-2
R-4
E-1
BISHOP
Legend
A-1: Agriculture
B-1: Neighborhood Business
B-2: General Business
C-1: Conservation
E-1: Estate - Large Lot, Low Density residential
M-1: Light Industrial
M-2: Heavy Industrial
R-1: Residential - Single Family (1 dwelling per acre
R-2: Residential - Single Family (1 dwelling per 1/2
R-3: Residential - Single Family / Multi Family
R-4: Residential - Single Family / Multi Family; Hotel and Motel
V-1: Village
N
0 1000 2000 3000
SCALE IN FEET
KEY
US 113 PLANNING STUDY
Zoning Classifications
NORTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Fig
III-

Other zoning classifications in the study area include Neighborhood Business (B-1) General Business (B-2), Light Industrial (M-1), Heavy Industrial (M-2), Rural Estate (E-1), Low Density Single Family Residential (R-1 and R-2), Medium and High Density Single-Family and Multi-Family Residential (R-3 and R-4), Village (V-1) and Conservation (C-1). Descriptions of general land use permitted in these zones are shown in Table III-8.

Worcester County land use trends between 1973 and 1990 are shown in Table III-9. Between 1973 and 1990, Worcester County experienced a 33 percent increase in total development, most of which was a result of residential development. In 1973, approximately 3.7 percent of the total land area was developed. In 1990, approximately 4.9 percent of the total land area was developed.

Table III-8: Zoning Classifications

Zoning Classification	General Use Permitted
A-1	Agriculture: agriculture and forestry are preferred land uses; minor subdivision of up to five dwelling units per parcel permissible
B-1	Neighborhood Business: retail business use serving the nearby community
B-2	General Business: larger scale of retail, office and service businesses permitted
C-1	Conservation District: Sensitive environmental areas including wetlands, stream valleys, drainage ways and muck & alluvial soils in the Pocomoke River
E-1	Estate: large lot/low density residential development; cluster development encouraged to maintain open space and provide buffer for habitat and water quality
M-1	Light Industrial: warehousing, light manufacturing
M-2	Heavy Industrial: warehousing, heavy manufacturing
R-1	Residential: single family dwellings on at least 1 acre lots
R-2	Residential: single family dwelling on at least 0.5 acre lots
R-3	Residential: single family and multi-family residential use
R-4	Residential: single family and multi-family residential use; hotels and motels
V-1	Village: provides for and preserves the character of the existing non-incorporated population center. Mixing of land uses should not be permitted unless deemed consistent with the existing community character

Source: Worcester County Planning, Permits and Inspections office

Table III-9: Worcester County Land Use Trends, 1973-1990

Land Use Category	Land Use in Acres				Land Use Change (%)
	1973	1981	1985	1990	1973-1990
Low Density Residential	3,500	4,786	5,221	6,549	87.1
Med./High Density Residential	2,505	2,774	2,877	3,000	19.8
Commercial/ Industrial	2,507	2,705	2,840	2,982	18.9
Institutional/Open	2,181	1,753	1,830	1,879	-13.8
Bare Ground	493	557	416	542	9.9
Total Development	11,186	12,575	13,184	14,952	33.7
Agriculture	98,948	99,588	100,222	99,716	0.8
Forest	170,336	168,275	167,020	165,489	-2.8
Extractive/Barren	1,923	1,949	1,962	1,962	2.0
Wetland	21,846	21,852	21,851	21,805	-0.2
Total Resources	293,053	291,664	291,055	288,972	-1.4
Total Land	304,239	304,239	304,239	303,924*	-0.1
Water	140,310	140,310	140,310	140,625	0.2
Total Area	444,549	444,549	444,549	444,549	constant

Source: "Maryland's Land, 1973-1990, A Changing Resource."
Maryland Office of Planning Publication 91-8

Notes: Water area before 1985 was assumed constant.
*Adjusted based on 1985 and 1990 polygon data

Wetlands include forested and non-forested wetlands, including tidal flats, tidal and non-tidal marshes, upland swamps, and wet areas.

Data presented in this table is based on aerial photographs.

Future Land Use

The land use goal of Worcester County is to locate the major portion of the county's future population in the northern portion of the County (around Ocean City) while maintaining the rural nature of the county and safeguarding its environment for future generations (Worcester County Planning Commission, 1989). As developable land in Ocean City becomes scarcer and more expensive to develop, the coastal bay areas west of Ocean City have and are projected to continue to accommodate development.

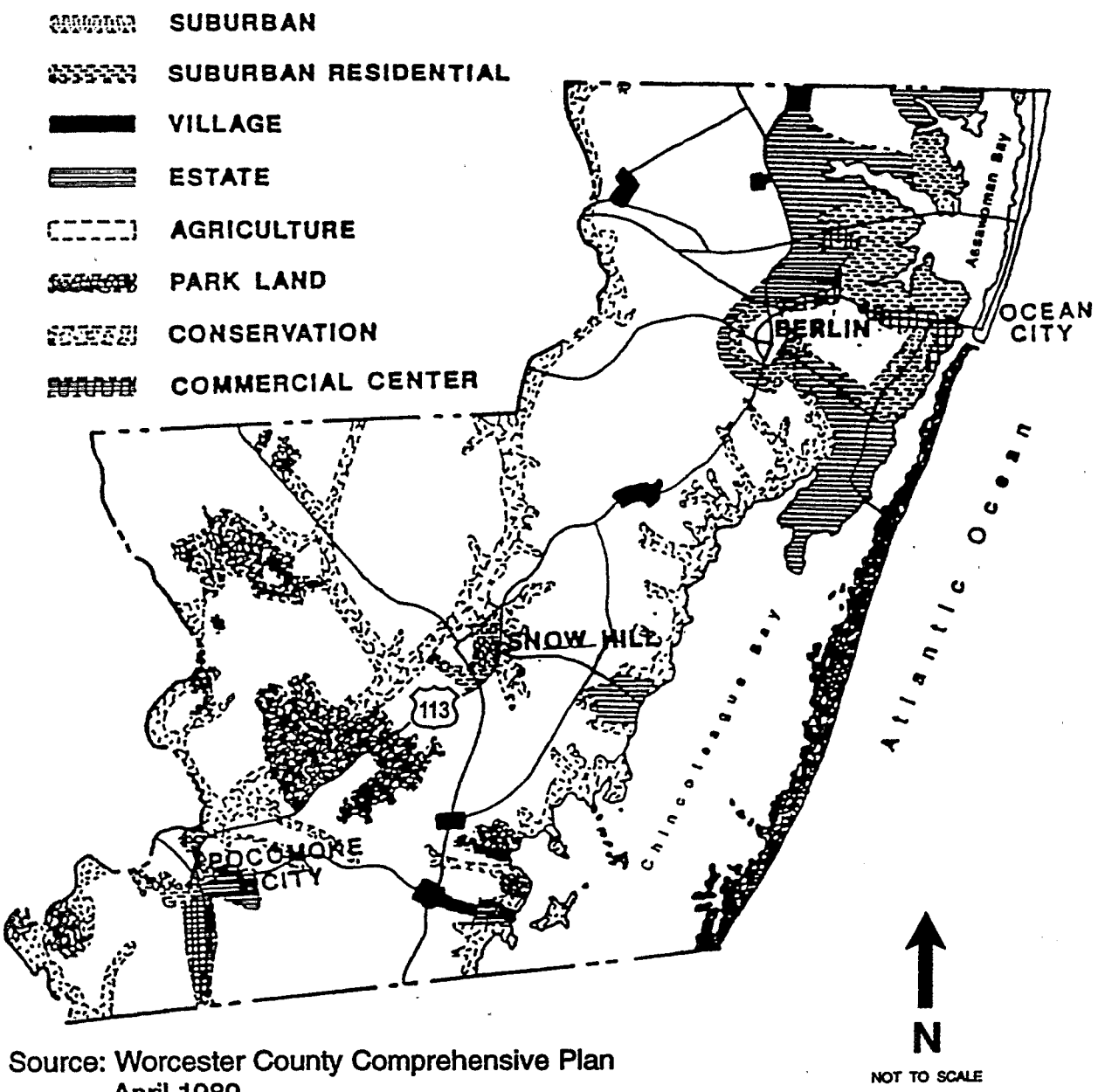
Table III-10 shows the land use forecast to the year 2020 for Worcester County. A future land use map is currently being developed by WCPPI as part of the comprehensive plan update. The completion of a supplemental comprehensive development plan to comply with the State Economic Growth, Resource Protection and Planning Act of 1992 is anticipated for July 1997. Total development is projected to increase approximately 38 percent between 1990 and 2020. Of the 303,924 acres of land area in Worcester County, only an estimated 24,364 acres of land (8 percent of the entire land area in the County) are projected to be in development by the year 2020. Figure III-5 depicts the County's comprehensive development plan, as of 1989, and the recommended pattern of land use. A general description of the land uses is listed in Table III-8. "Suburban" land use allows 6 dwelling units per acre whereas "Suburban Residential" land use allows 4 dwelling units per acre. Future growth should focus on land in and around Ocean City to accommodate the vacation/second home population and sustain the work force for resort-related industries and businesses (Worcester County Planning Commission, 1989).

Worcester County's natural environment is its principal attraction for population and economic growth. Growth will continue in the county as long as quality natural resources can be maintained (Worcester County Planning Commission, 1989). County land use objectives include "encourage new development projects to locate in or near the existing population centers and service centers (where planned) but also discourage development of the rural areas of the County" and "maintain the rural character of Worcester and its existing population centers, small towns and villages" (Worcester County Planning Commission, 1989). The responsibility of regulating land use and development rests with the Worcester County Commission and the WCPPI office.

In the Worcester County Comprehensive Development Plan, the dualization of US 113 is designated as an Area of Critical State Concern, which is defined as one that deserves special planning attention and involves or affects more than one local jurisdiction. The plan also recommends that direct access to major roadways should be limited and directed towards local "feeder" or collector streets. Zoning controls should be carefully used to limit development to selected areas along the right-of-way (Worcester County Planning Commission, 1989).

The population centers of the county (Berlin, Newark, Snow Hill, Pocomoke City, Ocean City) have the infrastructure (i.e. sewerage and sewage disposal systems) in place to support existing and future development. Except in Newark, there is no public sewerage in the US 113 study area. There are no plans to expand sewerage in the study area. If a development cannot be supported by a septic system, then the developer must install the infrastructure for the development at his/her own expense (Morris, 1997).

Some low density, single family houses have recently been constructed or are under construction along Shingle Landing Road and Bunting Road in the northern study area adjacent to the location of a proposed new garden center. A new place of worship, Temple Bat Yam, is presently under construction just north of the MD 90/US 113 interchange. No new development is taking place in the southern study area. According to WCPPI, there has been little pressure or interest to develop large scale commercial or residential projects in the US 113 study area. Most of the people who relocate to Worcester County want to live near or on the water (Morris, 1997). For that reason, new development is occurring on the northern bayfront areas of the County. This geographical area is linked to US 113 by MD Route 90, Racetrack Road (MD 589), Bishopville Road (MD 367), Jarvis Road, Bunting Road and Shingle Landing Road. It is anticipated that there will be a demand for development along the southern bayfront areas and MD Route 611 north of its intersection with Assateague Road (Worcester County Planning Commission, 1989).



Source: Worcester County Comprehensive Plan
April 1989

US 113 PLANNING STUDY

Comprehensive Development Plan

Maryland State Highway Administration	April 1997	Figure III-5

Table III-10: Worcester County Land Use Forecast, 1990-2020

Land Use Category	Land Use in Acres				Land Use Change 1990-2020 (%)
	1990	2000	2010	2020	
Very Low Density Residential (1)	2,703	3,231	3,650	3,981	47.3 %
Low Density Residential (2)	6,549	7,570	8,381	9,019	37.7 %
Med./High Density Residential (3)	3,000	3,436	3,783	4,056	35.2 %
Commercial/ Industrial	2,982	3,465	3,849	4,151	39.2 %
Institutional and Open	1,879	2,183	2,425	2,616	39.2 %
Bare Ground (4)	542	542	542	542	0.0 %
Total Development	17,655	20,427	22,630	24,364	38.0 %
Agriculture	98,700	97,657	96,829	96,177	-2.5 %
Forest	163,802	162,072	160,698	159,616	-2.5 %
Extractive and Barren (4)	1,962	1,962	1,962	1,962	0.0 %
Wetland (4)	21,805	21,805	21,805	21,805	0.0 %
Total Resources	286,269	283,497	281,294	279,560	-2.3 %
Water (4)	140,625	140,625	140,625	140,625	0.0 %
Total Area	444,549	444,549	444,549	444,549	constant

Source: "Maryland Land Use/Land Cover 1990-2020 Forecast." Maryland Office of Planning, 1992

Notes: (1) 1 dwelling unit/5 acres to 1 dwelling unit/20 acres
(2) 0.2 dwelling unit/acre to 2 dwelling units/acre
(3) 2 dwelling units/acre to > 8 dwelling units/acre
(4) Assumed constant over forecast period

The differences Tables III-9 and III-10 for year 1990 Total Development, Agriculture and Forest categories reflect differences in Maryland Office of Planning source material. Wetlands include forested and non-forested wetlands, tidal flats, tidal and non-tidal marshes, upland swamps and wet areas.

B. Cultural Resources

Historic structures identification and evaluation studies and a Phase I archeological identification have been completed for the project. Letters from the State Historic Preservation Officer (SHPO) coordinating both historic structures and archeological resources in the study area are presented in Chapter VI. The SHPO has concurred that 6 of the 21 historic structures identified in the project's Area of Potential Effects (APE) are eligible for the National Register of Historic Places (NRHP), as described below. One additional historic site, the Maryland/Delaware State Line Marker (WO 480), listed in Table III-11, was determined by MHT to be eligible for the National Register, but is outside the project's APE. These properties are listed in Table III-11 and their locations are shown in Figures III-6A through 6D.

The area of potential effects (APE), concurred upon by the Maryland Historical Trust on August 30, 1995, was defined to include the area 500 feet east and west of the existing US 113 roadway in most of the project corridor. In the northern portion of the study area, from north of the town of Berlin to the Delaware line, where relocation alternatives are also being studied, the APE width was expanded to approximately 500 feet beyond the limits of the easternmost and westernmost alternatives and included the intervening area. The western boundary of the northern study area extended to the Maryland and Delaware Railroad Corridor.

1. Significant Historic Structures

The National Register's standards for evaluating the significance of properties were developed to recognize the accomplishments of all peoples who have made a contribution to our country's history and heritage.

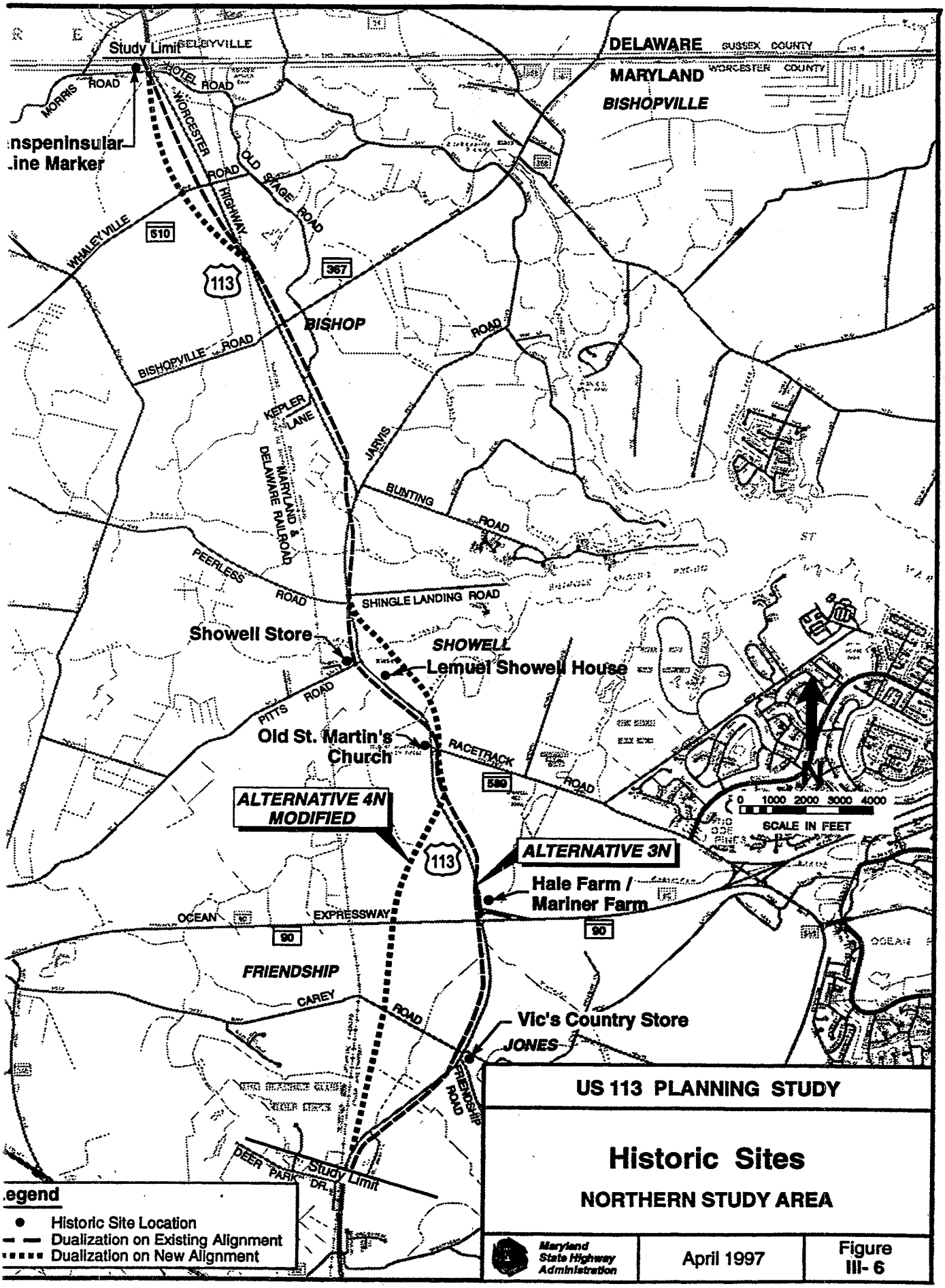
The quality of *significance* in American history, architecture, archeology, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

(A) that are associated with events that have made a significant contribution to the broad patterns of our history; or

(B) that are associated with the lives of persons significant in our past; or

(C) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

(D) that have yielded, or may be likely to yield, information important in prehistory or history.



US 113 PLANNING STUDY

Historic Sites

NORTHERN STUDY AREA

Maryland State Highway Administration	April 1997	Figure III- 6

Table III-11: Historic Standing Structures

Maryland Historical Trust Inventory #	Property Name	Eligibility Determination
WO 23	St. Martin's Church	NR ‡
WO 283	Hale Farm/Mariner Farm	NRE *
WO 284	Lemuel Showell House	NRE
WO 289	Showell Store	NRE
WO 317	Rochester Farm	Not NRE
WO 462	Gibbons Farm	Not NRE
WO 463	Hensley/Amos Farm	Not NRE
WO 464	A.P. Bowen House	Not NRE
WO 465	Parker Farm	Not NRE
WO 466	Barbely Farm	Not NRE
WO 467	J.T. Mumford House	Not NRE
WO 468	Walsh House	Not NRE
WO 471	Erma and Norwood Davis House	Not NRE
WO 472	Vic's Country Store	NRE
WO 473	Calvin E. Davis House	Not NRE
WO 474	Richard J, and Ellen M. Truitt House	Not NRE
WO 475	Hall House	Not NRE
WO 476	Holloway House	Not NRE
WO 477	Virgil and Sarah Webb House	Not NRE
WO 478	Roland W. Beauchamp Feed Storage Buildings	Not NRE
WO 479	Transpeninsular Line Marker	NRE
WO 480	Maryland/Delaware State Line Marker	NRE **

Legend:

‡ Listed on the National Register

* National Register Eligible

** This resource is National Register Eligible and outside the area of potential effect.

The following historic structures were identified as listed on or eligible for the National Register.

St. Martin's Church (WO-23). St. Martin's Church, entered on the National Register on April 13, 1977, is situated on the west side of US 113 at the intersection with Racetrack Road (MD 589), south of the community of Showell. It is also a Maryland Historical Trust easement property. The church is significant as one of the few mid-18th century structures in Maryland. It is architecturally significant under criterion C for its fine construction features and conveys a strong association with the early history of Worcester County. The present brick building was constructed in 1759 to replace an earlier Anglican structure.

Hale Farm/Mariner Farm (WO-283). The Hale Farm/Mariner Farm, determined eligible in April 1996, is located on the east side of US 113 between MD 90 and MD 589, south of Showell. The property, including a mid-19th century farmhouse, a log corncrib, and a smokehouse, provides an excellent representative example of an intact, mid-19th century farmhouse and a cohesive grouping of domestic outbuildings, and is eligible for the Register under criterion C (as a representative of a type).

Lemuel Showell House (WO-284). The Lemuel Showell House, determined eligible for the National Register of Historic Places in June 1990 under criterion B (for its association with important individuals) and C (as a representative of a type), is located on the east side of US 113 south of Pitts Road. The ca. 1830 house is the oldest in the Showell area and one of a few Federal-style houses in northern Worcester County. The house is also significant for its association with the prominent Showell family, and particularly with Lemuel Showell III, who was instrumental in financing railroad construction and development of the resort of Ocean City. The house was moved in the 1930's, but is considered of exceptional local significance, and retains sufficient integrity of setting to justify inclusion on the Register (Little 6-14-90 letter to Ege).

Showell Store (WO-289). The Showell Store, determined eligible in January 1997, is located at the northwest corner of US 113 and Pitts Road in Showell. Significant as a village store and commercial center for the surrounding area from the mid-19th century to the present, the Showell Store is considered eligible for the National Register under criterion A, as it reflects the broad patterns of local history. Archeological Site 18WO209, at this time considered potentially eligible for the Register based on its information potential (criterion D), is within the boundary of the Showell Store.

Vic's Country Store (WO-472). Vic's Country Store, determined eligible for the National Register in March 1996 under criterion C (as a representative of a type), is located on the east side of US 113 at the intersection of Carey Road, Jones Road, and Friendship Road. The building is a good, intact example of early 20th century roadside architecture, and as a store/ gas station in a small crossroads community -- once quite common, but now a dying form. Archeological site 18WO213, considered ineligible for the Register based on the results of the Phase I surveys is within the boundary of Vic's Country Store.

Transpeninsular Line Marker (WO-479). The Transpeninsular Line Marker, determined eligible in April 1996 under criterion A (for its association with important historical events), is located on the east side of US 113 at the Maryland/Delaware state line. It marks the boundary between the two states.

2. Archeological Sites

The purpose of the Phase I archeological survey was to identify archeological sites within the project area, and to obtain preliminary information about their potential eligibility for the National Register of Historic Places. The survey identified 39 archeological sites and 45 non-site isolated artifacts or artifact scatters. All of the 39 defined archeological sites contain components dating to the historic period, and 13 of them also contain prehistoric components. Nineteen of the sites may be eligible for listing on the National Register of Historic Places, and eighteen of these are likely to be impacted by one or more of the project alternates. Three of the eighteen may be significant for their prehistoric components, thirteen may be significant for their historic period components, and two may be significant for both their historic and prehistoric components. Formal determinations of eligibility will be accomplished in a subsequent phase of archeological research.

On March 7, 1997, SHA provided the Maryland Historical Trust with a copy of the draft archeological report of Phase I investigations. By letter dated March 18, 1997, the Maryland Historical Trust concurred with SHA's determination that all build alternatives will have adverse effects on historic properties, and that a reasonable and good faith effort was made to identify archeological sites within the project's APE. The Trust was unable to concur on the adequacy of the archeological report, however, and a revised report responding to comments was submitted by letter dated April 10, 1997.

Six of the recorded prehistoric sites may be eligible for the National Register of Historic Places for their ability to provide important information about the past, and five of the six may be impacted by the undertaking. 18WO184 dates between 500 B.C. and A.D. 600, within the Woodland I period. A possible feature suggests that it may represent a periodically revisited campsite. 18WO185 contains Woodland period ceramics and a possible feature that suggests it too may represent a campsite.

18WO193, 18WO201, and 18WO203 are prehistoric sites of unknown age that have the potential to contain intact, subplowzone archeological deposits. These three prehistoric sites are within areas likely to be impacted by construction of one of the alternates retained for detailed study. Further archeological work will be undertaken at the appropriate time on the five prehistoric sites considered potentially eligible for the National Register and subject to impact from the project.

18WO215 is a Woodland period site with evidence to suggest that it may have been a habitation site. While it may be eligible for the National Register, it is outside the project's construction limits and will not be impacted by the undertaking.

The remaining seven sites with prehistoric components located within the project's APE appear to lack the artifact density, patterned artifact distributions, or intact deposits necessary to provide significant data concerning the prehistoric occupation of the Eastern Shore. For these reasons, the Phase I Survey concluded that they are unlikely to be able to yield important information, and are not considered eligible for the National Register of Historic Places. However, further investigations will be undertaken at four, multicomponent historic/prehistoric sites considered potentially eligible for the National Register based on the information potential of their historic period components. These sites are 18WO195, 18WO196, 18WO197, and 18WO209.

Fourteen potentially significant historic, rural/residential sites were identified within the construction limits of the undertaking, five dating to the 18th and 19th centuries (18WO183, 18WO190, 18WO194, 18WO201, and 18WO204), two dating exclusively to the 19th century (18WO181, 18WO185, and 18WO215), two dating between the 18th and 20th centuries (18WO191 and 18WO195), and five dating to the 19th and 20th centuries (18WO196, 18WO197, 18WO209, 18WO212, and 18WO214). Testing at these sites suggests that intact features, subplowzone deposits, or artifact distributions might be present that could yield significant sociocultural and economic information relating to early agrarian lifeways in the region. The existence of a sizable sample of potentially significant historic period sites also makes it possible to evaluate temporal differences between sites, reflecting changing sociocultural or socioeconomic conditions.

Testing of historic site 18WO202 encountered the remains of a brick pier beneath the plowzone, and the landowner suggested that a blacksmith shop or foundry once stood at this location. The site may be able to provide important information about historic economic, commercial, and industrial patterns, and may be eligible for the National Register. In all, fifteen historic period sites that may be eligible for the National Register are likely to be impacted by one of the alternates under study, and will require Phase II archeological evaluation to determine their eligibility. The historic period component, of 18WO215 may be eligible for the National Register based on its information potential, but is outside the project's limits of construction and will not be impacted by the undertaking.

The remaining 20 sites with historic period components appear to lack the artifact density, patterned artifact distributions, or intact deposits necessary to provide important information about the history of the region. For these reasons, the Phase I survey concluded that they are unlikely to be able to yield important information, and are not considered eligible for the National Register of Historic Places.

C. Topography, Geology, and Soils

1. Topography

Worcester County is located entirely within the Coastal Plain Province where the topography of the land is generally low lying and very gently rolling. However, areas that are steep are encountered within the County. Slopes are found along swales and ridges, stream channels, depressions and dunes. The highest point encountered in Worcester County is 65 feet above sea level and is located near Furnace, Maryland approximately 4 miles northwest of Snow Hill, Maryland (SCS, 1973).

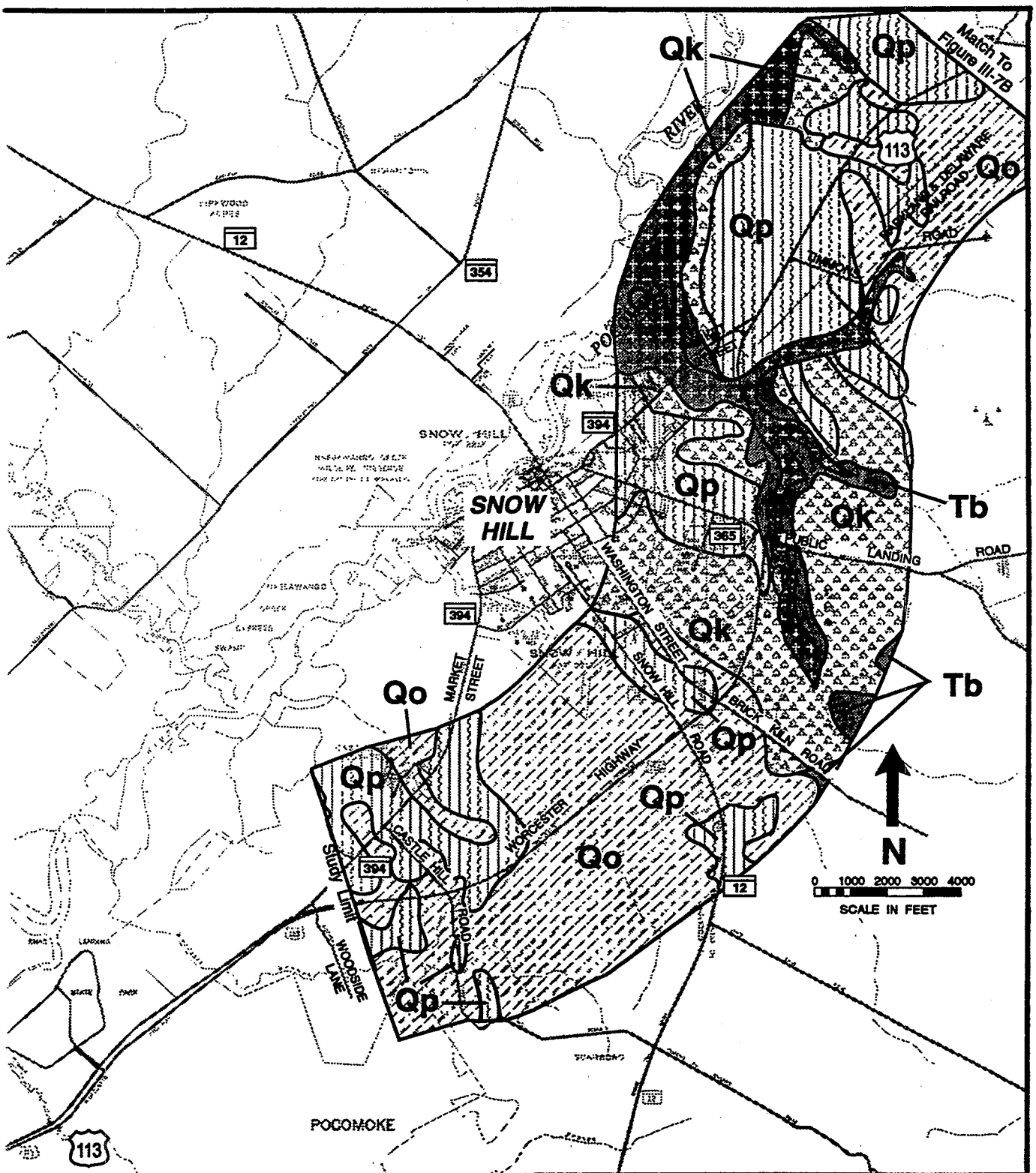
2. Geology

The study area is located entirely within the Coastal Plain Physiographic Province and consists of sediment deposited in the Quaternary Age and Tertiary Age based upon the Geologic Map of Worcester County, Maryland, 1978. The Quaternary and Tertiary sediments consist of gravel, sand, silt, clay, and shell fragments and are generally more than one mile thick. Crystalline bedrock of the Precambrian and Paleozoic Ages underlies these sediments and dips to the southeast (Maryland Geologic Survey, 1978).

The sediment deposited in the Quaternary period consist mainly of the Omar Formation with minor amounts of the Ironshire Formation and Parsonsburg Sand Formation. Isolated areas of the Kent Island Formation and alluvium are encountered along the alignment (Maryland Geologic Survey, 1978). The surficial geology of the study area is shown on Figures III-7A through 7D.

The Omar Formation consists of two major interstratified sediment facies: light colored sand and dark-colored sandy clay-silt or silty clay. The light colored facies are mostly medium sands, typically 15 feet thick, and the dark colored facies are interbedded silty sands, silts and silty clay varying in thickness from 3 to 5 feet. The dark-colored facies are predominant in the study area. The maximum thickness of this formation is about 65 feet (Maryland Geologic Survey, 1978).

The Ironshire Formation consists of two major sediment facies: the light-colored sand facies and the light- to dark-colored silty to clayey sand and sandy silt. These facies grade into interbedded sands and clays in a northerly direction. The Parsonsburg sand consists of light colored medium to coarse grained sand on isolated ridges bordered by the Omar Formation (Maryland Geologic Survey, 1978).



Legend

- Qo Omar Formation
- Ql Ironshire Formation
- Qp Parsonsburg Sand
- Qk Kent Island Formation
- Qal Alluvium
- Tb Beaverdam Sand

KEY MAP

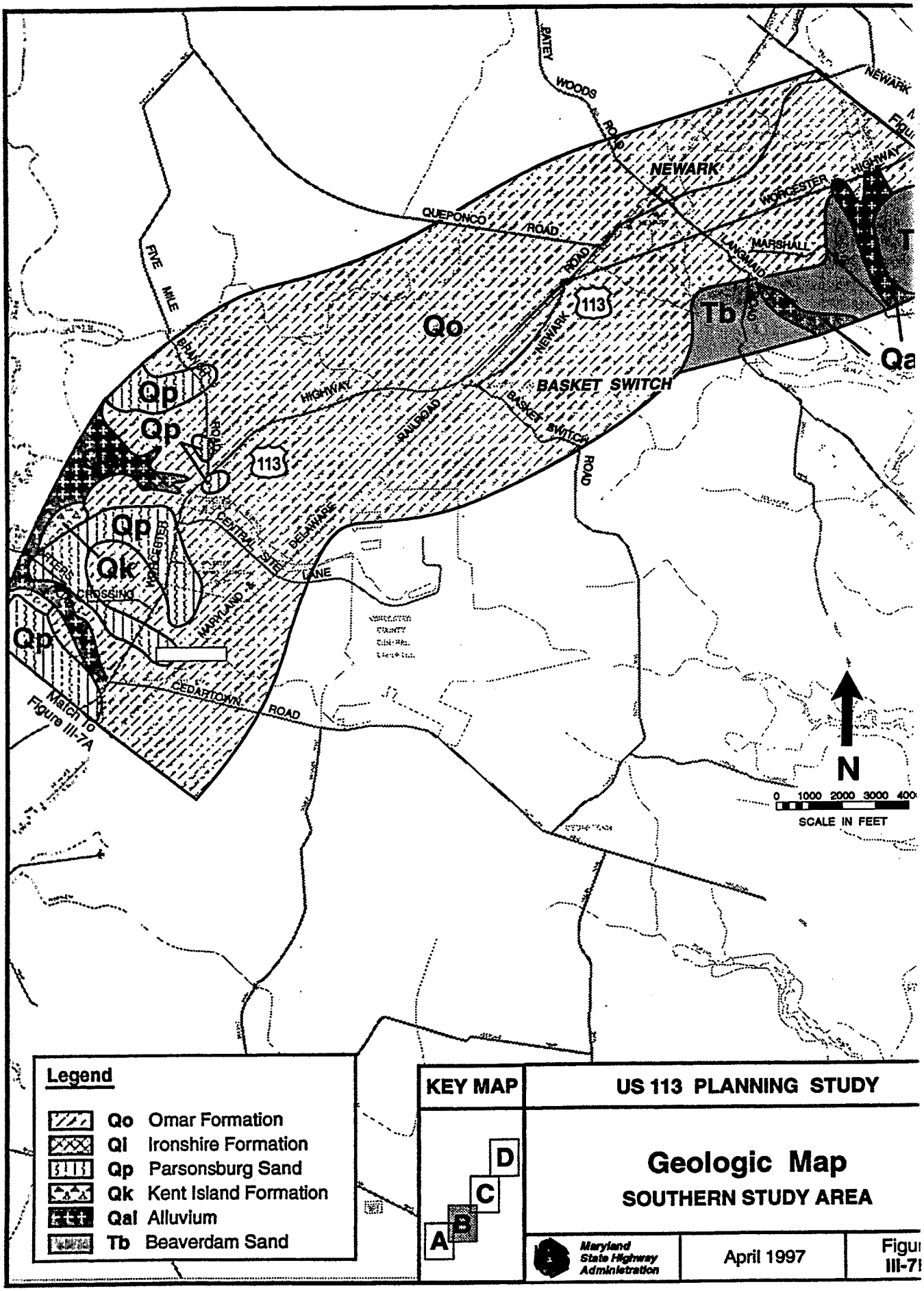
A B C D

US 113 PLANNING STUDY

Geologic Map

SOUTHERN STUDY AREA

Maryland State Highway Administration | April 1997 | Figure III-7A


Qo
Qp
Qk
Tb
Qa
NEWARK
QUEPONCO ROAD
WOODS ROAD
BATEY
FIVE MILE
BRANDYWINE
HIGHWAY
RAILROAD
BASKET SWITCH
ROAD
LANE
CEDARTOWN ROAD
MARYLAND
CENTRAL
DELAWARE
WORCESTER
MARSHALL
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SCALE IN FEET
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Qo Omar Formation
Ql Ironshire Formation
Qp Parsonsburg Sand
Qk Kent Island Formation
Qal Alluvium
Tb Beaverdam Sand
KEY MAP
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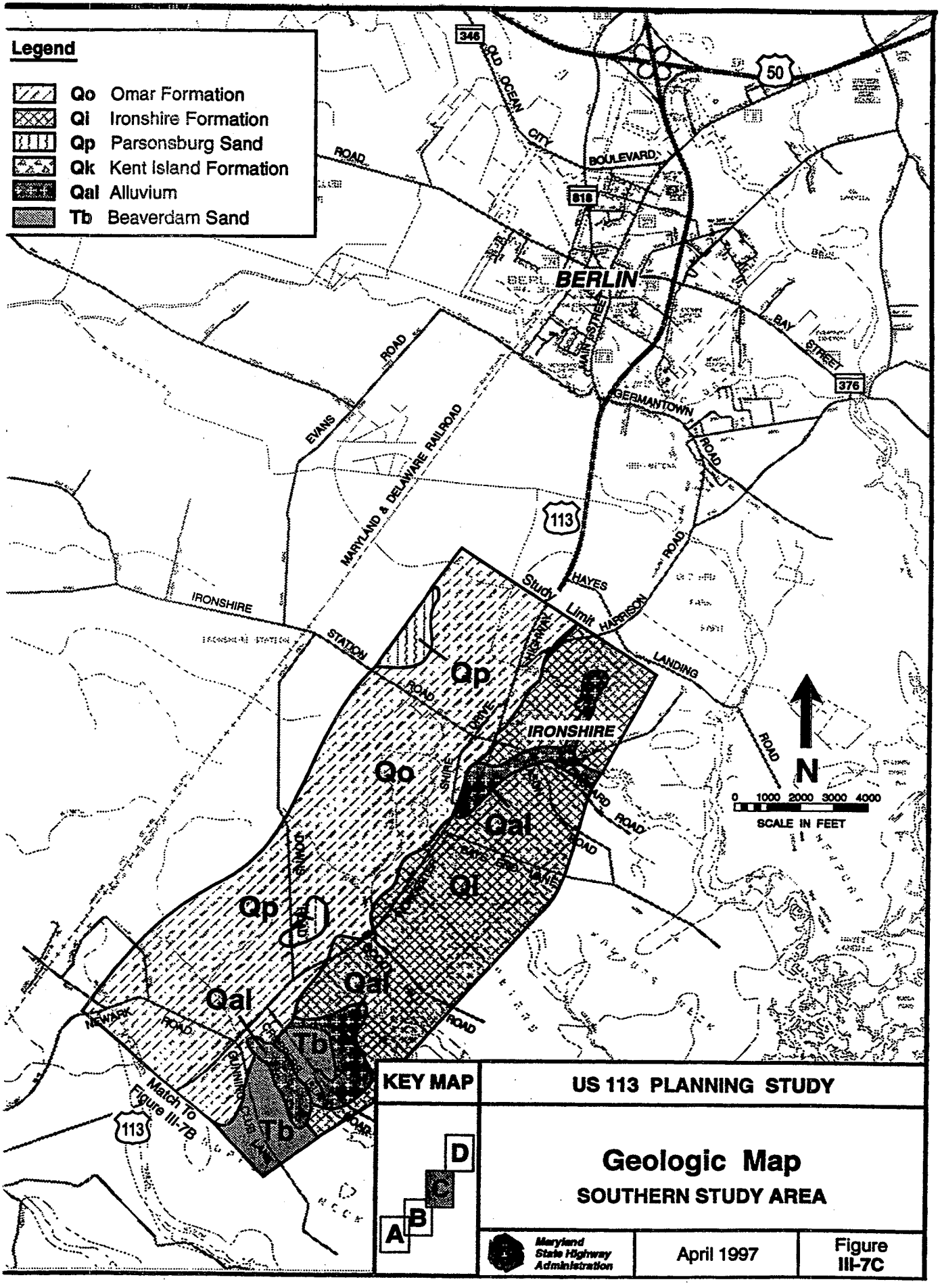
US 113 PLANNING STUDY
Geologic Map
SOUTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Figu
III-7


Legend
Qo Omar Formation
Qi Ironshire Formation
Qp Parsonsburg Sand
Qk Kent Island Formation
Qal Alluvium
Tb Beaverdam Sand
346
OLD OCEAN CITY BOULEVARD
50
ROAD
818
BERLIN
MAIN STREET
BAY STREET
376
GERMANTOWN ROAD
EVANS ROAD
MARYLAND & DELAWARE RAILROAD
113
HAYES ROAD
Study Limit
IRONSHIRE
STATION ROAD
HARRISON LANDING ROAD
Qp
Qo
Qal
Qi
IRONSHIRE ROAD
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SCALE IN FEET
NEWARK ROAD
GUMBORO ROAD
Match To Figure III-7B
KEY MAP
A
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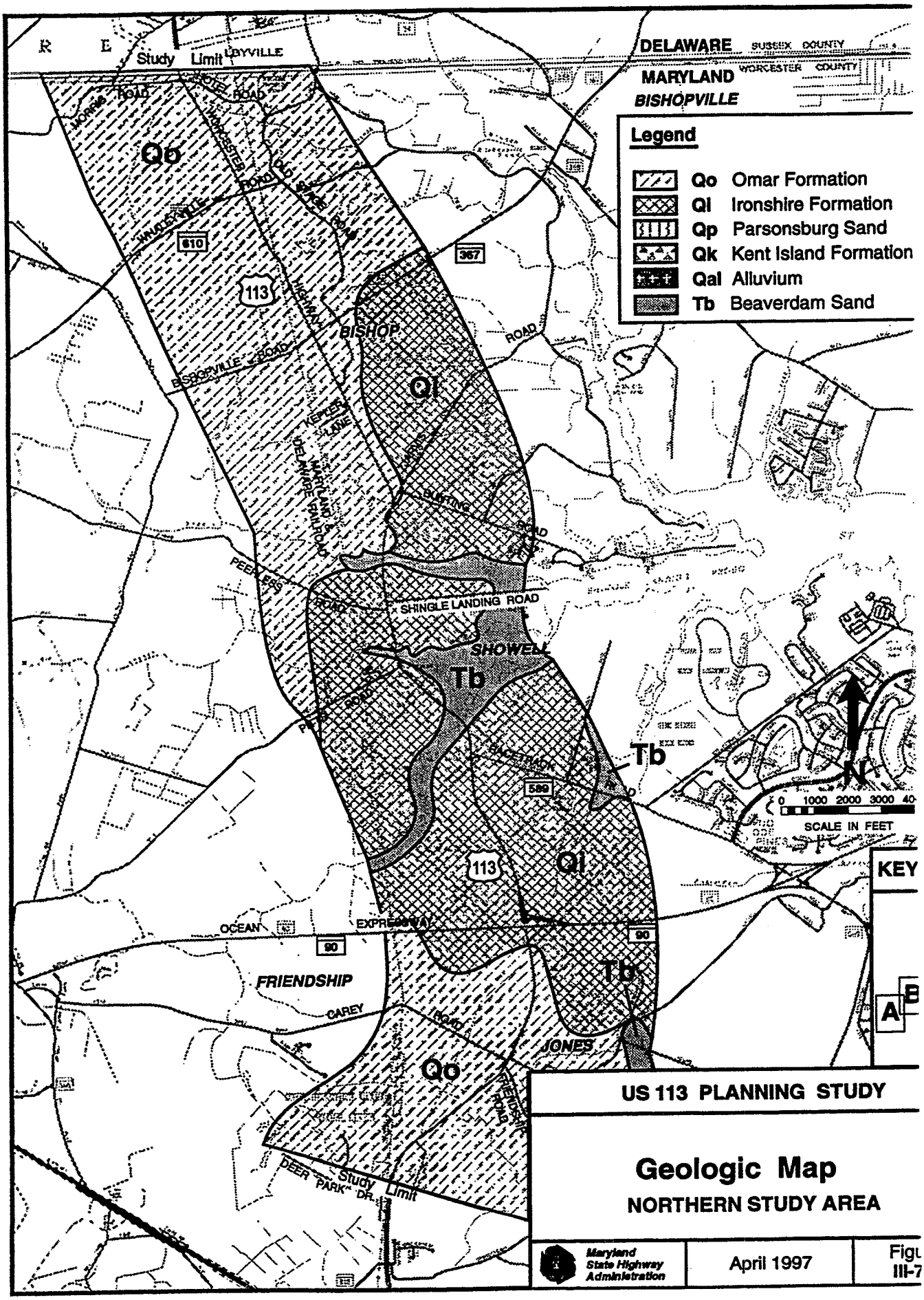
US 113 PLANNING STUDY
Geologic Map
SOUTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Figure III-7C


DELAWARE SUSSEX COUNTY
MARYLAND WORCESTER COUNTY
BISHOPVILLE
Study Limit
Legend
Qo Omar Formation
Ql Ironshire Formation
Qp Parsonsburg Sand
Qk Kent Island Formation
Qal Alluvium
Tb Beaverdam Sand
Qo
Ql
Tb
BISHOP
SHINGLE LANDING ROAD
SHOWELL
FRIENDSHIP
OCEAN EXPRESSWAY
CAREY
JONES
DEER PARK DR.
Study Limit
113
90
589
610
367
0 1000 2000 3000 40
SCALE IN FEET
KEY
US 113 PLANNING STUDY
Geologic Map
NORTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Figu
III-7

The Kent Island Formation consists of interstratified clay, silt and sand and is most widespread in the Pocomoke River Valley. This formation ranges in thickness from less than three feet to in excess of 40 feet. Alluvial soils are encountered generally along stream crossings and consist of sand, gravelly sand and clayey swamp deposits. These deposits are loosely consolidated and range in thickness from approximately three to six feet (Maryland Geologic Survey, 1978).

Within the project study areas, the Tertiary deposits underlying the Quaternary deposits consist of the Beaverdam Sand and Yorktown-Cohansey (?) Formations. The Beaverdam sand deposits of the Pliocene Age consist of sand and silty sand interbedded with gravelly sand and clay-silt and are exposed at the northern portion of the study area at deep channels. This formation is thickest north of Ocean City, Maryland where it is more than 100 feet thick (Maryland Geologic Survey, 1978).

The Yorktown-Cohansey (?) Formation of the Miocene Age in the Tertiary Period underlies the Beaverdam Sand and is not exposed at the surface. These sediments are predominantly interbedded clay-silt and sand or gravelly sand (Maryland Geologic Survey, 1978).

3. Soils

Based upon the Soil Conservation Service (SCS) Soil Survey for Worcester County, Maryland, 1973, the soils encountered along the project alignment consist of sandy loam and silt loam underlain by loamy sand or sand. These soils are classified into soil series according to similar soil profiles as determined by the Soil Survey. The soil series encountered along the majority of the project alignment are the Othello, Fallsington, Woodstown, Sassafras, Mattapex, Matapeake and Pocomoke series. Other soils series encountered are the Fort Mott, Lakeland, Klej, Portsmouth and Plummer series (SCS, 1973).

A brief description of the common soil series encountered within the study areas are contained in Table III-12. The soil series have been grouped into soil associations based on similar soil forming processes and geographic setting. These associations are shown on Figures III-8A through 8D.

Table III-12: Description of Common Soil Series in the Study Area

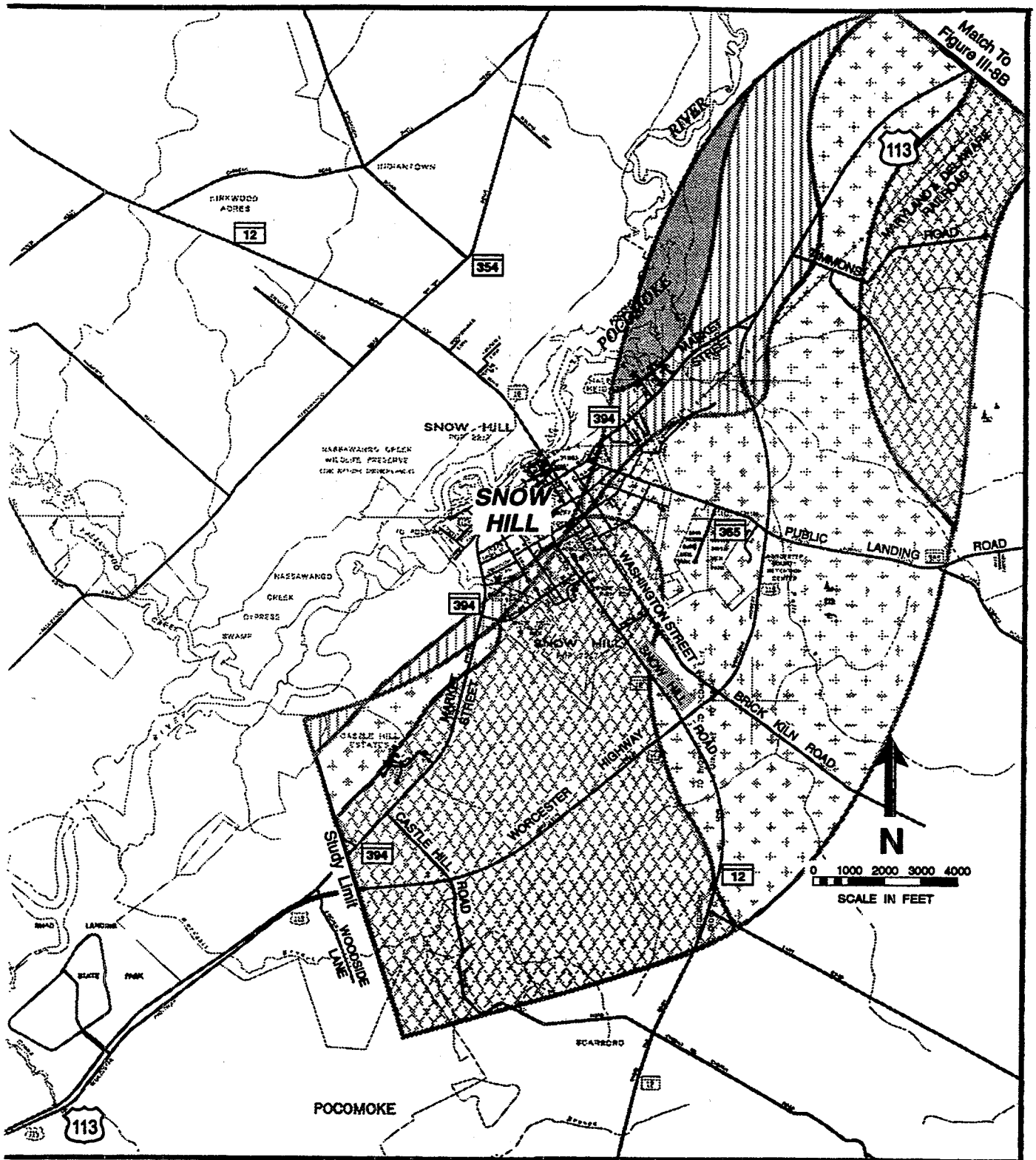
Soil Series	Description
Othello Series	Nearly level, poorly drained silt loam
Fallsington Series	Nearly level, poorly drained sandy loam to loam
Woodstown Series	Gently sloping, moderately well drained sandy loam to loam
Sassafras Series	Level to steep, well drained sandy loam to loam
Mattapex Series	Gently sloping, moderately well drained sandy loam to loam
Matapeake Series	Level to steep, well drained sandy loam
Pocomoke Series	Nearly level, poorly drained sandy loam to loam

The characteristics of each of the soil series have been evaluated for the suitability of the soils for engineering projects. The properties of soils important for design and construction include permeability, compactibility, drainage and shrink-swell potential. Other considerations are topography, natural drainage, depth to ground water and hazard of flooding (SCS, 1973).

The estimated permeability of the soils encountered along the project ranges from low to high. The Othello, Fallsington and Mattapex series contain soils with permeabilities as low as 0.2 inches per hour. Soils encountered in all of the series within the study area are estimated to have permeabilities as high as 6.3 inches per hour. The soils range from poorly drained to well drained and have little potential for shrink-swell. Most of the soils, however, are severely affected by frost action. Soils in each of the soil series are affected by a seasonable high water level with the water table near ground surface (SCS, 1973).

Representative soils have been tested by the SCS to determine maximum soil density. Maximum dry densities of the soils in the soil series encountered within the study area vary from 90 to 125 pounds per cubic foot with optimum moisture contents ranging from 7 to 18 percent. The compaction standard to which the test results conform was not stated by the Survey. Soil density testing for soils within the study area should be performed at locations of proposed roadways, pipelines, and embankments to verify published information (SCS, 1973).

Soils encountered along the project alignment have been evaluated for pipeline, roadway, and embankment constructability. The Othello soils provide poor stability for pipeline, roadway, and embankment construction. These soils are highly erodible and are susceptible to severe frost action. The ground water table is encountered at or near ground surface (SCS, 1973).



Legend

- Fallsington-Woodstown-Sassafras Association
- Mattapex-Matapeake-Portsmouth Association
- Othello-Fallsington-Portsmouth Association
- Pokomoke-Rutledge-Plummer Association
- Muck Association
- Lakeland-Klej-Plummer Association

KEY MAP

A B C D

US 113 PLANNING STUDY

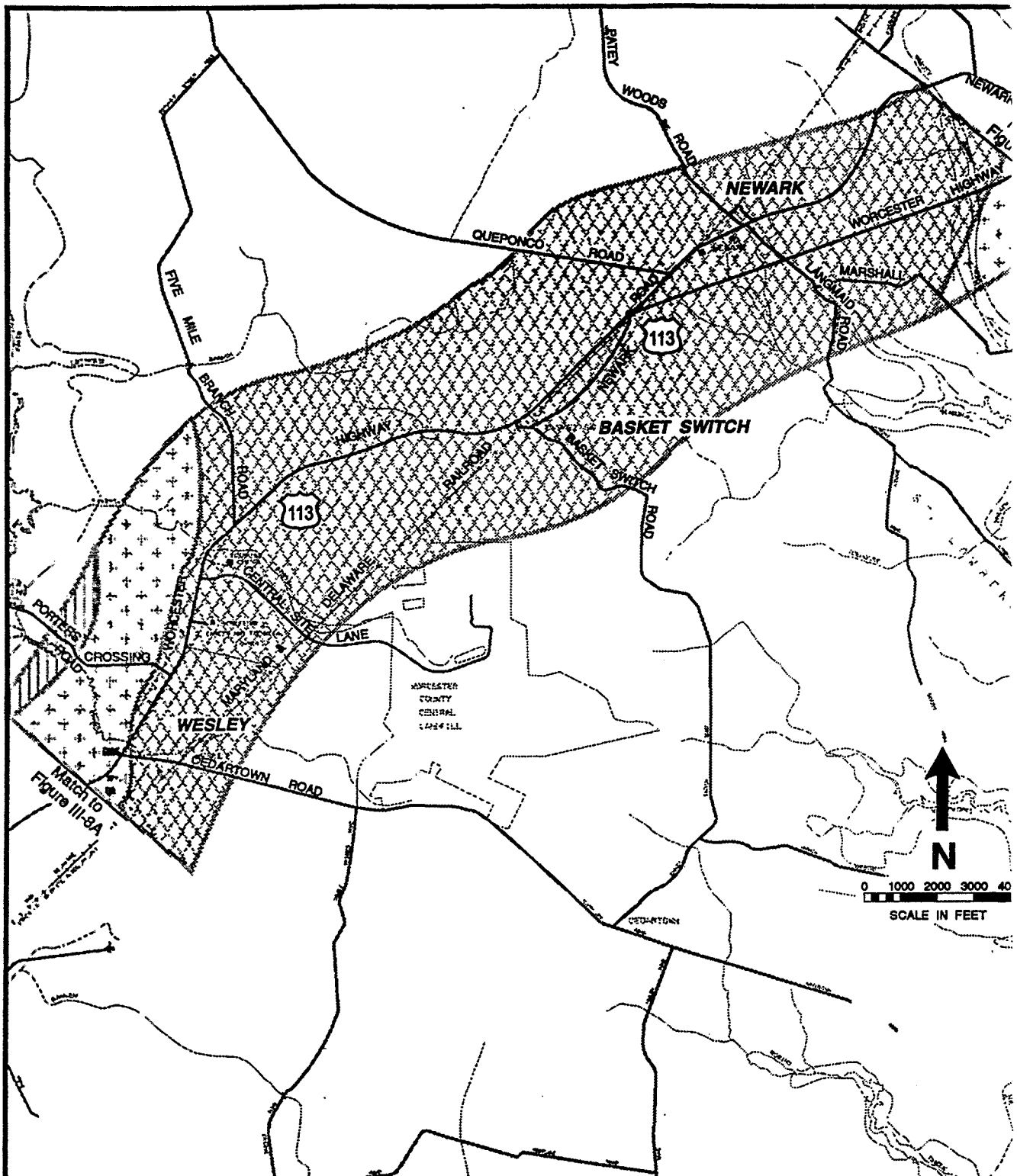
Soil Associations

SOUTHERN STUDY AREA

Maryland State Highway Administration

April 1997

Figure III-8A



Legend

- Fallsington-Woodstown-Sassafras Association
- Mattapex-Matapeake-Portsmouth Association
- Othello-Fallsington-Portsmouth Association
- Pokomoke-Rutledge-Plummer Association
- Muck Association
- Lakeland-Klej-Plummer Association

KEY MAP

A B C D

US 113 PLANNING STUDY

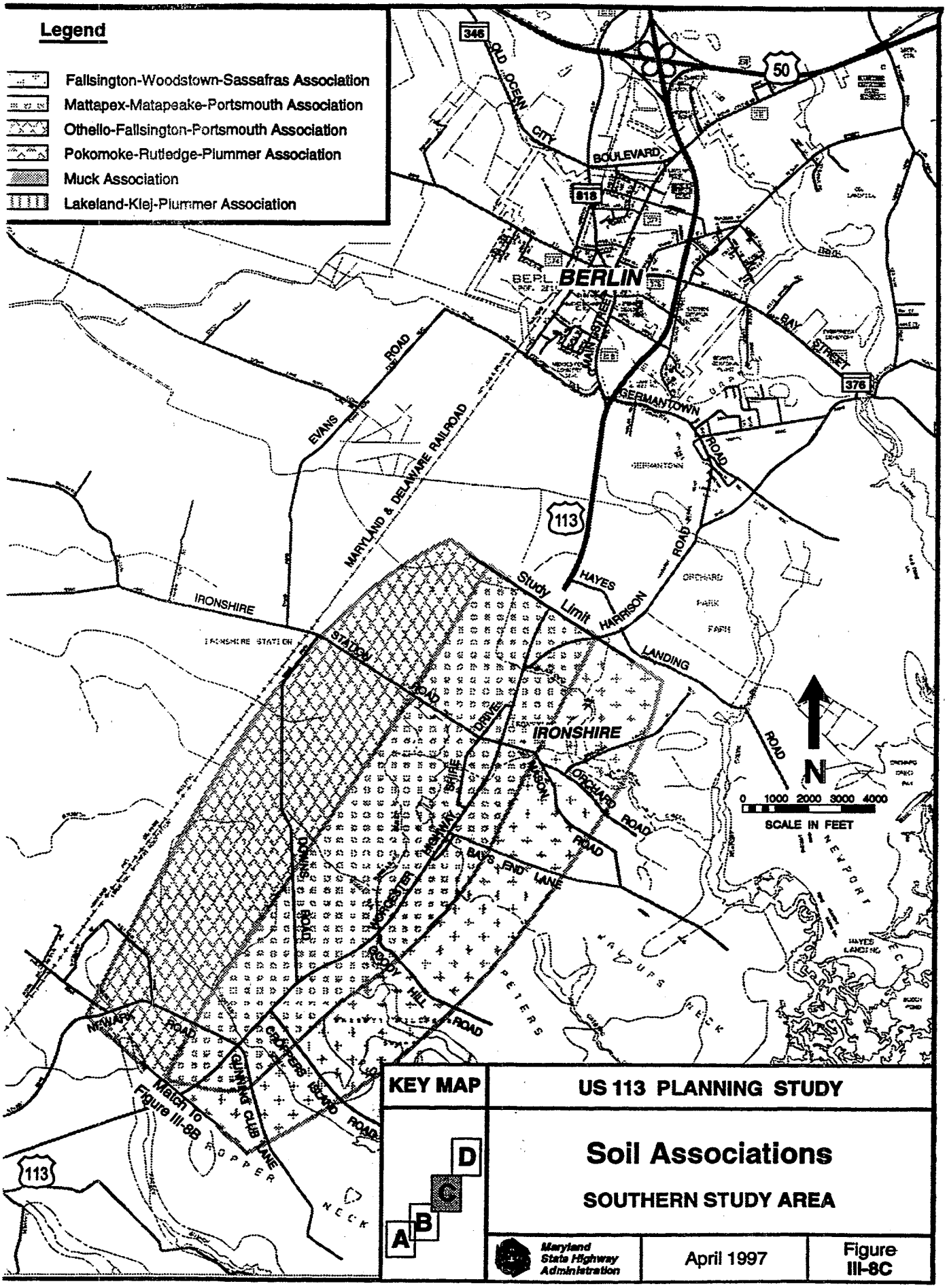
Soil Associations

SOUTHERN STUDY AREA

Maryland State Highway Administration

April 1997

Figu
III-8

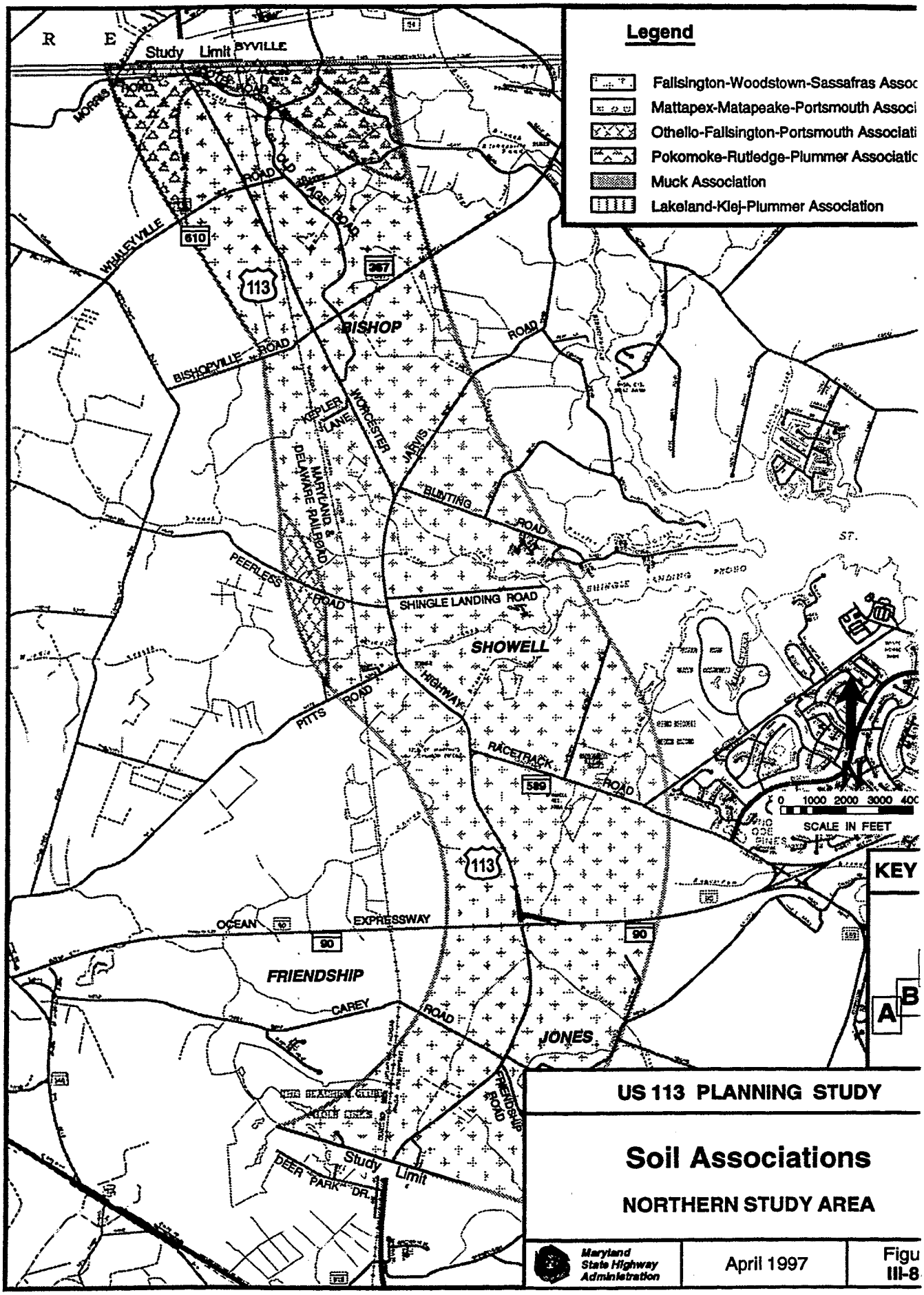


US 113 PLANNING STUDY

Soil Associations

SOUTHERN STUDY AREA

Maryland State Highway Administration | April 1997 | Figure III-8C



US 113 PLANNING STUDY

Soil Associations

NORTHERN STUDY AREA

Maryland State Highway Administration	April 1997	Figu III-8

The Mattapex and Pocomoke soils provide fair stability for construction. Ground water is high and the soils are susceptible to severe frost action. The Mattapex soils are highly erodible while the Pocomoke soils are moderately erodible (SCS, 1973).

The Fallsington and Matapeake soils provide fair to good stability for construction. The Fallsington soils contain a high water table where the Matapeake soils encounter water at more than five feet in depth. Soils in each of these series are susceptible to severe frost action and are moderately erodible (SCS, 1973).

The Sassafras and Woodstown soils provide good stability for pipeline, roadway, and embankment construction. The Woodstown soils have a high water table and are susceptible to severe frost action. The Sassafras soils encounter water at more than five feet in depth and are subject to moderate frost action. Soils in each of these series are moderately erodible (SCS, 1973).

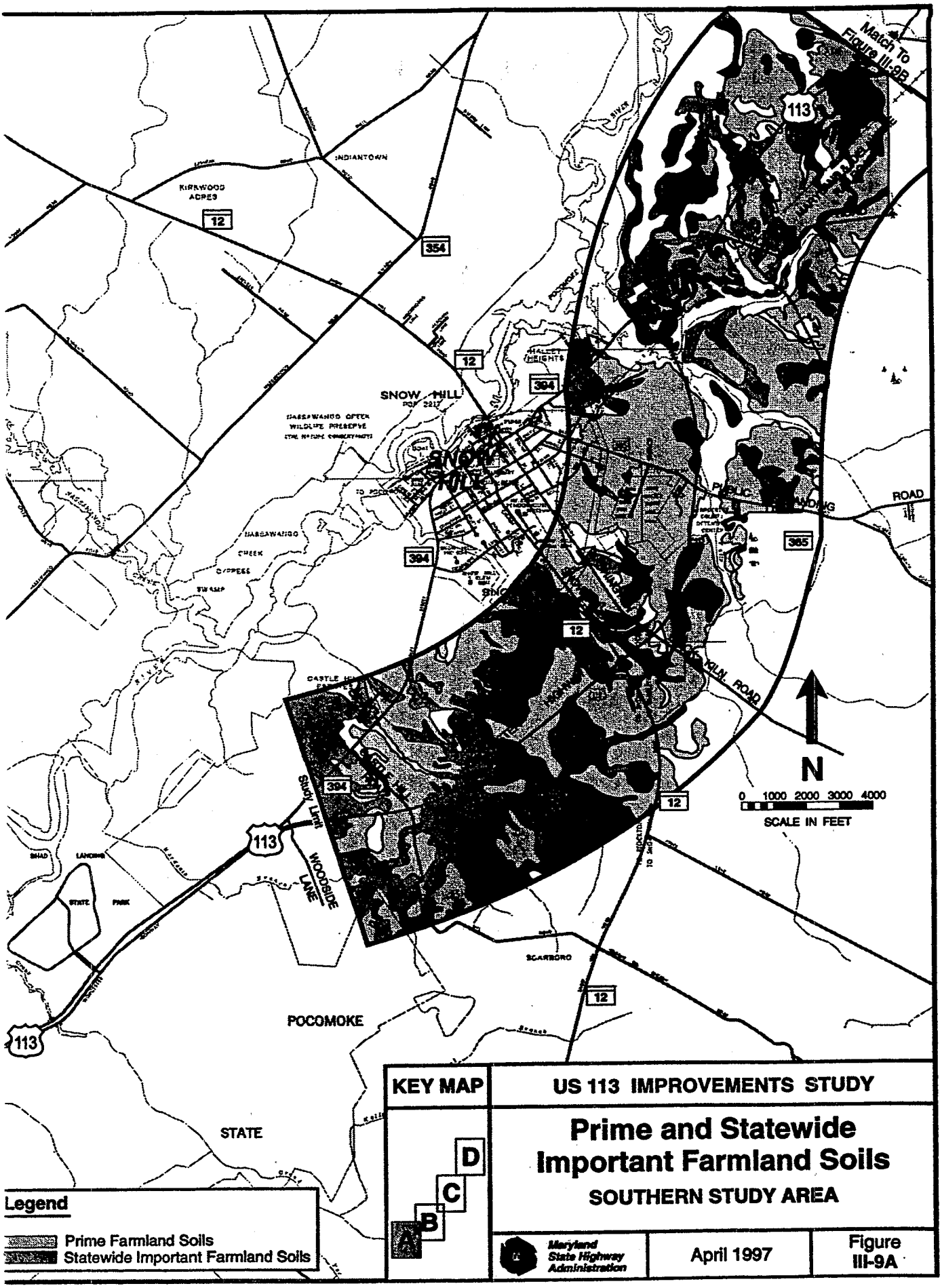
D. Farmlands

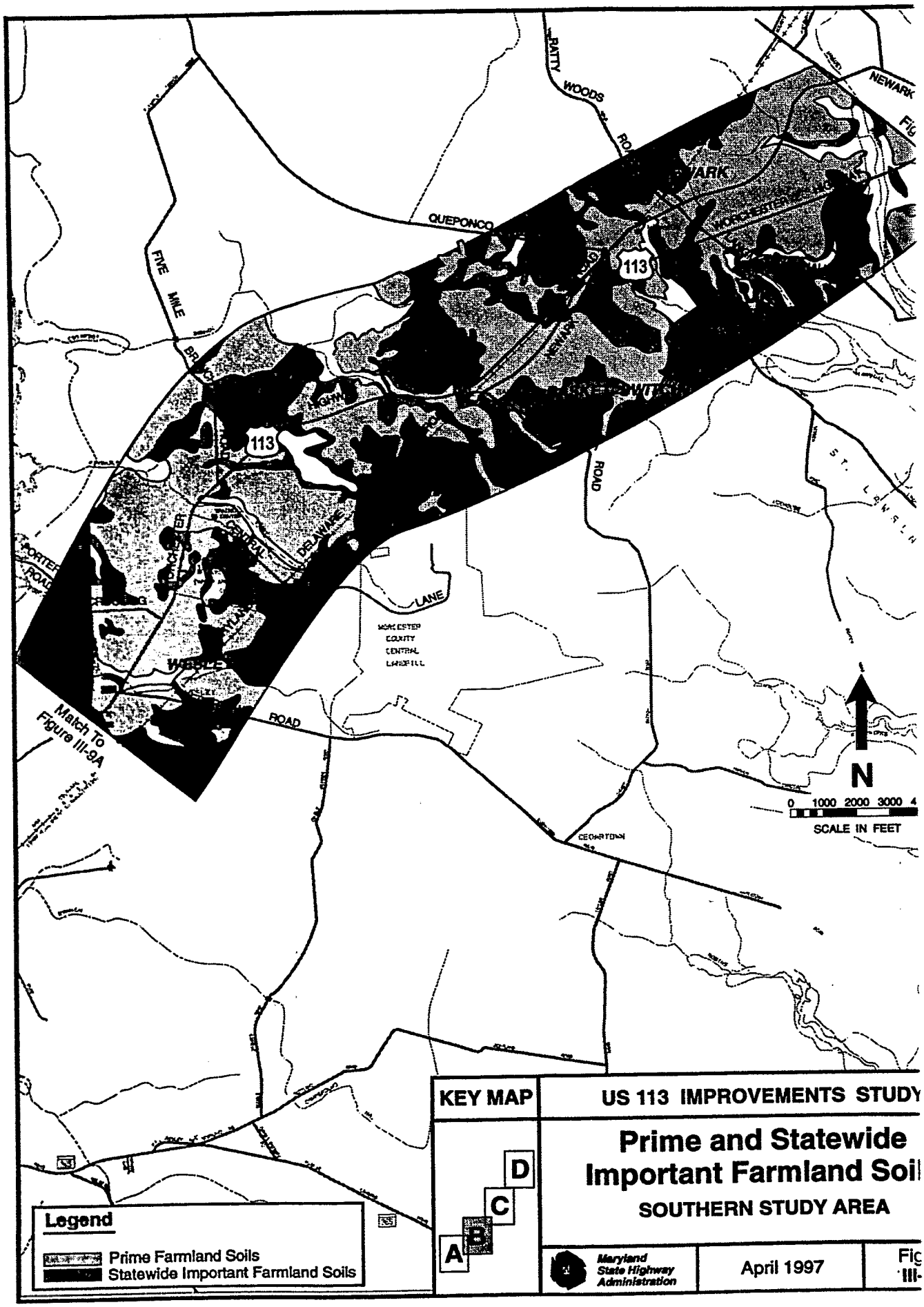
Farmland is the dominant land use adjacent to US 113 in the study area. In Worcester County, farms are located throughout the project corridor with cultivated fields and chicken houses as the dominant agricultural features. Poultry processing and feed mill operations are located in Bishop, Showell, Berlin and Snow Hill. Figures III-3A through 3D shows the agricultural land use within the study area. The crops that are mostly grown in the study area are corn, soybeans, barley and wheat according to the Worcester County USDA Natural Resources Conservation Service (NRCS).

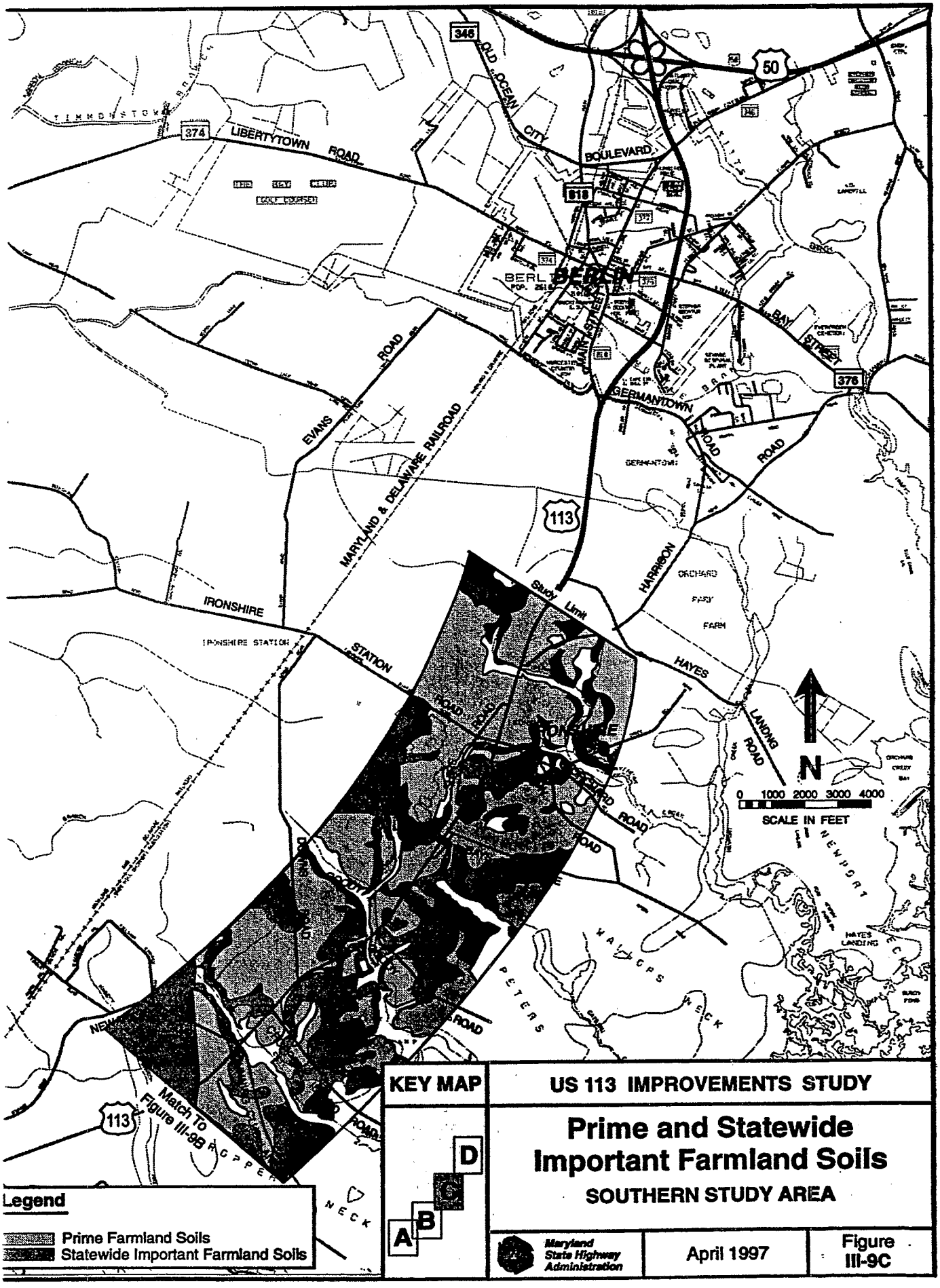
The NRCS, formerly the Soil Conservation Service (SCS) located in Snow Hill was contacted to obtain information regarding prime farmland soils and farmland soils of statewide importance. Listings of these soils were received, reviewed, and coordinated with maps in the Soil Survey of Worcester County, dated May 1973. The prime farmland soils and soils of statewide importance are shown in Tables III-13 and III-14, respectively, as well as in Appendix B. Figures III-9A through 9D show the distribution of the prime and statewide important farmland soils in the southern and northern study areas.

Table III-13: Prime Farmland Soils

Soil Survey Symbol	Soil Name
MdA	Matapeake fine sandy loam, 0 to 2 percent slopes
MdB	Matapeake fine sandy loam, 2 to 5 percent slopes
MeA	Matapeake silt loam, 0 to 2 percent slopes
MeB	Matapeake silt loam, 2 to 5 percent slopes
MoA	Mattapex fine sandy loam, 0 to 2 percent slopes
MoB	Mattapex fine sandy loam, 2 to 5 percent slopes
MpA	Mattapex loam, 0 to 2 percent slopes
MpB	Mattapex loam, 2 to 5 percent slopes
MtA	Mattapex silt loam, 0 to 2 percent slopes
MtB	Mattapex silt loam, 2 to 5 percent slopes
SmA	Sassafras loam, 0 to 2 percent slopes
SmB2	Sassafras loam, 2 to 5 percent slopes moderately eroded
SaA	Sassafras sandy loam, 0 to 2 percent slopes
SaB2	Sassafras, sandy loam, 2 to 5 percent slopes moderately eroded
WoA	Woodstown loam, 0 to 2 percent slopes
WoB	Woodstown loam, 2 to 5 percent slopes
WdA	Woodstown sandy loam, 0 to 2 percent slopes
WdB	Woodstown sandy loam, 2 to 5 percent slopes


Match To Figure III-9B
INDIANTOWN
KIRKWOOD ACRES
SNOW HILL
POP. 2217
PUBLIC LANDING
ROAD
KILN ROAD
SCARBORO
POCOMOKE
STATE
SHAD LANDING
STATE PARK
WOODSIDE LANE
STUDY LIMIT
12
113
354
365
N
0 1000 2000 3000 4000
SCALE IN FEET
KEY MAP
A
B
C
D
US 113 IMPROVEMENTS STUDY
Prime and Statewide Important Farmland Soils
SOUTHERN STUDY AREA
Legend
Prime Farmland Soils
Statewide Important Farmland Soils
Maryland State Highway Administration
April 1997
Figure III-9A


RATTY
WOODS
ROAD
NEWARK
QUEPONCO
FIVE MILE
BRANCH
113
ROAD
LANE
ROAD
Match To
Figure III-9A
N
0 1000 2000 3000 4
SCALE IN FEET
Legend
Prime Farmland Soils
Statewide Important Farmland Soils
KEY MAP
A
B
C
D
US 113 IMPROVEMENTS STUDY
Prime and Statewide
Important Farmland Soil
SOUTHERN STUDY AREA
Maryland
State Highway
Administration
April 1997


346
OLD OCEAN CITY BOULEVARD
50
374
LIBERTYTOWN ROAD
TIMMONSTOWN
818
BERLIN
BAY STREET
376
GERMANTOWN ROAD
EVANS ROAD
MARYLAND & DELAWARE RAILROAD
113
IRONSHIRE
IRONSHIRE STATION
STATION ROAD
HARRISON
ORCHARD FARM
HAYES
LANDING ROAD
NEWPORT
HAYES LANDING
PETERS NECK
Study Limit
Match To Figure III-9B
N
0 1000 2000 3000 4000
SCALE IN FEET
Legend
Prime Farmland Soils
Statewide Important Farmland Soils
KEY MAP
A
B
C
D
US 113 IMPROVEMENTS STUDY
Prime and Statewide Important Farmland Soils
SOUTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Figure III-9C

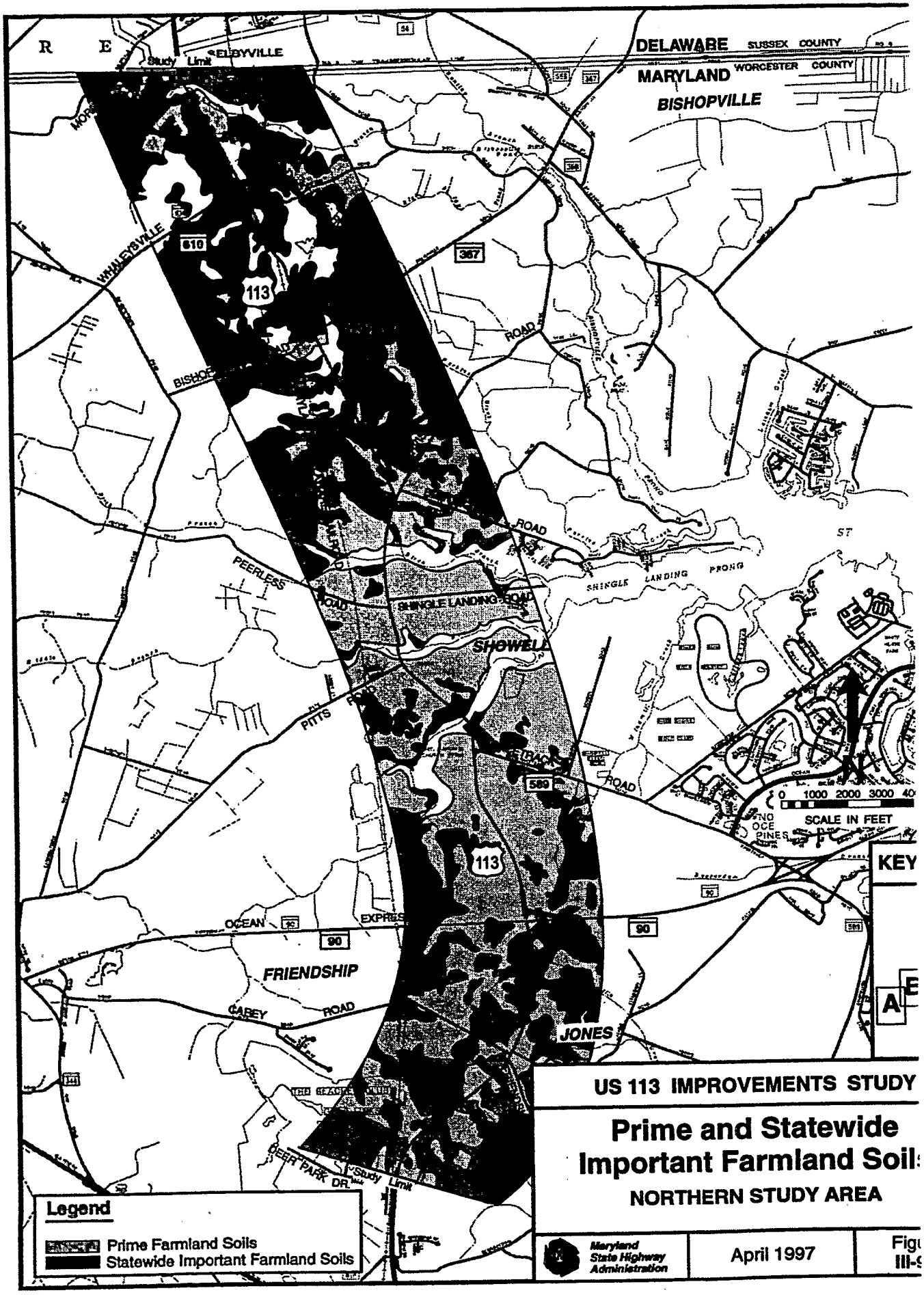

DELAWARE
SUSSEX COUNTY
MARYLAND
WORCESTER COUNTY
BISHOPVILLE
ELBYVILLE
Study Limit
WHALEYSVILLE
610
113
367
ROAD
PEERLESS
SHINGLE LANDING ROAD
SHINGLE LANDING PRONG
SHOWELL
PITTS
589
OCEAN
EXPRESS
90
FRIENDSHIP
CAREY
ROAD
JONES
DEER PARK DR.
Study Limit
0 1000 2000 3000
SCALE IN FEET
KEY
Legend
Prime Farmland Soils
Statewide Important Farmland Soils
US 113 IMPROVEMENTS STUDY
Prime and Statewide Important Farmland Soils
NORTHERN STUDY AREA
Maryland State Highway Administration
April 1997

Table III-14: Soils of Statewide Importance

Soil Survey Symbol	Soil Name
Fg	Fallsington loam
Fa	Fallsington sandy loam
FmA	Fort Mott loamy sand, 0 to 2 percent slopes
FmB	Fort Mott loamy sand, 2 to 5 percent slopes
KsA	Klej loamy sand, 0 to 2 percent slopes
KsB	Klej loamy sand, 2 to 5 percent slopes
LmB	Lakeland loamy sand, clayey substratum, 0 to 5 percent slopes
LlB	Lakeland sand, clayey substratum, 0 to 5 percent slopes
LoB	Lakeland-Fort Mott loamy sands, 0 to 5 percent slopes
MdC	Matapeake fine sandy loam, 5 to 10 percent slopes
MeC	Matapeake silt loam, 5 to 10 percent slopes
Ot	Othello silt loam
Pm	Pocomoke loam drained
Pk	Pocomoke sandy loam, drained
Pr	Portsmouth sandy loam
Pt	Portsmouth silt loam
SaC2	Sassafras sandy loam, 5 to 10 percent slopes, moderately eroded
St	St. Johns loamy sandy
Su	St. Johns mucky loamy sand

The Farmland Protection Policy Act (FPPA), as amended in 1984 and 1994, includes new criteria defining the situations to which the FPPA applies and to which a Form AD-1006 is required. Under this legislation, Federal programs are administered in compatibility with state and local government, and private programs and policies to protect farmland. Under this legislation, farmland is defined by the NRCS in Worcester County as Prime Farmland Soils and Soils of Statewide Importance (NRCS, 1996). The criteria for these designations are related to soil characteristics such as texture, erodibility, depth to water table, slope, and available moisture.

The prime farmland soils in the study areas both north and south of Berlin have been categorized by the SCS as being in Capability Class I. Class I soils have few limitations that restrict their use, as they are well drained, occurring on nearly level uplands. Soils of statewide importance in the study areas include soils in Capability Classes II, III and V. The Class II and III soils have moderate to severe limitations, such as erosion and variable hydrology, that reduce the choice of plants and require moderate or special conservation practices. The Class V soils have hydrology limitations impractical to remove that prohibit uses other than pasture, range, woodland or wildlife habitats.

The most prevalent soils within the southern section of the study area are of the Othello-Fallsington-Portsmouth association with minor areas of the Fallsington-Woodstown-Sassafras and Mattapex-Matapeake-Othello associations. Soils in these associations vary, occurring on level to steeply sloping areas and are well-drained to poorly and very poorly drained and have subsoil layers dominantly of sandy clay loam or silty clay loam (SCS, 1973). Approximately 60 percent of these soils are actively being farmed at this time, while the remaining 40 percent occur as forested areas.

The most prevalent soils within the study area north of Berlin, Maryland are of the Fallsington-Woodstown-Sassafras association. Soils in this association are generally poorly drained to well-drained occurring respectively on level terrain to steeper slopes. These soils have a dominant subsoil consisting of sandy clay loam (SCS, 1973). Approximately 56 percent of these soils are actively being farmed.

E. Ground Water Resources

The project alignment lies within the Coastal Plain Physiographic Province where abundant water is available from water-bearing beds in the uppermost 500 feet of sedimentary deposits. Ground water occurs in 14 aquifers ranging from shallow to more than 7,700 feet below ground surface. Water in shallow wells is obtained from sediment of the Pleistocene and Pliocene ages while water for principal areas is obtained from the Pocomoke and Manokin aquifers contained in the Yorktown-Cohansey (?) Formation (Maryland Department of Geology, Mining, and Water Resources, 1955).

The majority of ground water comes from precipitation that filters through the soil or water that seeps in from streams. The low relief of the Coastal Plain and the permeability of the soils aid the retention and infiltration of water to recharge aquifers. Aquifers within this region are generally saturated by recharge for precipitation. It is estimated that 360 million gallons per day of water is available from water-bearing beds within the uppermost 500 feet of sedimentary deposits (Maryland Department of Geology, Mining and Water Resources, 1955). An abundant ground water supply is available for development within the project area.

Worcester County depends on surface water for its water supply. Residences and businesses in the northern and the southern study areas operate on well systems for their water supply and septic tanks for their waste management. Because of high recharge rates in the area and large water holding capacity of the unconsolidated sediments, wells that yield moderate to large quantities of water can be constructed almost anywhere in the region (Heath, 1984).

F. Surface Water Resources

Surface waters within the study area are comprised of ponds, streams, rivers and wetlands and are considered Waters of the US and waters of the State, including jurisdictional wetlands. Wetlands are discussed in detail in Section III-H. The study area lies within portions of the Pocomoke River and Atlantic Coastal drainage divide. Figures III-10A through 10D show the location of these surface water features and the drainage divide.

1. Streams and Rivers

All the streams and rivers within the study areas are classified by the Maryland Department of the Environment (MDE) as Use I, which indicates that the designated uses include Water Contact Recreation and Protection of Aquatic Life. Streams within the Pocomoke River drainage of the southern study area include: Purnell Branch and its tributaries Pattys Branch and Campground Branch, Poorhouse Branch, Fivemile Branch, and a small tributary of Coonfoot Branch. Streams within the Atlantic Ocean Coastal drainage of the southern study area include: Marshall Creek and two small tributaries, Massey Branch, Porter Creek, Goody Hill Branch, the headwaters of Catbird Creek and Poplartown Branch and a tributary. In the northern study area, Crippen Branch, Church Branch, Middle Branch, Birch Branch and Carey Branch of the Atlantic Ocean Coastal drainage are encountered.

The streams throughout both study areas vary in width from approximately 5 feet up to approximately 70 feet and in depth from approximately 8 inches to greater than 6 feet. Review of respective United States Geologic Survey (USGS) maps indicates that most tributaries are probably generated by ground water discharge and surface water run-off from surrounding upland areas. The majority of the streams and river channels are unvegetated. Besides ponds, these tributaries also provide aquatic habitat and drinking water for both mammal and bird species. The sizeable freshwater tributaries also provide excellent spawning environments for fish species indigenous to the Pocomoke River, the Atlantic Coast and the inner bays. A discussion of the aquatic and wetland habitat features within the study areas is included in Section III-I.

The functions provided by these streams and rivers include production export and nutrient removal/transformation.

Figures III-10A through 10D show the Pocomoke River and Atlantic Coastal Drainage Divide and major streams.

2. Lakes and Ponds

Approximately 14 acres of ponds were observed within 400 feet of the project study areas on both the east and west sides of US 113.

These elements occur as inundated borrow pits, stormwater management facilities and possibly as spring-fed ponds, varying in depth from approximately 3 feet to greater than 6 feet. Many of these ponds are bordered with areas of vegetation tolerant of frequent soil saturation or continued inundation. (NOTE: There are no natural ponds or lakes in Maryland.).

These water resources serve as habitats for plant and animal species which require such conditions and as a water source for animals which may frequent the adjacent forested and old field habitats.

3. Wild and Scenic Rivers

The Maryland DNR's Wild and Scenic Rivers program was developed to protect the scenic, recreational, and aquatic habitat values of the state's wild and scenic rivers. Rivers under this program are protected from development which would diminish the character of the resource. The Pocomoke River was Maryland's first state designated wild and scenic river (DNR, 1996). The river is located to the west of US 113 roughly parallel to the roadway alignment.

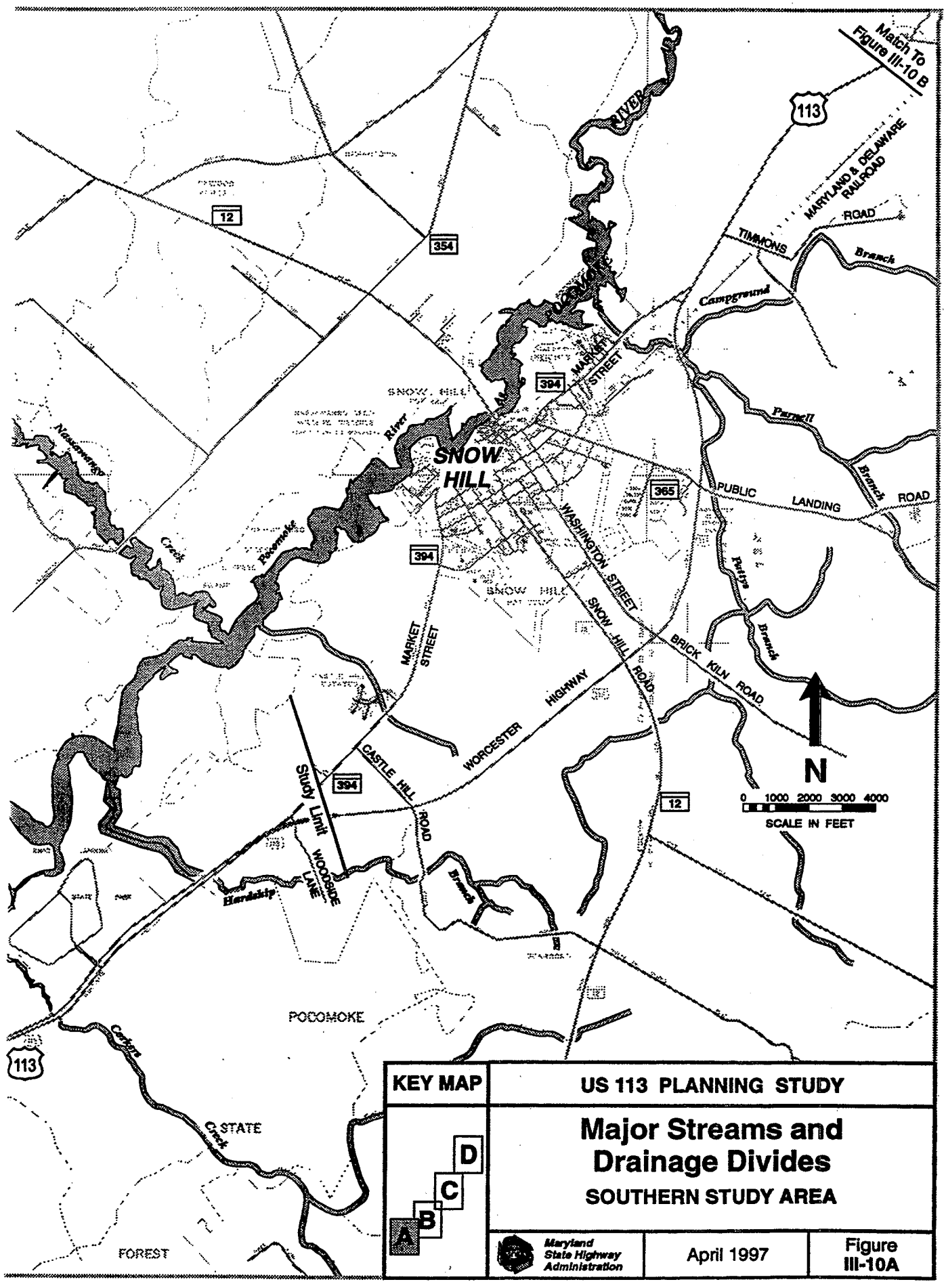
The Pocomoke originates in southern Delaware in the Great Cypress Swamp and empties into the Pocomoke Sound of the Chesapeake Bay. The total length of the river is 73 miles, 55 miles of which are in Maryland. Near Snow Hill, the river is approximately 400 feet wide and ranges in depth form 7 to 25 feet, averaging about 15 feet deep (Worcester County Tourism, undated).

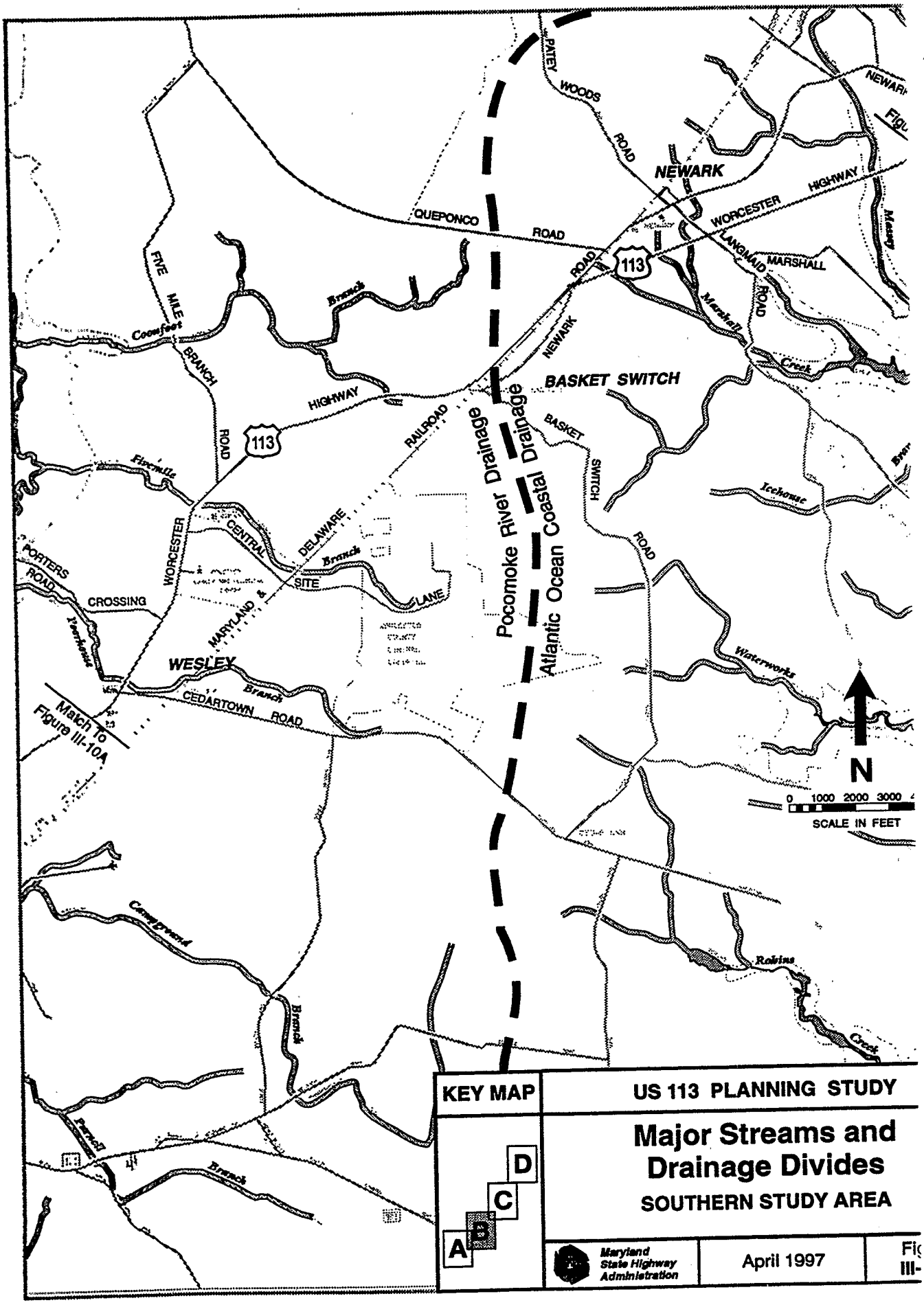
The river has a rich and varied history. It was an important source of food and transportation for the Algonquin tribes in the area in pre-colonial times. Throughout the late 1700's and 1800's shipbuilding, brick manufacturing, iron smelting (from local bog ore deposits) and the shipping of tobacco and lumber flourished. A number of historic sites are located in the vicinity (Worcester County Tourism, undated).

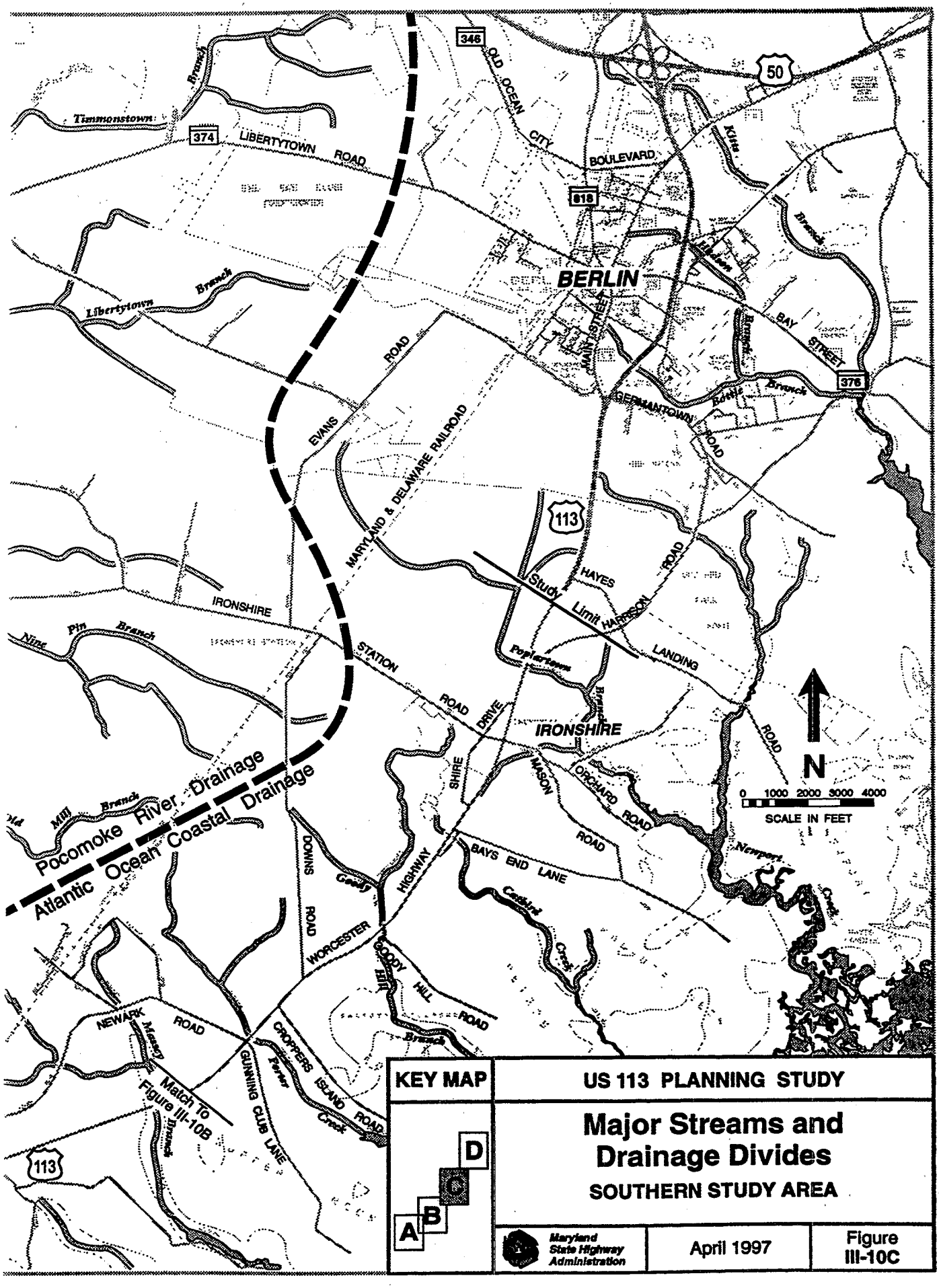
The Pocomoke River is also home to a wide variety of plant and animal life. More than 240 species of animals have been seen in the forests and wetlands bordering the river. Some ornithologists describe the area as one of the Atlantic Coast's best environments for bird life. Because of the brackish tidal waters, the Pocomoke holds both saltwater and freshwater fish species. At least 72 families of plants have been identified in the wetlands of the Pocomoke River including some of the northern most stands of bald cypress.

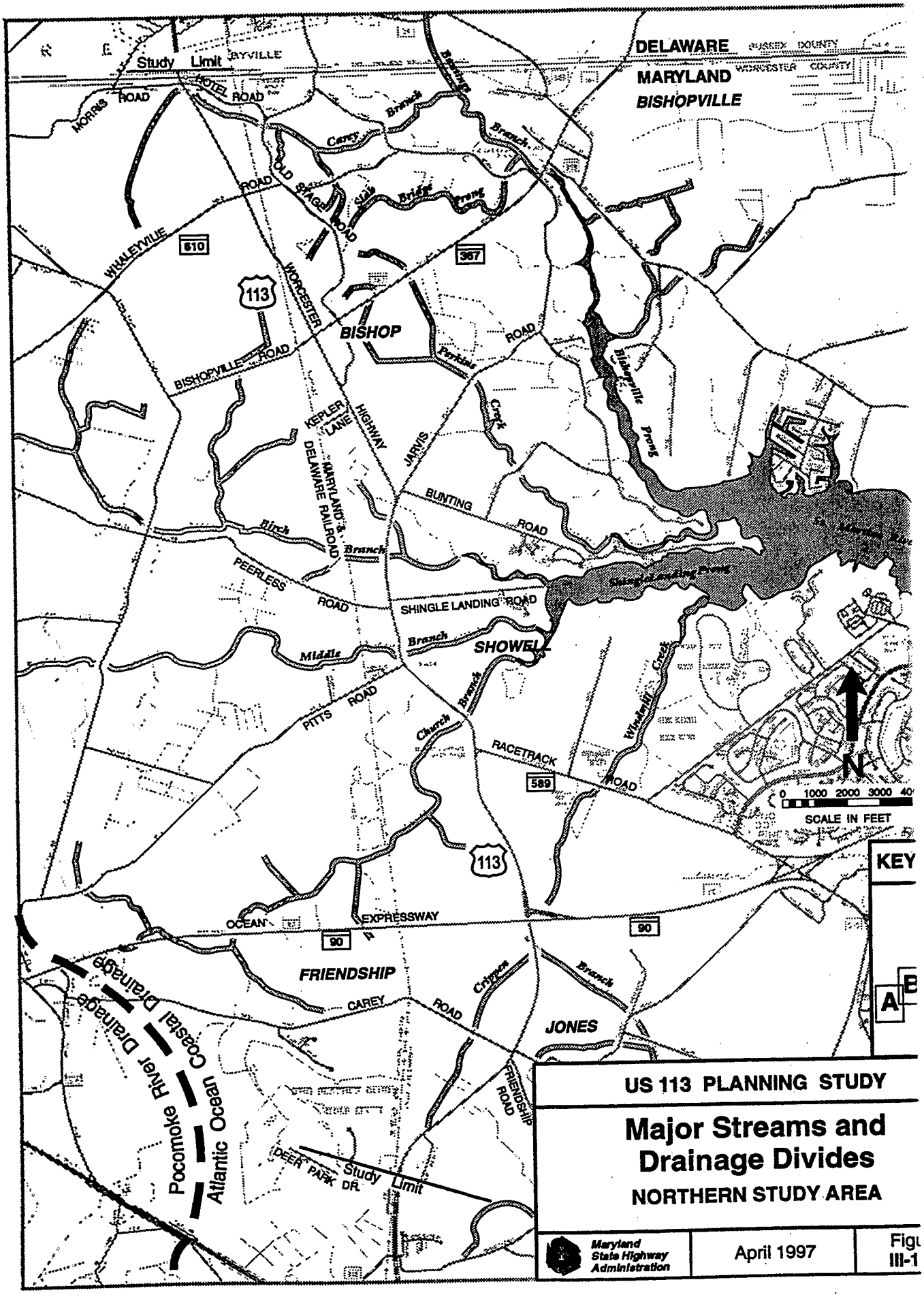
Recreational activities on or near the Pocomoke River include picnicking, hiking, bicycling, camping, bird watching, hunting, canoeing, river cruising, and fishing. Facilities are available at the nearby Pocomoke River State Forest and Park. A number of annual events including festivals, fairs, and parades are also held in the area.

'70


Match To Figure III-10 B
113
MARYLAND & DELAWARE RAILROAD
TIMMONS ROAD
Branch
Campground
12
354
394
MARKET STREET
SNOW HILL
Pocomoke River
Nassawango Creek
Parnell Branch
PUBLIC LANDING ROAD
365
WASHINGTON STREET
SNOW HILL ROAD
BRICK KILN ROAD
Peters Branch
MARKET STREET
HIGHWAY
WORCESTER
CASTLE HILL ROAD
Study Limit
WOODSIDE LANE
Hardship
Branch
POCOMOKE
Cedar Creek
STATE FOREST
N
0 1000 2000 3000 4000
SCALE IN FEET
KEY MAP
A
B
C
D
US 113 PLANNING STUDY
Major Streams and Drainage Divides
SOUTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Figure III-10A


PATEY
WOODS
ROAD
NEWARK
HIGHWAY
WORCESTER
QUEPONCO
ROAD
ROAD
113
LANGMAID
MARSHALL
ROAD
FIVE MILE
BRANCH
Coonfoot
Branch
NEWARK
Marshall
Creek
BASKET SWITCH
HIGHWAY
ROAD
113
RAILROAD
BASKET
SWITCH
ROAD
Pocomoke River Drainage
Atlantic Ocean Coastal Drainage
Icchomac
Flatmill
WORCESTER
CENTRAL
DELAWARE
Branch
PORTERS
ROAD
CROSSING
SITE
LANE
MARYLAND &
Pocomoke
WESLEY
Branch
CEDARTOWN ROAD
Match To
Figure III-10A
Waterworks
N
0 1000 2000 3000
SCALE IN FEET
Cowpen Swamp
Branch
Robins
Creek
Pemell
Branch
KEY MAP
A
B
C
D
US 113 PLANNING STUDY
Major Streams and
Drainage Divides
SOUTHERN STUDY AREA
Maryland
State Highway
Administration
April 1997


346
OLD OCEAN CITY BOULEVARD
50
Timmonstown
Branch
374
LIBERTYTOWN ROAD
Libertytown Branch
BERLIN
MAIN STREET
BAY STREET
376
GERMANTOWN ROAD
Bottle Branch
EVANS ROAD
MARYLAND & DELAWARE RAILROAD
113
HAYES ROAD
Study Limit
HARRISON LANDING
IRONSHIRE
Nine Pin Branch
STATION ROAD
DRIVE
Poplartown
IRONSHIRE ROAD
MASON ORCHARD ROAD
Pocomoke River Drainage
Atlantic Ocean Coastal Drainage
Mill Branch
HIGHWAY
BAYS END LANE
Cattail Creek
Newport Creek
DOWNS ROAD
WORCESTER
Goody Hill Branch
GOODY HILL ROAD
NEWARK ROAD
Massey Branch
CHOPPERS ISLAND ROAD
Porter Creek
GUNNING CLUB LANE
Match To Figure III-10B
113
N
0 1000 2000 3000 4000
SCALE IN FEET
KEY MAP
A
B
C
D
US 113 PLANNING STUDY
Major Streams and Drainage Divides
SOUTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Figure III-10C



US 113 PLANNING STUDY

Major Streams and Drainage Divides

NORTHERN STUDY AREA

Maryland State Highway Administration	April 1997	Figu III-1

G. Floodplain

1. Existing Floodplain Studies

The 100-year floodplain limits have been identified and delineated based on mapping provided by the Federal Emergency Management Agency (FEMA). Within the study area, 100-year floodplains are associated with numerous tributaries draining into the Pocomoke River, Newport Bay, and Assawoman Bay. The tributaries and their associated floodplains are shown on Figures III-11A through 11D and on the alternatives mapping in Appendix A.

Within the southern study area, 100-year floodplains are associated with Purnell Branch and its tributaries Pattys Branch and Campground Branch, Poorhouse Branch, Five Mile Branch, Coonfoot Branch, Massey Branch, Goody Hill Branch, and Poplartown Branch and its tributaries. In the northern study area, Crippen Branch, Church Branch, Middle Branch, Birch Branch and Carey Branch each have associated 100-year floodplains.

2. Existing Floodplain Conditions

The 100-year floodplains associated with Purnell, Pattys and Campground Branches are generally wooded with extensive wetlands. No improved properties or structures are located in the limits of the floodplains within the southern study area. The 100-year floodplain of Poorhouse Branch within the southern study area includes farm fields, some wetlands and an improved property with three buildings. The 100-year floodplain of Five Mile Branch within the southern study area includes farm fields and wetlands but no improved properties. An improved property with three chicken houses is located within the 100-year floodplain of Coonfoot Branch in the southern study area. The 100-year floodplain associated with Massy Branch in the southern study area is generally forested with extensive wetlands.

At Goody Hill Branch, the 100-year floodplain within the southern study area is generally forested with extensive wetlands, however, an improved property with two chicken houses is also present. The 100-year floodplain of Poplartown Branch and its tributaries within the southern study area is generally forested and contains wetlands but no improved properties.

The 100-year floodplain of Crippen Branch in the northern study area includes farm fields as well as several improved properties including six structures. The 100-year floodplains associated with Church, Middle, Birch and Carey Branches are generally forested and contain extensive wetlands but no improved properties.

H. Wetlands

1. Methodology

Wetlands were identified in accordance with the Corps of Engineers Wetland Delineation Manual, (Environmental Laboratory, Technical Report Y-87-1 (ACOE, 1987), and supplemental guidance papers issued by the Corps of Engineers. This method requires positive identification of three wetland parameters under normal circumstances: hydrophytic vegetation, hydric soils, and wetland hydrology.

Wetlands in the study area were classified according to the Cowardin System, as described in A Classification of Wetlands and Deepwater Habitats of the United States (Cowardin, et.al., 1979). The wetland indicator status of the observed vegetation was determined using the National List of Plant Species That Occur in Wetlands: Maryland (U.S. Fish and Wildlife Service, 1988).

Prior to the field investigation, possible wetland areas were located using preliminary wetland mapping completed during previous planning studies for the project; National Wetland Inventory (NWI) maps prepared by the US Fish and Wildlife Service; Maryland Nontidal Wetland Guidance Maps; Soil Survey maps for Worcester County; and, topographic maps (at a scale of 1" = 200'). Potential wetlands were identified in areas with hydric soils, along drainage ways, and in topographic lows.

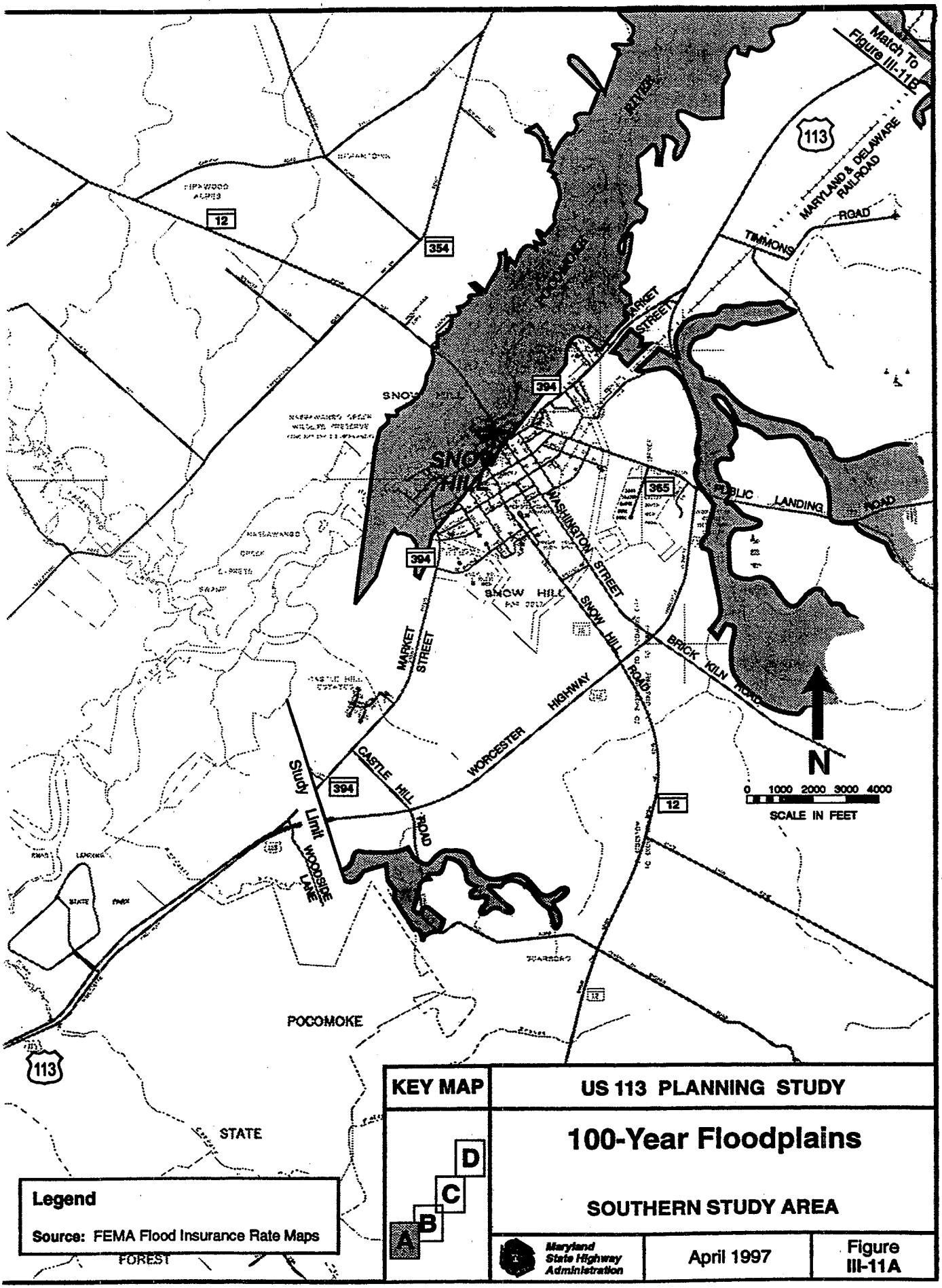
The field investigation for the project was conducted in July and September, 1996 to identify and delineate the boundaries of wetlands in the study area. The limit of wetlands was flagged in the field with pink survey ribbon labeled as "SHA Wetland" for verification by the U.S. Army Corps of Engineers and survey by SHA. Field work for the Jurisdictional Determination by the U.S. Army Corps of Engineers was completed in March, 1997.

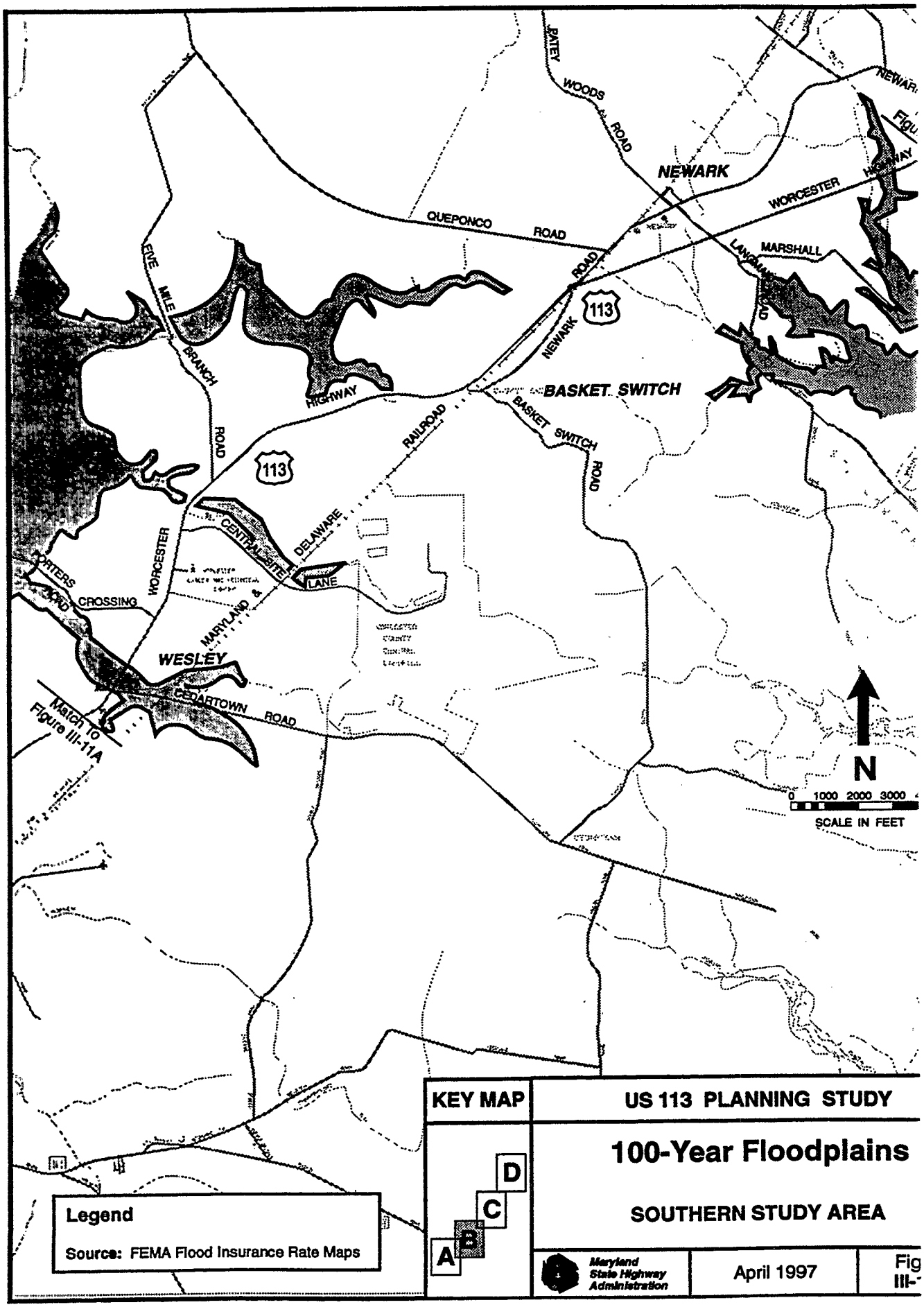
The approximate location of farmed wetlands in the study area have been identified through consultation with NRCS staff in Snow Hill, MD, review of aerial photography on file at the NRCS office, and preliminary field reconnaissance. Farmed wetlands were not flagged or surveyed for this DEIS, but will be surveyed for the FEIS.

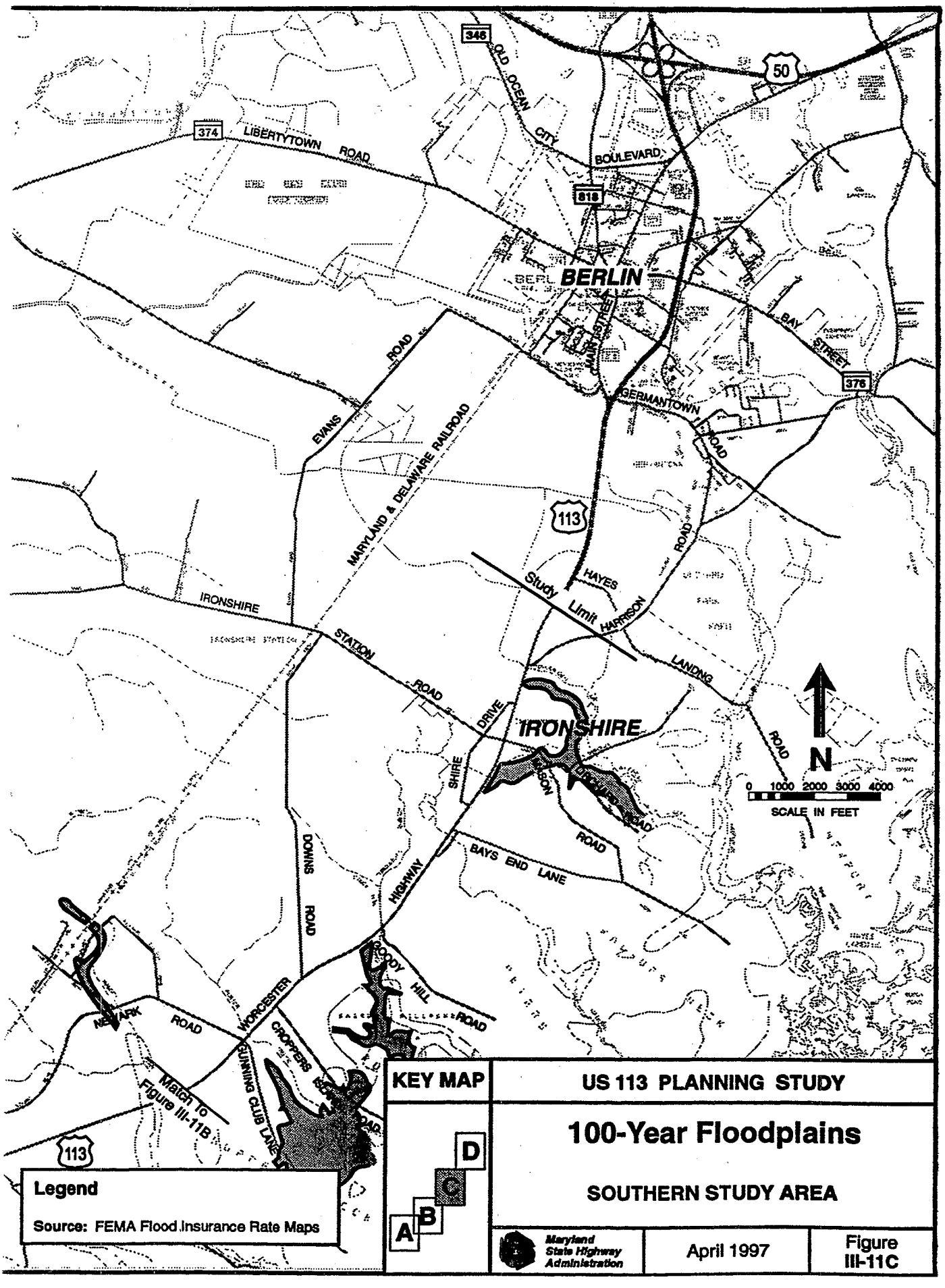
2. Identification and Delineation

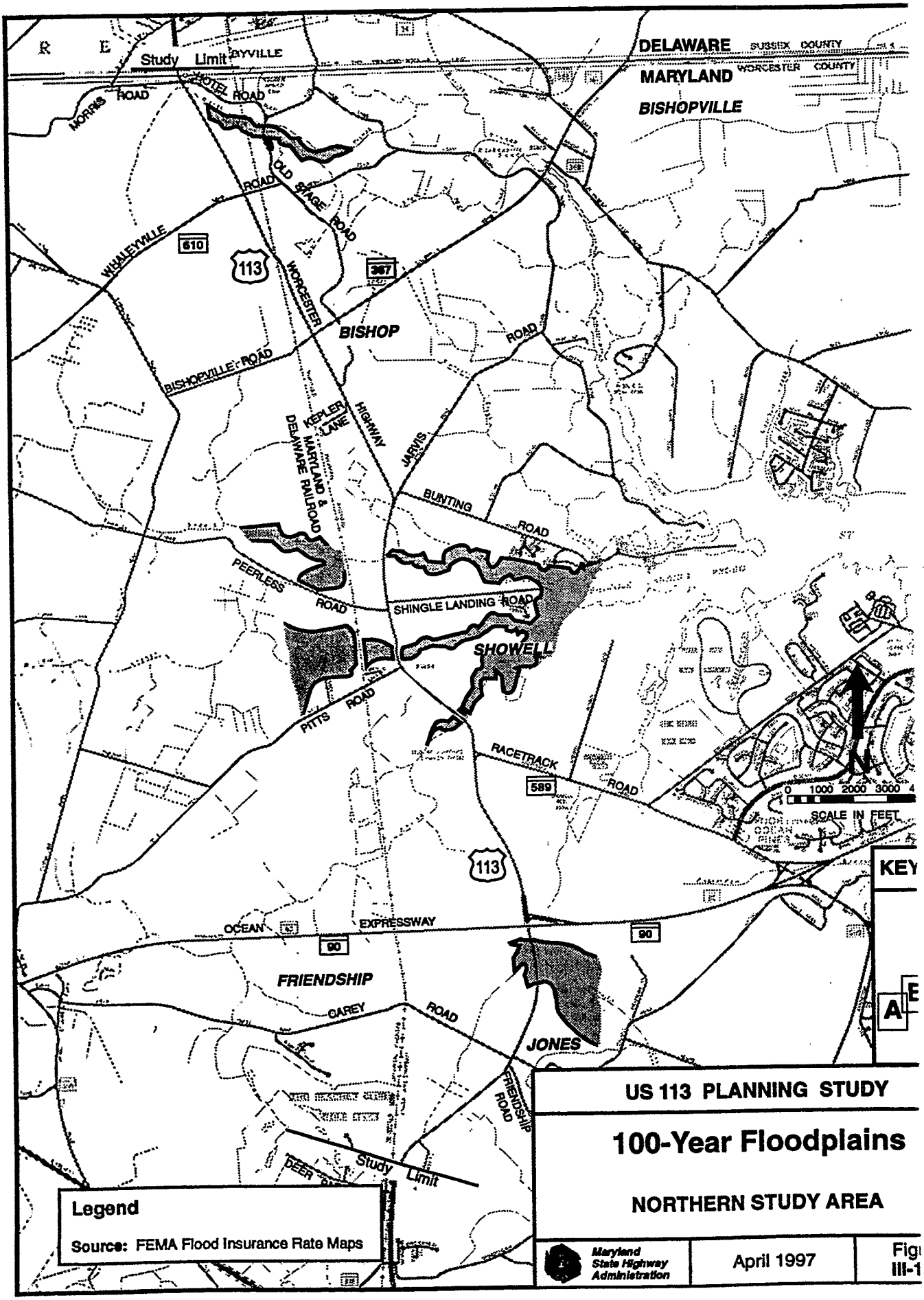
Observations of vegetation, soils, and hydrologic were made in wetland and upland locations to characterize the study area and to verify wetland boundaries. The field data from 65 of these observation points are documented on the data sheets provided in the Natural Environment Technical Report.

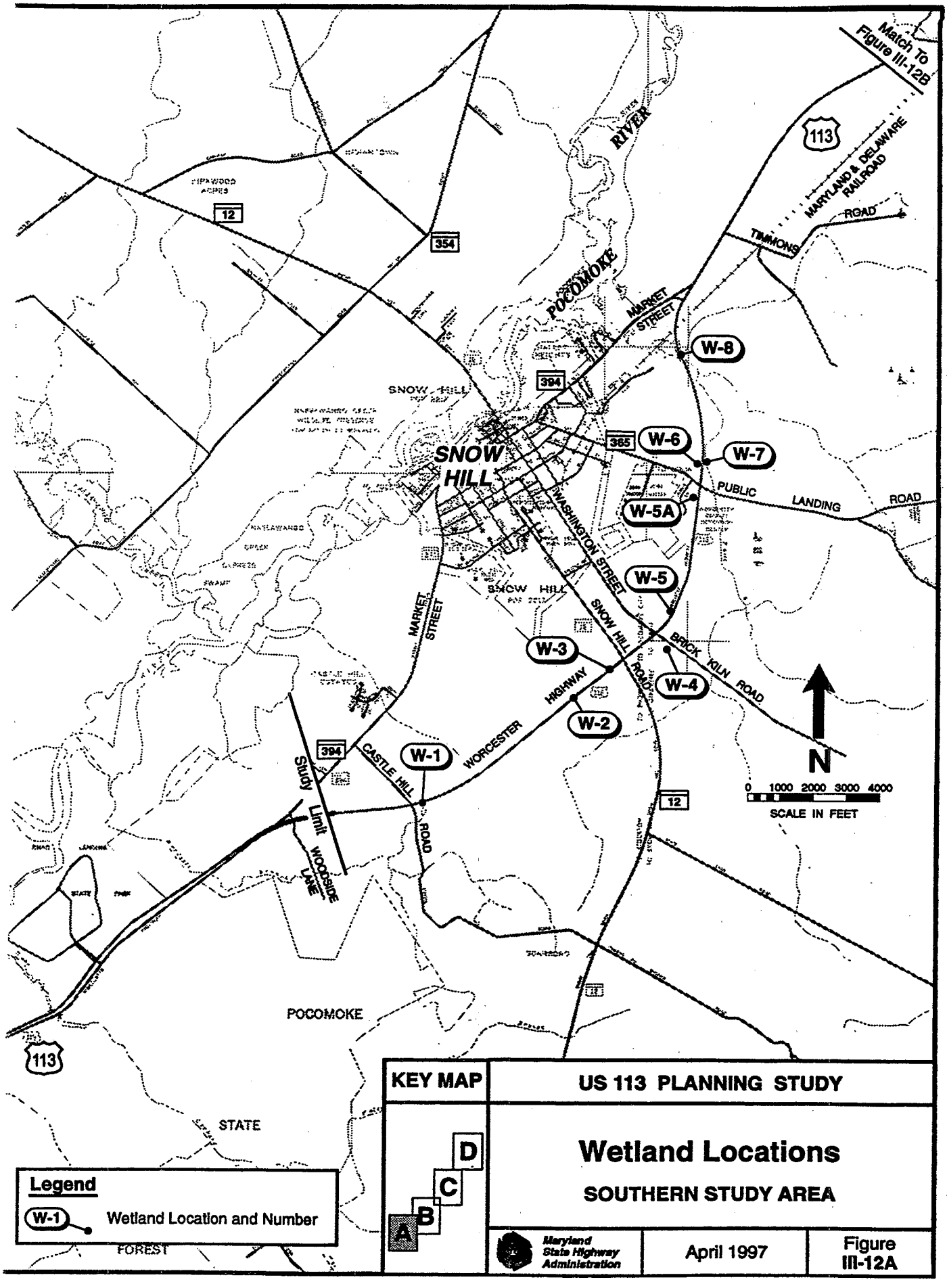
Approximately forty-two (42) wetland areas have been delineated in the project area. The location of each of these wetlands is identified on Figures III-12A through 12D and on the alternatives mapping in Appendix A. Wetlands located west of the Pocomoke River/Atlantic

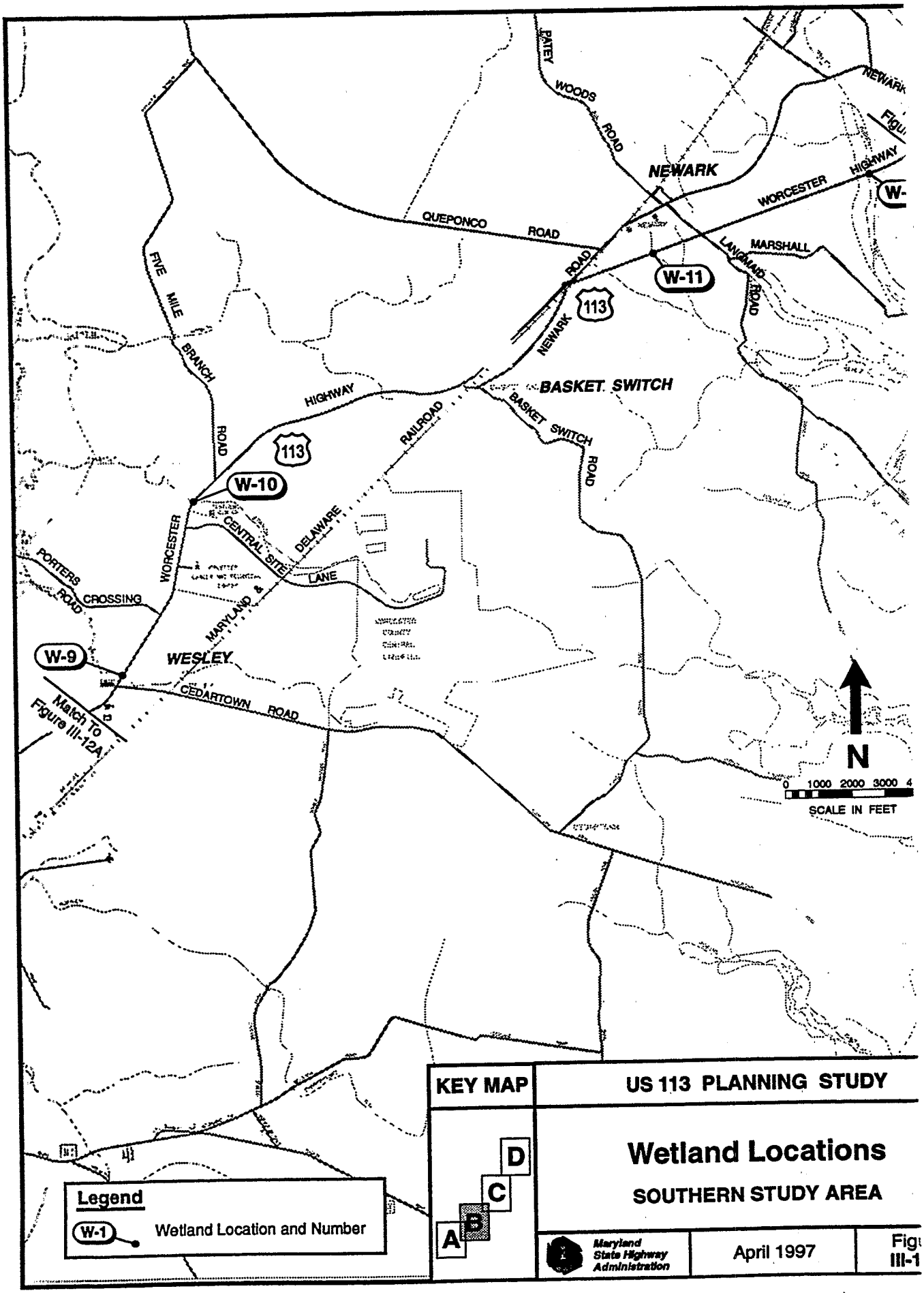

Match To Figure III-11B
113
MARYLAND & DELAWARE RAILROAD
ROAD
TIMMONS
POCOMOKE RIVER
MARKET STREET
354
12
394
SNOW HILL
365
PUBLIC LANDING ROAD
WASHINGTON STREET
SNOW HILL
BRICK KILN ROAD
MARKET STREET
HIGHWAY
WORCESTER
CASTLE HILL ROAD
Study Limit
WOODSIDE LANE
STATE PARK
POCOMOKE
STATE FOREST
N
0 1000 2000 3000 4000
SCALE IN FEET
Legend
Source: FEMA Flood Insurance Rate Maps
KEY MAP
A
B
C
D
US 113 PLANNING STUDY
100-Year Floodplains
SOUTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Figure III-11A


RATEY
WOODS ROAD
NEWARK
WORCESTER HIGHWAY
QUEPONCO ROAD
MARSHALL
LANGRUM ROAD
FIVE MILE BRANCH ROAD
NEWARK ROAD
113
BASKET SWITCH
BASKET SWITCH ROAD
HIGHWAY
RAILROAD
113
DELAWARE
CENTRAL STATE
LANE
WORCESTER
PORTERS ROAD
CROSSING
MARYLAND &
WESLEY
CEDARTOWN ROAD
Match to Figure III-11A
N
0 1000 2000 3000
SCALE IN FEET
Legend
Source: FEMA Flood Insurance Rate Maps
KEY MAP
A
B
C
D
US 113 PLANNING STUDY
100-Year Floodplains
SOUTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Fig III-

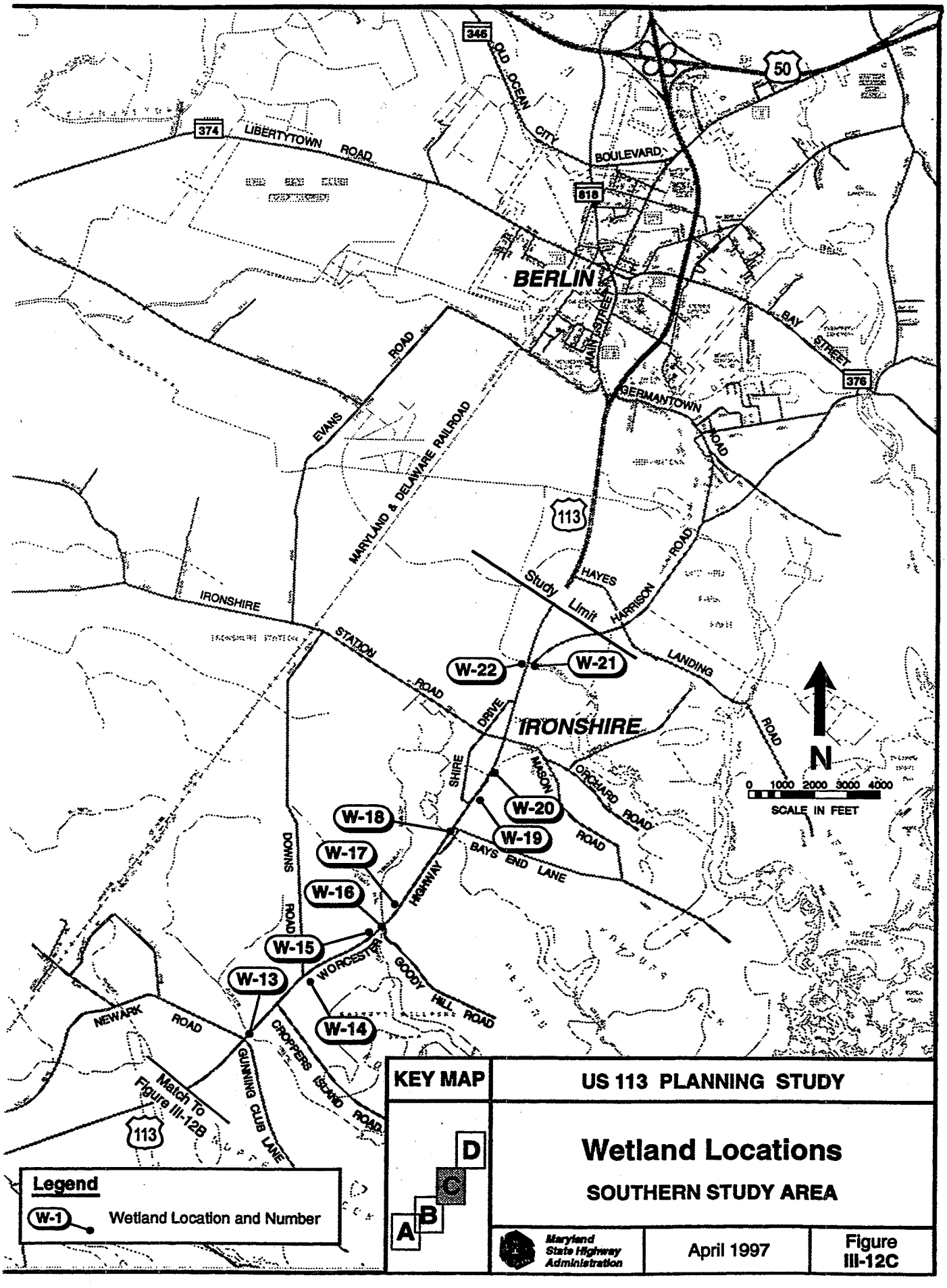

346
OLD OCEAN CITY BOULEVARD
50
374
LIBERTYTOWN ROAD
818
BERLIN
MAIN STREET
BAY STREET
376
GERMANTOWN ROAD
EVANS ROAD
MARYLAND & DELAWARE RAILROAD
113
HAYES ROAD
Study Limit
HARRISON LANDING ROAD
IRONSHIRE
STATION ROAD
IRONSHIRE ROAD
DRIVE
SHIRE
DOWNS ROAD
HIGHWAY
BAYS END LANE
ROAD
NEWARK ROAD
WORCESTER
CROPPERS
GUNNING CLUB LANE
HILL
Match to Figure III-11B
113
N
0 1000 2000 3000 4000
SCALE IN FEET
KEY MAP
A
B
C
D
Legend
Source: FEMA Flood Insurance Rate Maps
US 113 PLANNING STUDY
100-Year Floodplains
SOUTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Figure III-11C

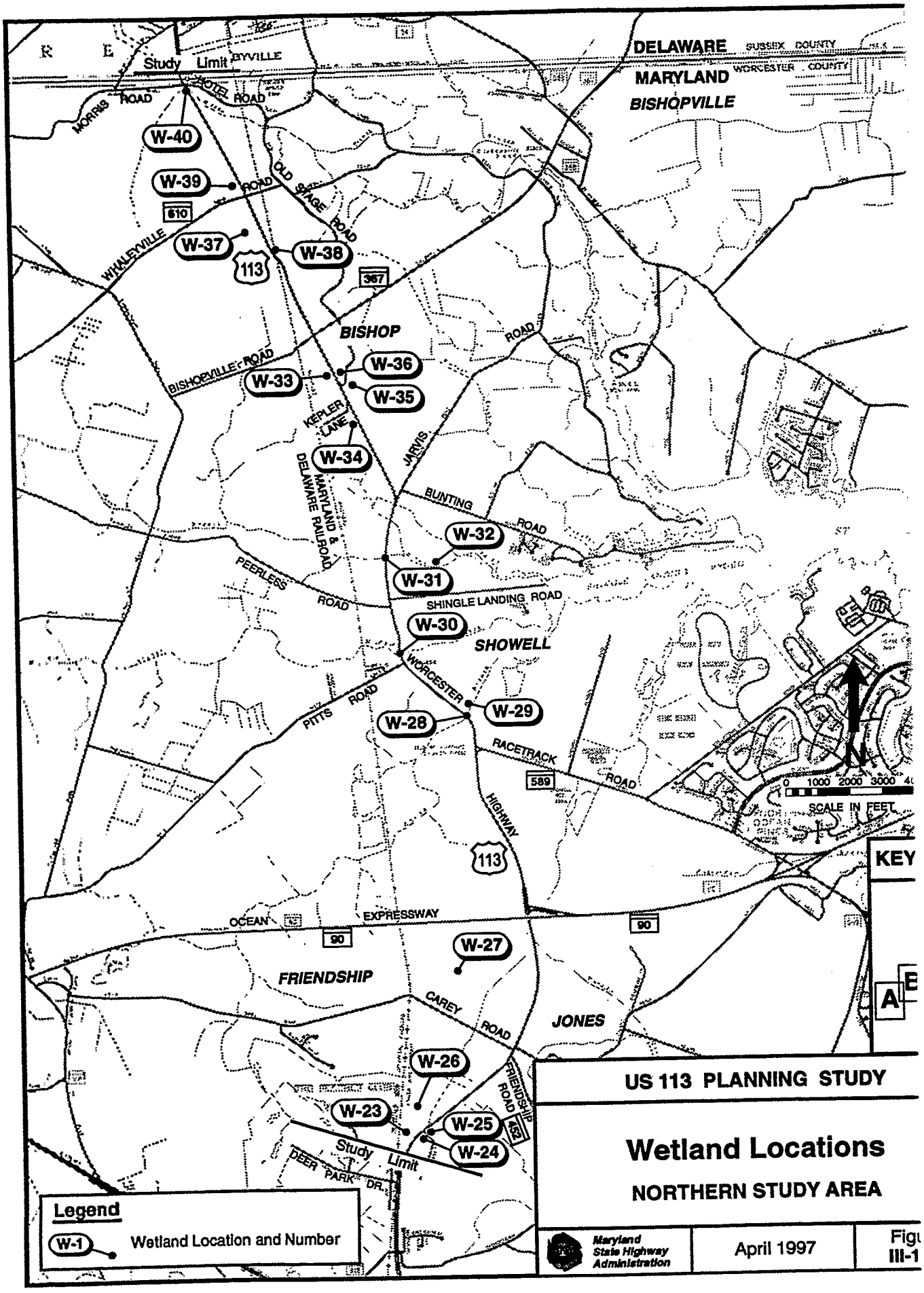

DELAWARE
SUSSEX COUNTY
MARYLAND
WORCESTER COUNTY
BISHOPVILLE
Study Limit
MORRIS ROAD
HOTEL ROAD
OLD STAGE ROAD
WHALEYVILLE ROAD
610
113
367
WORCESTER
BISHOP
ROAD
BISHOPVILLE ROAD
KEPLER LANE
DELAWARE RAILROAD
MARYLAND &
HIGHWAY
JARVIS
BUNTING ROAD
PEERLESS ROAD
SHINGLE LANDING ROAD
SHOWELL
PITTS ROAD
RACETRACK ROAD
589
113
OCEAN EXPRESSWAY
90
90
FRIENDSHIP
GAREY ROAD
JONES
FRIENDSHIP ROAD
Study Limit
0 1000 2000 3000
SCALE IN FEET
OCEAN PINES
KEY
A
Legend
Source: FEMA Flood Insurance Rate Maps
US 113 PLANNING STUDY
100-Year Floodplains
NORTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Fig
III-1


Match To Figure III-12B
POCOMOKE RIVER
MARYLAND & DELAWARE RAILROAD
TIMMONS ROAD
MARKET STREET
SNOW HILL
WASHINGTON STREET
PUBLIC LANDING ROAD
BRICK KILN ROAD
SNOW HILL ROAD
HIGHWAY
WORCESTER
CASTLE HILL ROAD
Study Limit
WOODSIDE LANE
STATE FOREST
W-1
W-2
W-3
W-4
W-5
W-5A
W-6
W-7
W-8
12
354
394
385
113
N
0 1000 2000 3000 4000
SCALE IN FEET
KEY MAP
A
B
C
D
US 113 PLANNING STUDY
Wetland Locations
SOUTHERN STUDY AREA
Legend
W-1 Wetland Location and Number
Maryland State Highway Administration
April 1997
Figure III-12A


PATEY
WOODS ROAD
NEWARK
NEWARK
HIGHWAY
WORCESTER
W-
QUEPONCO ROAD
ROAD
W-11
MARSHALL
LANDMARK ROAD
FIVE MILE BRANCH ROAD
113
NEWARK
BASKET SWITCH
HIGHWAY
RAILROAD
BASKET SWITCH ROAD
113
W-10
CENTRAL SITE
DELAWARE
LANE
PORTERS ROAD
CROSSING
WORCESTER
MARYLAND
W-9
WESLEY
CEDARTOWN ROAD
Match To Figure III-12A
N
0 1000 2000 3000 4
SCALE IN FEET
KEY MAP
A
B
C
D
US 113 PLANNING STUDY
Wetland Locations
SOUTHERN STUDY AREA
Legend
W-1
Wetland Location and Number
Maryland State Highway Administration
April 1997
Fig
III-1

'82


346
OLD OCEAN CITY BOULEVARD
50
374
LIBERTYTOWN ROAD
818
BERLIN
MAIN STREET
BAY STREET
376
GERMANTOWN ROAD
EVANS ROAD
MARYLAND & DELAWARE RAILROAD
113
HAYES
HARRISON ROAD
Study Limit
IRONSHIRE
STATION ROAD
LANDING ROAD
W-22
W-21
DRIVE
IRONSHIRE
SHIRE
MASON
ORCHARD ROAD
W-18
W-20
W-19
W-17
BAYS END LANE
DOWNS ROAD
HIGHWAY
W-16
W-15
WORCESTER
GOODY HILL ROAD
W-13
W-14
NEWARK ROAD
CROPPERS ISLAND ROAD
GUNNING CLUB LANE
Match To Figure III-12B
113
N
0 1000 2000 3000 4000
SCALE IN FEET
Legend
W-1
Wetland Location and Number
KEY MAP
A
B
C
D
US 113 PLANNING STUDY
Wetland Locations
SOUTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Figure III-12C


DELAWARE
SUSSEX COUNTY
MARYLAND
WORCESTER COUNTY
BISHOPVILLE
Study Limit
MORRIS ROAD
HOTEL ROAD
W-40
W-39
OLD STAGE ROAD
610
W-37
W-38
113
WHALEYVILLE
367
BISHOP
ROAD
BISHOPVILLE ROAD
W-33
W-36
W-35
KEPLER LANE
W-34
JARVIS
MARYLAND & DELAWARE RAILROAD
BUNTING ROAD
W-32
W-31
PEERLESS ROAD
SHINGLE LANDING ROAD
W-30
SHOWELL
WORCESTER
PITTS ROAD
W-28
W-29
RACETRACK ROAD
589
HIGHWAY
113
OCEAN EXPRESSWAY
90
90
W-27
FRIENDSHIP
CAREY ROAD
JONES
W-26
W-23
W-25
W-24
FRIENDSHIP ROAD
452
Study Limit
DEER PARK DR.
0 1000 2000 3000
SCALE IN FEET
KEY
A
Legend
W-1
Wetland Location and Number
US 113 PLANNING STUDY
Wetland Locations
NORTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Figu
III-1

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Ocean Coastal Drainage divide (Wetlands 1 through 10) are part of the Pocomoke River Drainage system. Those wetlands located east of the drainage divide (Wetlands 11 through 40) are part of the Atlantic Ocean Coastal drainage system. The location of the drainage divide is shown on Figures III-10A through 10D. A description of each delineated wetland is provided below. A discussion of the aquatic and wetland habitat features within the study areas is included in Section III-I. Information for each of the wetlands is provided on Table III-15. The majority of the wetlands are forested and are associated with the floodplains of numerous streams that flow through the project area. Other wetlands are associated with broad, upland flats and depressions that have poor surface drainage. Most of the depressional and upland flat wetlands are located in the northern study area and have been altered by previous logging and farming activities (Schockley, 1997).

Wetland 1 is associated with a narrow drainage swale that has recently been logged. Drainage from the wetland flows into a culvert which carries runoff from surrounding agricultural land under US 113. The wetland is on either side of US 113, approximately 350-feet north of Castle Hill Road. The ditched portion of the wetland may have originally been part of a natural tributary to Hardship Branch. The area is classified as a palustrine emergent wetland with a seasonal saturated water regime (PEM1E). The principal wetland function associated with the wetland is wildlife habitat.

The wetland was inundated to a depth of 80-inches at the time of the field visit, and sediment deposits and water stained leaves were observed. Soils within the wetland are mapped as Fallsington sandy loam which is listed as a hydric soil in Maryland. Soil samples showed signs of past disturbance from road construction and ditching. The matrix of the samples was bright (2.5Y5/3), however, mottles were present (10YR5/6) and a sulfidic odor was noted. Dominant vegetation in the wetland includes *Eleocharis sp.* (spikerush), *Cinna arundinacea* (wood reed), *Carex lurida* (lurid sedge), *Alisma plantago-aquatica* (water plantain), and *Juncus effusus* (soft rush).

Wetland 2 is located on both sides of US 113, approximately 1,300-feet south of Snow Hill Road and is associated with a broad drainage swale. The northeast corner of the wetland is farmed, however, the majority of the area is classified as a palustrine forested wetland with a saturated water regime (PFO1B). The soils within the wetland were saturated at a depth of 4-inches below the ground surface at the time of the field visit. Water marks, sediment deposits, drainage patterns and water stained leaves were also observed. The principal wetland functions associated with W-2 are groundwater recharge/discharge, sediment/ toxicant retention, nutrient removal, and wildlife habitat.

The soils within the wetland are mapped as Othello silt loam which is listed as a hydric soil in Maryland. Soil samples were gleyed (2.5Y5/1) and mottled (10YR5/8). *Acer rubrum* (red maple) and *Liquidambar styraciflua* (sweet gum) are the dominant species in the canopy of the forested wetland. The shrub layer is dominated by *Clethra alnifolia* (coast pepperbush), *Vaccinium corymbosum* (highbush blueberry), *Viburnum dentatum* (arrowwood), and *Myrica cerifera* (bayberry). *Cinna arundinacea* (wood reed) is the dominant herbaceous species.

Wetland 3 is located in a narrow ditch on either side of US 113, approximately 400-feet south of Snow Hill Road. It appears that the area was originally a natural tributary to Patty's Branch which was ditched for agricultural purposes. The area is classified as a palustrine emergent wetland with a saturated water regime (production exportM1B) on the east side of US 113, and a palustrine forested wetland with a seasonal water regime (PFO1C) on the west side of the highway. The principal function associated with the wetland is wildlife habitat.

At the time of the field visit, the wetland was inundated to a depth of 2-inches. Sediment deposits and drainage patterns were also noted. Soils within the wetland are mapped as Woodstown sandy loam which is generally found in uplands, however, the map type was not confirmed in the field. Soil samples were gleyed (10YR6/1) and mottled (7.5YR5/8) and were characteristic of a hydric soil. The forested portion of the wetland is dominated by *Acer rubrum* (red maple) and *Liquidambar styraciflua* (sweet gum). The emergent wetland is dominated by *Salix nigra* (black willow), *Juncus effusus* (soft rush), *Scirpus atrovirens* (green bulrush), and *Eleocharis sp.* (spikerush species).

Wetland 4 is located east of US 113 and adjacent to the south side of Brick Kiln Road. The wetland appears to have formed due to a long-term blockage in a drainage ditch which carries surface runoff from the roadways. The area is classified as palustrine forested wetland with a seasonal saturated water regime (PFO1E). At the time of the field visit, the wetland was inundated to a depth of 6-inches and water marks were observed.

Soils in the area are mapped as Sassafras which is a well-drained soil, however, the long-term impoundment of water in the area has altered drainage patterns enough that it is likely that hydric characteristics have developed or will develop over time. No soil samples were taken due to the degree of inundation within the wetland. Dominant vegetation in the wetland includes *Quercus phellos* (willow oak), *Acer rubrum* (red maple), *Liquidambar styraciflua* (sweet gum), *Pinus taeda* (loblolly pine) and *Nyssa sylvatica* (black gum) in the canopy and *Clethra alnifolia* (coast pepperbush) in the shrub layer. The herbaceous layer was sparse, most likely due to long-term inundation.

Wetland 5 is located on the west side of US 113, approximately 1,650-feet north of Washington Street. The portion of the wetland adjacent to the roadway, within a powerline right-of-way, has been mowed. The area is classified as both a palustrine emergent and a palustrine scrub-shrub wetland with a saturated water regime (PEM/PSS1B). Scattered pockets within the wetland were inundated to a depth of 0 to 3-inches at the time of the field visit, however, the majority of the wetland was saturated at a depth of 6-inches below the ground surface. The principal functions and values associated with the wetland are groundwater recharge/ discharge and wildlife habitat.

Soils within the wetland are mapped as Fallsington sandy loam which is listed as a hydric soil in Maryland. Soil samples were gleyed (2.5Y5/1). Dominant vegetation within the wetland includes *Ilex glabra* (inkberry) and *Acer rubrum* (red maple) in the shrub layer and

Dicanthelium acuminatum (panic grass), *Scripus atrovirens* (green bulrush), *Rhexia mariana* (Maryland meadow beauty), *Carex sp.* (sedge species), and *Hypericum sp.* (St Johnswort species) in the herbaceous layer.

Wetland 5A is located on the west side of US 113, approximately 1,000-feet south of Public Landing Road. The wetland appears to have formed in an excavated area, possible created as a borrow pit for the original construction of US 113. The wetland does not appear to have a direct hydrologic connection by way of surface waters. The area consists of palustrine emergent wetlands along the edge of right-of-way, with palustrine scrub/shrub wetlands within the interior of the wetland. Principal functions and values associated with the wetland are groundwater recharge/discharge and wildlife habitat.

Soils within the wetland are mapped as Fallsington sandy loam which is listed as a hydric soil in Maryland. Dominant vegetation includes *Baccharis halimifolia* (groundsel tree), *Phagmites australis* (common reed), *Dichanthelium acuminatum* (panic grass), *Pinus taeda* (loblolly pine), *Juncus effusus* (soft rush), and *Smilax rotundifolia* (common greenbriar).

Wetland 6 is located directly adjacent to the west side of US 113, just north of Public Landing Road. The wetland has formed in the upper edge of the Patty's Branch floodplain which has been bisected by the roadway. Consequently, the wetland is confined on the west by the natural floodplain slope and on the east by the berm of US 113. The wetland flows northward in a ditch and is connected to the main floodplain of Patty's Branch (Wetland 7) through a culvert beneath the roadway. The area is classified primarily as a palustrine forested wetland with a ten-foot wide palustrine emergent wetland along the road ditch (PFO/PEM1B). Principal wetland functions and values associated with the wetland are groundwater recharge/discharge, floodplain alteration, sediment/toxicant retention, nutrient removal, production export, wildlife habitat, uniqueness/habitat, and visual quality/ aesthetics.

At the time of the field visit, the wetland was inundated to a depth of 2 to 6-inches. Other hydrologic indicators noted include water marks, sediment deposits, drainage patterns, and water stained leaves. Soils in the area are mapped as Fallsington sandy loam which is listed as a hydric soil. Soil samples were gleyed (10YR3/1). The dominant vegetation in the canopy of the forested wetland is *Acer rubrum* (red maple), while the understory and shrub layer is dominated by *Magnolia virginiana* (sweetbay) and *Viburnum dentatum* (arrowwood). The emergent portion of the wetland is dominated by *Typha latifolia* (common cattail), *Saururus cernuus* (lizards tail), *Carex crinita* (fringed sedge), *Angelica aropurpurea* (great angelica), *Onoclea sensibilis* (sensitive fern), *Pontederia cordata* (pickerel weed), and *Nuphar luteum* (spatterdock).

Wetland 7 has formed in the floodplain of Patty's Branch which parallels the east side of US 113 in the vicinity of Public Landing Road. The portion of the floodplain designated as Wetland 7 begins approximately 150-feet north of Public Landing Road and extends northward for a distance of approximately 1,400-feet. The area is classified primarily as a

palustrine forested wetland with a ten-foot wide palustrine emergent wetland along the road ditch (PFO/PEM1B). Principal wetland functions and values associated with the wetland are groundwater recharge/discharge, floodplain alteration, sediment/toxicant retention, nutrient removal, production export, wildlife habitat, uniqueness/habitat, and visual quality/ aesthetics.

The wetland was inundated and water depths ranged from 0 to 4 inches. Other hydrologic indicators noted include water marks, drift lines, and sediment deposits. Soils in the floodplain are mapped as Fallsington sandy loam and Mixed Alluvium. Soil samples were black and mucky and had a sulfidic odor. Dominant vegetation in the forested portions of the wetland includes *Fraxinus pennsylvanica* (green ash), *Liquidambar styraciflua* (sweet gum), *Acer rubrum* (red maple) in the canopy, *Alnus serrulata* (alder) in the shrub layer, and *Saururus cernuus* (lizards tail) in the herbaceous layer. The emergent portions of the wetland are dominated by *Salix nigra* (black willow), *Boehmeria cylindrica* (false nettle), *Nuphar luteum* (spatterdock), *Cephalanthus occidentalis* (buttonbush), and *Sambucus canadensis* (elderberry).

Wetland 8 is located on either side of US 113 within the floodplain of Purnell Branch, approximately 400-feet south of where the Maryland and Delaware Railroad crosses the roadway. Purnell Branch is joined by Patty's Branch just to the east (upstream) of the US 113 crossing over the waterway. The wetland is classified as a palustrine forested wetland with a seasonal saturated water regime (PFO2/1E). The wetland is of particular note because it is dominated by bald cypress. Bald cypress swamps are relatively unusual in Maryland, although they are most common on the eastern shore. Principal wetland functions and values associated with the wetland are groundwater recharge/discharge, floodplain alteration, sediment/toxicant retention, nutrient removal, production export, wildlife habitat, uniqueness/habitat, and visual quality/aesthetics.

The wetland was inundated to a depth of 4-inches throughout the majority of the floodplain. Areas that were not inundated were saturated to within 1-inch of the ground surface with free water observed in an unlined bore hole at 2-inches below the surface. Other hydrologic indicators include water marks, drainage patterns and water stained leaves. Soils within the wetland are mapped as Fallsington sandy loam and Muck. Samples had a low chroma matrix (2.5Y6/2) and were mottled (7.5YR5/8). Dominant vegetation observed in the forest canopy includes *Taxodium distichum* (bald cypress), *Acer rubrum* (red maple) and *Liquidambar styraciflua* (sweet gum). The shrub layer is dominated by *Clethra alnifolia* (coast pepperbush), *Vaccinium corymbosum* (highbush blueberry), *Alnus serrulata* (alder), and *Ilex verticillata* (winterberry). The dominant herbaceous species are *Cinna arundinacea* (wood reed), *Osmunda regalis* (royal fern), and *Saururus cernus* (lizards tail).

Wetland 9 is located on either side of US 113 in the floodplain of Poorhouse Branch. The stream crosses US 113 approximately 250-feet north of Cedartown Road. The area is classified as both a palustrine forested and a palustrine emergent wetland with a saturated water regime (PFO/PEM1B). The wetland was inundated and flowing, with water depths

ranging from 6 to 12-inches. Water marks, sediment deposits and drainage patterns were also observed. Principal wetland functions and values associated with the wetland are sediment/ toxicant retention, nutrient removal, and wildlife habitat.

Soils within the wetland are mapped as Mixed Alluvium. No samples were taken due to the level of inundation. Dominant vegetation in the forested portions of the wetland includes *Acer rubrum* (red maple), and *Salix nigra* (black willow) in the canopy and *Alnus serrulata* (alder) in the shrub layer. The emergent wetland is dominated by *Cephalanthus occidentalis* (buttonbush), *Impatiens capensis* (jewelweed), *Veronia noveboracensis* (New York ironweed), and *Asclepias incarnata* (swamp milkweed).

Wetland 10 is located within the floodplain of Five Mile Branch which crosses US 113 approximately 850-feet south of Five Mile Branch Road. Five Mile Branch is ditched on the west side of the road. Wetland 10 is on the east side of the road where the natural floodplain still exists. The area is classified as a palustrine forested wetland with a seasonal saturated water regime (PFO1E). The wetland was inundated at the time of the field visit, with water depths ranging from 2 to 4 inches. Principal wetland functions and values associated with the wetland are sediment/toxicant retention, nutrient removal, and wildlife habitat.

Soils within the wetland are mapped as Mixed Alluvium and soil samples were low chroma (5Y3/2). The dominant woody vegetation within the wetland includes *Acer rubrum* (red maple), *Fraxinus pennsylvanica* (green ash), *Liquidambar styraciflua* (sweet gum) and *Nyssa sylvatica* (black gum) in the canopy, *Carpinus carolinana* (American hornbeam) in the understory and *Viburnum dentatum* (arrowwood) in the shrub layer. The herbaceous layer is dominated by *Saururus cernuus* (lizards tail) and *Onoclea sensibilis* (sensitive fern).

Wetland 11 is located along the banks and bottom of an unnamed perennial stream which crosses US 113 approximately 1,700-feet south of Langmaid Road. The streambank area is classified as a palustrine forested wetland with a seasonal saturated water regime (PFO1E). The wetland was inundated and water depths ranged from 1 to 4-inches at the time of the field visit. Principal wetland functions and values associated with the wetland are sediment/toxicant retention, nutrient removal, and wildlife habitat.

Soils in the wetland are mapped as Fallsington sandy loam which is listed as a hydric soil. Soil samples were not taken due to the level of inundation. Dominant vegetative species noted include *Acer rubrum* (red maple) in the canopy, *Viburnum dentatum* (arrowwood) and *Lindera benzoin* (spicebush) in the shrub layer and *Boehmeria cylindrica* (false nettle), *Impatiens capensis* (jewelweed), and *Carex sp.* (sedge species) in the herbaceous layer.

Wetland 12 is a large system located on both sides of US 113, approximately 2,500-feet south of Newark Road. The south end of the wetland has formed in a broad swale draining to Massey Branch, while the north side is located along the main channel of Massey's Branch itself. The area is classified as a palustrine forested wetland with a seasonal saturated water

regime (PFO1E). Principal wetland functions and values associated with the wetland are floodplain alteration, sediment/toxicant retention, nutrient removal, production export, wildlife habitat, uniqueness/habitat, and visual quality/aesthetics.

At the time of the field visit, the ground was saturated to the surface. Soils within the wetland are mapped as Portsmouth silt loam and Mixed Alluvium. Portsmouth is listed as a hydric soil in Maryland. Soil samples were gleyed (7.5YR2/0). Dominant canopy vegetation includes *Acer rubrum* (red maple) and *Liquidambar styraciflua* (sweet gum). The dominant understory and shrub species are *Lindera benzoin* (spice bush), *Viburnum dentatum* (arrowwood), *Magnolia virginiana* (sweetbay), *Ilex opaca* (American holly), and *Ilex verticillata* (winterberry). The herbaceous layer is dominated by *Woodwardia areolata* (netted chainfern), *Saururus cernuus* (lizards tail), *Onoclea sensibilis* (sensitive fern) and *Pilea pumila* (clearweed).

Wetland 13 is located within the floodplain of Porter Creek which crosses US 113 just north of Newark Road. The area is classified as a palustrine forested wetland with a saturated water regime (PFO1B). At the time of the field visit, the wetland was saturated to within 10-inches of the ground surface, with free water observed in an unlined bore hole at 12-inches below the surface. Principal wetland functions and values associated with the wetland are floodplain alteration, sediment/toxicant retention, nutrient removal, production export, wildlife habitat, uniqueness/habitat, and visual quality/aesthetics.

Soils within the wetland are mapped as Mixed Alluvium which often contains hydric soils. Soil samples were low chroma (2.5Y6/2) and mottled (7.5YR5/8). Dominant canopy vegetation in the wetland includes *Acer rubrum* (red maple), *Fraxinus pennsylvanica* (green ash), *Nyssa sylvatica* (black gum) and *Liquidambar styraciflua* (sweet gum). The dominant understory and shrub species are *Magnolia virginiana* (sweet bay), *Lindera benzoin* (spicebush) and *Clethra alnifolia* (coast pepperbush). The herbaceous layer is dominated by *Symplocarpus foetidus* (skunk cabbage), *Saururus cernuus* (lizards tail), *Impatiens capensis* (jewelweed), *Boehmeria cylindrica* (false nettle), and *Woodwardia areolata* (netted chainfern).

Wetland 14 is located on the east side of US 113, approximately 650-feet north of Croppers Island Road and directly across from Downes Road. The wetland has formed in a broad swale which drains to Goody Hill Branch. The area is classified as a palustrine forested wetland with a seasonal water regime (PFO1C). At the time of the field visit, the wetland was inundated to a depth of 2-inches, and drainage patterns were observed within the wetland.

Soils are mapped as Pocomoke silt loam which is listed as a hydric soil in Maryland. Soil samples were gleyed (10YR 2/1). Dominant vegetation in the wetland includes *Acer rubrum* (red maple) in the canopy, *Ilex opaca* (American holly) in the understory and *Thelypteris noveboracensis* (New York fern) and *Osmunda cinnamomea* (cinnamon fern) in the herbaceous layer.

Wetland 15 is a wetland of special state concern located on the west side of US 113, approximately 1,700 feet north of Downes Road. *Alnus maritima* (seaside alder) is located along the road ditch and is listed as a state rare species. The area is classified as a palustrine forested wetland with a seasonal water regime (PFO1C). At the time of the field visit, the wetland was inundated to a depth of 3-inches and sediment deposits and drainage patterns were observed. Principal wetland functions and values associated with the wetland are groundwater recharge/discharge, sediment/toxicant retention, nutrient removal, wildlife habitat, and uniqueness/habitat.

Soils within the wetland are mapped as Fallsington sandy loam which is listed as a hydric soil in Maryland. Soil samples were gleyed (10YR4/1) and had a high organic content was observed within the top 4-inches. Dominant vegetation within the canopy of the wetland includes *Acer rubrum* (red maple), and *Nyssa sylvatica* (black gum). The understory and shrub layers are dominated by *Magnolia virginiana* (sweetbay), *Lindera benzoin* (spicebush), *Viburnum dentatum* (arrowwood), and *Alnus maritima* (seaside alder). The dominant herbaceous species are *Woodwardia areolata* (netted chainfern) and *Boehmeria cylindrica* (false nettle).

Wetland 16 is located within the floodplain of Goody Hill Branch, which crosses US 113 approximately 2,600-feet north of Downes Road. The area is classified as a palustrine forested wetland with a seasonal water regime (PFO1C). The wetland was inundated at the time of the field visit with water depths ranging from 2 to 4-inches. Drainage patterns were also noted. Principal wetland functions and values associated with the wetland are groundwater recharge/discharge, floodplain alteration, sediment/toxicant retention, nutrient removal, and wildlife habitat.

Soils are mapped as Mixed Alluvium which often has not had sufficient time to develop hydric characteristics. Soil samples, however, were gleyed (10YR4/1). Dominant vegetation within the wetland includes *Acer rubrum* (red maple), *Fraxinus pennsylvanica* (green ash) and *Liquidambar styraciflua* (sweet gum) in the canopy, *Viburnum dentatum* (arrowwood) and *Smilax rotundifolia* (greenbrier) in the shrub layer and *Impatiens capensis* (jewelweed), *Boehmeria cylindrica* (false nettle) and *Saururus cernuus* (lizards tail) in the herbaceous layer.

Wetland 17 is located in a small depression on the west side of US 113, approximately 750-feet north of Goody Hill Road. The depression appears to have been created by past disturbances caused by the maintenance of a cable right-of-way. The area is classified as a palustrine forested wetland with a saturated water regime (PFO1B) and was inundated to a depth of 2 to 6-inches at the time of the field visit. Water marks were also observed.

Soils in the area are mapped as Fallsington silt loam which is listed as a hydric soil in Maryland. Soil samples were gleyed (10YR5/1). Dominant vegetation observed includes *Acer rubrum* (red maple) in the canopy, *Viburnum dentatum* (arrowwood) and *Myrica cerifera* (bayberry) in the shrub layer, and *Carex sp.* (sedge species) and *Didiplis diandra* (water purslane) in the herbaceous layer.

Wetland 18 is located on both sides of US 113, just south of Bays End Lane. The wetland is associated with an unnamed tributary to Catbird Creek and is classified as a palustrine forested wetland with a seasonal saturated water regime (PFO1E). The wetland was inundated up to a depth of 3-inches in some places. Areas that were not inundated were saturated to the surface and the trunks of the trees within the wetland were buttressed. Principal wetland functions and values associated with the wetland are groundwater recharge/ discharge, floodplain alteration, sediment/toxicant retention, nutrient removal, and wildlife habitat.

Soils within the wetland are mapped as Mixed Alluvium and soil samples were gleyed (7.5YR2/0) and mucky. Dominant vegetation in the wetland canopy includes *Acer rubrum* (red maple), *Nyssa sylvatica* (black gum), and *Liquidambar styraciflua* (sweet gum). The dominant understory and shrub species are *Ilex opaca* (American holly), *Magnolia virginiana* (sweetbay), *Viburnum dentatum* (arrowwood) and *Rhododendron viscosum* (swamp azalea). Sphagnum moss was the dominant species in the herbaceous layer.

Wetland 19 is located on the east side of US 113, approximately 450-feet north of Shire Drive. The area has been ditched and may now be effectively drained, however, due to the presence of soils and hydrophytic vegetation, the area was flagged as a wetland. The wetland is classified as a palustrine forested wetland with a saturated water regime (PFO1B). At the time of the field visit, there was 0 to 4 inches of water in the ditch, however, no other hydrologic indicators outside of the ditch were observed. Principal wetland functions and values associated with the wetland are groundwater recharge/discharge, floodplain alteration, sediment/toxicant retention, nutrient removal, and wildlife habitat.

Soils are mapped as Portsmouth silt loam which is listed as a hydric soil. Soil samples were black and had a high content of organic matter. The dominant vegetation in the canopy of the wetland is *Acer rubrum* (red maple) and *Liquidambar styraciflua* (sweet gum). The shrub layer is dominated by *Alnus serrulata* (brookside alder), while *Impatiens capensis* (jewelweed) and *Woodwardia areolata* (netted chainfern) are the dominant herbaceous species. *Parthenocissus quinquefolia* (Virginia Creeper) is also common.

Wetland 20 is on the east side of US 113, approximately 700-feet south of Ironshire Station Road, and is bisected by a gravel driveway. The wetland is located in a broad swale which drains to an unnamed tributary of Poplartown Branch. It is classified as a palustrine forested wetland with a saturated water regime (PFO1B). The ground surface within the wetland was saturated and free water was observed 8-inches below the ground surface in an unlined bore hole.

Principal wetland functions and values associated with the wetland are groundwater recharge/discharge, floodplain alteration, sediment/toxicant retention, nutrient removal, and wildlife habitat.

Soils are mapped as Fallsington sandy loam which is listed as a hydric soil. Soil samples were gleyed (10YR6/1). *Acer rubrum* (red maple) is the dominant vegetative specie in the wetland canopy while *Alnus serrulata* (brookside alder) is the dominant shrub specie. It is possible that *Alnus maritima* (seaside alder) was also present, although this was not confirmed. Dominant herbaceous species include *Cinna arundinacea* (woodreed) and *Boehmeria cylindrica* (false nettle). *Smilax rotundifolia* (greenbrier) was also common in the wetland. Principal wetland functions and values associated with the wetland are groundwater recharge/discharge, floodplain alteration, sediment/toxicant retention, nutrient removal, and wildlife habitat.

Wetland 21 is on the east side of US 113 and is confined within the Poplartown Branch floodplain. The area is approximately 200-feet south of Harrison Road and is classified as a palustrine forested wetland with a temporary water regime (PFO1A). The ground surface in the wetland was saturated at the time of the field visit, and free water was observed 3 to 4 inches below the ground surface in an unlined bore hole. Principal wetland functions and values associated with the wetland are groundwater recharge/discharge, floodplain alteration, sediment/toxicant retention, nutrient removal, and wildlife habitat.

Soils in the wetland are mapped as Mixed Alluvium, which is typically poorly drained and often includes hydric soils. Samples had a low chroma matrix (10YR6/2) and were mottled (10YR4/4). Dominant vegetation within the wetland includes *Acer rubrum* (red maple) and *Liquidambar styraciflua* (sweet gum) in the canopy, *Viburnum dentatum* (arrowwood), *Rosa multiflora* (multiflora rose) and *Smilax rotundifolia* (greenbrier) in the shrub layer, and *Saururus cernuus* (lizards tail) and *Arisaema triphyllum* (jack-in-the-pulpit) in the herbaceous layer.

Wetland 22 is also within the floodplain of Poplartown Branch, but is found on the west side of US 113 and is wetter than the area (Wetland 21) downstream of the roadway. It is classified as a palustrine forested wetland with saturated water regime (PFO1B). At the time of the field visit, the wetland was inundated to a depth of 2 to 3 inches and water stained leaves were observed. Principal wetland functions and values associated with the wetland are groundwater recharge/discharge, floodplain alteration, sediment/toxicant retention, nutrient removal, and wildlife habitat.

The soils within the floodplain wetland are mapped as Mixed Alluvium, which is typically poorly drained and often includes hydric soils. Soils were not sampled due to the level of inundation. Dominant vegetation in the wetland includes *Acer rubrum* (red maple) and *Populus deltoides* (cottonwood) in the canopy, and *Saururus cernuus* (lizards tail), *Cinna arundinacea* (woodreed) and *Boehmeria cylindrica* (false nettle) in the herbaceous layer. The wetland did not have a developed shrub layer.

Wetland 23 is located approximately 800-feet north of the split for the existing dualized portion of US 13, and is classified as a palustrine forested wetland with a seasonal water regime (PFO1C). The wetland includes four depressions that are located within a wooded area bounded by the Maryland and Delaware Railroad and US 113. Surface water runoff is impeded by a constricted outlet beneath the railroad. At the time of the field visit, the wetland was saturated at 10-inches below the surface. Principal wetland functions and values associated with the wetland are groundwater recharge/discharge, nutrient removal, and wildlife habitat.

Soils within the wetland are mapped in the Soil Survey of Worcester County as Fallsington loam, which is listed as a hydric soil in Maryland. Soil samples were gleyed (2.5Y6/1) and mottled (7.5YR5/6). Dominant vegetation in the wetland includes *Acer rubrum* (red maple), *Liquidambar styraciflua* (sweet gum) and *Nyssa sylvatica* (black gum) in the canopy, *Leucothoe racemosa* (fetterbush) and *Viburnum nudum* (possum-haw) in the shrub layer and *Wodwardia areolata* (netted-chain fern) in the herbaceous layer.

Wetland 24 is located on the east side of existing US 113, approximately 1,500-feet north of the southern boundary of the northern study area. The wetland is bounded by US 113 to the northwest and a residential driveway on the west. The area is classified as a palustrine forested wetland with a seasonal water regime (PFO1C) and is primarily formed by the gravel driveway which restricts positive drainage from the area. At the time of the field visit, the ground surface was inundated or saturated and water marks were observed. Principal wetland functions and values associated with the wetland are groundwater recharge/discharge, nutrient removal, and wildlife habitat.

Soils within the wetland are mapped as Woodstown sandy loam which is not listed as a hydric soil in Maryland, but may contain inclusions of the hydric Fallsington soil. Soil samples confirmed the presence of the nonhydric Woodstown soils; however, it appears that positive drainage has been impeded by construction of a residential driveway, and typical morphological indicators of prolong saturation have not yet developed. It is likely that the area is now inundated for a long duration during the growing season based on observed hydrology indicators. Vegetation within the wetland includes *Acer rubrum* (red maple), *Liquidambar styraciflua* (sweet gum), *Quercus alba* (white oak) and *Clethra alnifolia* (coast pepperbush).

Wetland 25 forms in a broad headwater swale on the east side of existing US 113, just northwest of the residential driveway which impedes the drainage of W-24. The wetland forms in small depressions within the swale and is classified as a palustrine forested wetland with a seasonal water regime (PFO1C). Soils within the depressional areas were saturated at a depth of 8-inches. Principal wetland functions and values associated with the wetland are groundwater recharge/discharge, nutrient removal, and wildlife habitat.

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Soils within the wetland are mapped as Fallsington sandy loam which is listed as a hydric soil in Maryland. Samples were gleyed (2.5Y6/1). Vegetation in the wetland is dominated by *Acer rubrum* (red maple), *Quercus phellos* (willow oak), *Vaccinium corymbosum* (high-bush blueberry), *Clethra alnifolia* (coast pepperbush), and *Woodwardia areolata* (netted chainfern).

Wetland 26 is located along Alternate 4N Modified, approximately 2,200-feet north of the southern boundary of the northern study area. The area is adjacent to the railroad line and is primarily a mix of palustrine forested and palustrine scrub-shrub wetland with a saturated water regime (PFO/PSS1B). A small portion of the wetland is also currently under cultivation and has been classified as a farmed wetland during the jurisdictional determination. Principal wetland functions and values associated with the wetland are groundwater recharge/discharge, nutrient removal, wildlife habitat, and visual quality/ aesthetics.

The wetland forms in a topographic low and was inundated to a depth of 4-inches in some areas. Portions of the wetland that were not inundated were saturated at 0 to 6 inches below the ground surface. Surface water runoff is impeded by a constricted outlet beneath the Maryland and Delaware Railroad. Soils in the wetland are mapped as Othello silt loam which is listed as a hydric soil in Maryland.

The canopy of the forested wetland is dominated by *Acer rubrum* (red maple) and *Liquidambar styraciflua* (sweet gum). The shrub layer in the forested and scrub-shrub wetland is dominated by *Myrica cerifera* (bayberry), *Baccharis halimifolia* (groundsel tree), and *Smilax rotundifolia* (common greenbrier), while the dominant herbaceous species is *Juncus effusus* (soft rush). In the agricultural field, the dominant vegetation includes *Juncus effusus* (soft rush), *Scirpus cyperinus* (wool grass), *Agrostis alba* (redtop), *Polygonum sp.* (smartweed species), and *Carex sp.* (sedge species).

Wetland 27 is located along Alternate 4N Modified north of Carey Road and just south of MD Route 90 (the Ocean Expressway). The wetland occurs on a broad flat with extensive depressional micro-relief and is classified as a palustrine forested wetland with a seasonally saturated water regime (PFO1E). The majority of the wetland was inundated to a depth of 2 to 4-inches at the time of the field visit. Areas that weren't inundated were saturated at 8-inches below the ground surface. Drainage patterns and water marks were also observed throughout the wetland. Principal wetland functions and values associated with the wetland are groundwater recharge/discharge, nutrient removal, and wildlife habitat. Included with Wetland 27 are three, small depressional wetlands that are associated with ditches inside the MD 90 interchange. These wetlands are labeled W-27A, B and C on the alternatives mapping in Appendix A.

Soils are mapped as Fallsington sandy loam and soil samples were gleyed (10YR5/1). The wetland is dominated by *Acer rubrum* (red maple), *Quercus phellos* (willow oak), *Quercus nigra* (water oak) in the canopy and *Viburnum dentatum* (arrowwood), *Ilex opaca* (American holly), *Carpinus caroliniana* (American hornbeam), and *Smilax rotundifolia* (common greenbrier) in the understory/shrub layer.

Wetland 28 is approximately 600-feet north of Racetrack Road and is associated with Church Branch and its floodplain. The stream and wetland cross both the US 113 upgrade alternate and Alternate 4N Modified. The wetland is found on both sides of Church Branch and in most places is confined at the edge of the floodplain by steep slopes. The area is classified as a palustrine forested wetland with a seasonally saturated water regime (PFO1E). Principal wetland functions and values associated with the wetland are groundwater recharge/discharge, floodplain alteration, fish and shellfish habitat, sediment/toxicant retention, nutrient removal, production export, sediment/shoreline stabilization, wildlife habitat, and visual quality/aesthetics.

At the time of the field visit, the wetland was inundated to a depth of 1-inch in some areas. Portions of the wetland that were not inundated were saturated to the surface. Soils within the wetland are mapped as Mixed Alluvium, which is typically poorly drained and often includes hydric soils. However, soil samples taken within the wetland were mucky and gleyed (7.5YR2/0) and were characteristic of a histic epipedon.

The canopy of the forest within the wetland is dominated by *Acer rubrum* (red maple), *Fraxinus pennsylvanica* (green ash), and *Nyssa sylvatica* (black gum). The dominant understory and shrub species include *Ilex opaca* (Amercian holly), *Ilex verticillata* (winterberry), *Clethra alnifolia* (coast pepperbush), and *Viburnum dentatum* (arrowwood). The herbaceous layer is dominated by *Saururus cernuus* (lizard's tail), *Impatiens capensis* (jewelweed), and *Woodwardia areolata* (netted chainfern).

Wetland 29 is located northeast of the US 113 crossing of Church Branch, approximately 100' northwest of where Alternate 4N Modified emerges from the floodplain of Church Branch. The wetland has formed in an excavated depression that is most likely the result of past sand or gravel borrow operations. The area is classified as a palustrine forested wetland with a seasonally saturated water regime (PFO1E). Principal wetland functions and values associated with the wetland are groundwater recharge/discharge, and wildlife habitat.

Soils within the wetland are mapped as Fort Mott loamy sand which is a well-drained soil type. Excavation has removed the original soil profile, however, so the area no longer is characteristic of this upland soil association. At the time of the field visit, the wetland was inundated up to a depth of 6-inches, so soil samples were not feasible. Due to the level of flooding within the wetland, it is likely that if hydric soil characteristics are not yet present, that they will develop over time.

Dominant vegetation within the wetland includes *Acer rubrum* (red maple), *Liquidambar styraciflua* (sweet gum), and *Pinus taeda* (loblolly pine) in the canopy and understory, *Clethra alnifolia* (coast pepperbush) in the shrub layer and *Phragmites australis* (common reed) in the herbaceous layer.

Wetland 30 is associated with Middle Branch which crosses existing US 113 approximately 300-feet north of Pitts Road and Alternate 4N approximately 1,700-feet south of Shingle Landing Road. The wetland is found on either side of the stream and is generally confined by steep slopes which border the Middle Branch floodplain. Principal wetland functions and values associated with the wetland are groundwater recharge/discharge, floodplain alteration, fish and shellfish habitat, sediment/toxicant retention, nutrient removal, production export, sediment/shoreline stabilization, wildlife habitat, uniqueness/habitat, and visual quality/ aesthetics.

The wetland is classified as a palustrine forested wetland with a seasonal water regime (PFO1C). The soil within the wetland was saturated 4-inches below the ground surface and free water was observed in an unlined bore hole at 8-inches below the surface. The soils are mapped as Mixed Alluvium, which is typically poorly drained and often includes hydric soils. Soil samples confirmed the presence of poorly drained soils with a low chroma (10YR5/2) matrix.

Dominant species in the vegetative canopy include *Acer rubrum* (red maple), *Liquidambar styraciflua* (sweet gum), and *Fraxinus pennsylvanica* (green ash). The understory/shrub layer is dominated by *Ilex opaca* (American holly), *Lindera benzoin* (spicebush) and *Clethra alnifolia* (coast pepperbush). The dominant herbaceous species include *Impatiens capensis* (jewelweed), *Boehmeria cylindrica* (false nettle), and *Saururus cernuus* (lizards tail).

Wetland 31 is located along Birch Branch which crosses US 113 approximately 1,300-feet north of Peerless Road. The wetland has formed within the floodplain of the stream and is confined by the steep slopes which border the edges of the floodplain. The wetland is classified as a palustrine forested wetland with a seasonal/seasonally saturated water regime (PFO1C/E). Principal wetland functions and values associated with the wetland are groundwater recharge/discharge, floodplain alteration, fish and shellfish habitat, sediment/toxicant retention, nutrient removal, production export, sediment/shoreline stabilization, wildlife habitat, uniqueness/habitat, and visual quality/aesthetics.

At the time of the field visit, soils within the wetland were saturated to the surface. Drainage patterns and water stained leaves were also observed. According to the SCS's mapping of the area, soils within the wetland are Mixed Alluvium. Samples taken in the field were mucky and gleyed (7.5YR2/0).

Dominant vegetation in the forest canopy includes *Acer rubrum* (red maple), *Liquidambar styraciflua* (sweet gum), and *Fraxinus pennsylvanica* (green ash). *Ilex opaca* (American holly), *Lindera benzoin* (spicebush), *Ilex verticillata* (winterberry) and *Magnolia virginiana* (sweetbay) are the dominant shrub/understory species, while *Arisaema triphyllum* (jack-in-the-pulpit), *Woodwardia areolata* (netted chainfern), *Osmunda cinnamomea* (cinnamon fern) and *Saururus cernuus* (lizards tail) are dominant in the herbaceous layer.

Wetland 32 is located approximately 520-feet east of US 113, adjacent to the north side of the Birch Branch floodplain (W-31). The area has been excavated and was inundated to a depth of 6-inches in most places at the time of the field visit. The area is classified as both a palustrine forested and a scrub-shrub wetland with a seasonal water regime (PFO/PSS1C). Soils within the wetland are mapped as Fort Mott loamy sand, however, this soil type has been excavated and no longer characterizes the site. Soil samples were not feasible at the time of the field visit due to inundation, however, it is assumed that if hydric soils are not already present, they will form over time due to the degree of saturation in the wetland.

Dominant vegetation noted in the field includes *Acer rubrum* (red maple), *Liquidambar styraciflua* (sweet gum), and *Betula nigra* (river birch) in both the canopy and shrub layer of the wetland. *Myrica cerifera* (bayberry) was also present in the shrub layer. *Phragmites australis* (common reed), *Osmunda cinnamomea* (cinnamon fern) and *Woodwardia areolata* (netted chainfern) were the dominant herbaceous species.

Wetland 33 is located on the west side of US 113, 50-feet or more outside of the existing right-of-way and approximately 1,300-feet north of Kepler Lane. The area is classified as a palustrine forested wetland with a saturated water regime (PFO1B) and is characterized by scattered unvegetated depressions. The wetland is ditched along its southern edge. At the time of the field visit, water stained leaves were observed within the wetland and soils were saturated at a depth of 12-inches below the ground surface. Principal wetland functions and values associated with the wetland are groundwater recharge/discharge, nutrient removal, and wildlife habitat.

Soils in the area are mapped as Rutlege loamy sand which is listed as a hydric soil in Maryland. Soil samples were gleyed (2.5Y5/1) and mottled (2.5Y3/2). Dominant vegetation observed includes *Acer rubrum* (red maple) and *Liquidambar styraciflua* (sweet gum) in the canopy, *Magnolia virginiana* (sweetbay) in the understory and Sambucus canadensis (elderberry) in the shrub layer. The dominant herbaceous species are *Woodwardia areolata* (netted chainfern), *Osmunda cinnamomea* (cinnamon fern), and *Eulalai viminea* (microstegium).

Wetland 34 is located along existing US 113, approximately 100-feet south of Kepler Lane. The areas is classified as a palustrine forested wetland with a saturated water regime (PFO1B). The land surface has been significantly disturbed and is characterized by scattered unvegetated depressions. Soils were saturated at a depth of 12 to 16-inches below the ground

surface and drainage patterns were observed throughout the wetland. Principal wetland functions and values associated with the wetland are groundwater recharge/discharge, nutrient removal, and wildlife habitat.

Soils in the wetland are mapped as Pocomoke loam which is listed as a hydric soil in Maryland. Samples were low chroma (2.5Y6/2) and streaking was observed from 14 to 32 inches. Dominant woody vegetation observed in the wetland includes *Acer rubrum* (red maple), *Nyssa sylvatica* (black gum) and *Liquidambar styraciflua* (sweet gum) in the canopy, *Magnolia virginiana* (sweetbay) in the understory, and *Clethra alnifolia* (coast pepperbush) in the shrub layer. The dominant herbaceous species are *Woodwardia areolata* (netted chainfern), and *Osmunda cinnamomea* (cinnamon fern).

Wetland 35 is located northeast of MD 113, approximately 100-feet south of Old Stage Road. The area is a small depressional wetland and would be classified as a palustrine forested wetland with a seasonal saturated water regime. At the time of the field visit, the wetland was inundated to a depth of 6-inches and water marks were observed.

Soils are mapped as Rutlege loamy sand which is listed as a hydric soil. When sampled, the soils were black sandy loam with a high percentage of sapric material. Dominant vegetation includes *Acer rubrum (*red maple) and *Liquidambar styraciflua* (sweet gum) in the canopy, *Vaccinium corymbosum* (highbush blueberry) and *Clethra alnifolia* (coast pepperbush) in the shrub layer. *Smilax rotundifolia* (greenbrier) was also observed throughout much of the wetland.

Wetland 36 is located adjacent to the east side of US 113, approximately 200-feet north of Old Stage Road. The area is classified as both a palustrine forested wetland with a seasonal saturated water regime (PFO1E) and a palustrine emergent wetland with a seasonal water regime (production exportM1B). The portion of the wetland that is emergent is adjacent to US 113 and has been cleared for power lines and billboards. Principal wetland functions and values associated with the wetland are groundwater recharge/discharge, nutrient removal, and wildlife habitat.

At the time of the field visit, the wetland was inundated to a depth of 4-inches and water marks were observed. Soils in the area are mapped as Pocomoke sandy loam. Soil samples were characterized by black muck from 0 to 2- inches. Dominant vegetation in the forested portion of the wetland includes *Acer rubrum* (red maple), *Liquidambar styraciflua* (sweet gum), *Smilax rotundifolia* (greenbrier), *Clethra alnifolia* (pepperbush), and *Woodwardia areolata* (netted chainfern). The emergent wetland is dominated by *Scirpus cyperinus* (wool grass), *Juncus effusus* (soft rush), *Solidago rugosa* (rough-stemmed goldenrod), *Sambucus canadensis* (elderberry), and *Aster sp.* (aster).

Wetland 37 is large system located on the west side of US 113. It begins approximately 2,500-feet north of Bishopville Road and extends parallel to US 113 for a distance of approximately 2,600-feet. The area is classified as a palustrine forested wetland with a

saturated water regime (PFO1B) and has formed in a broad flat area with scattered unvegetated depressional areas. The land surface has been significantly disturbed by past logging activities within the wetland. Principal wetland functions and values associated with the wetland are groundwater recharge/discharge, nutrient removal, and wildlife habitat.

At the time of the field visit, the ground was saturated to the surface and free water was observed in an unlined bore hole at 10-inches below the surface. Water stained leaves were also observed. Soils in the wetland are mapped as Rutlege loamy sand which is listed as a hydric soil in Maryland. Soil samples were gleyed (2.5Y2.5/1). Dominant woody vegetation in the wetland includes *Acer rubrum* (red maple), *Quercus phellos* (willow oak) and *Liquidambar styraciflua* (sweet gum) in the canopy, *Magnolia virginiana* (sweetbay) in the understory, and *Vaccinium corymbosum* (highbush blueberry) in the shrub layer. The dominant herbaceous species include *Woodwardia areolata* (netted chainfern) and *Carex sp.* (sedge species).

Wetland 38 is located on the east side of US 113, on the north side of the intersection of the highway and the Maryland and Delaware Railroad tracks. The wetland is bounded on three sides by either the highway or railroad and appears to be regularly mowed for billboard visibility. The area is classified as a palustrine emergent wetland with a saturated water regime (PEM1B). Soils in the wetland are mapped as Leon loamy sand which is a hydric soil, and were saturated at a depth of 12-inches. Soils samples were gleyed (2.5Y2.5/1). Dominant vegetation in the wetland includes *Osmunda regalis* (royal fern), *Didiplis diandra* (water purslane), *Carex lurida (*lurid sedge), *Juncus effusus* (soft rush), *Rhexia mariana* (Maryland meadow beauty), *Juncus canadensis* (Canada sedge) and *Rhynchospora glomerata* (clustered beakrush).

Wetland 39 is located west of US 113, approximately 200-feet north of where Alternate 4N Modified crosses MD 610 (Whaleyville Road). The area is classified as a palustrine forested wetland with a saturated/seasonal saturated water regime (PFO1B/E). The area has been significantly disturbed by past logging activities. At the time of the field visit, portions of the wetland were inundated to a depth of 2-inches. Areas that were not inundated were saturated 0 to 6 inches below the ground surface. Principal wetland functions and values associated with the wetland are groundwater recharge/discharge, nutrient removal, and wildlife habitat.

Soils are mapped as Pocomoke sandy loam which is a hydric soil. Soil samples were gleyed (2.5Y2.5/1) and a high organic content was observed in the surface layer of the sandy soils. The dominant vegetation in the canopy of the wetland is *Acer rubrum* (red maple), *Liquidambar styraciflua* (sweet gum), *Quercus palustris* (pin oak), *Nyssa sylvatica* (black gum) and *Pinus taeda* (loblolly pine). The understory and shrub layer is dominated by *Symplocos tinctoria* (horse sugar), *Clethra alnifolia* (coast pepperbush) and *Vaccinium corymbosum* (highbush blueberry) while the dominant herbaceous species is *Woodwardia areolata* (netted chainfern).

Wetland 40 is located within the floodplain of Carey Branch which crosses US 113 just south of Morris Road. The area is classified as a palustrine forested wetland with a seasonal saturated water regime (PFO1E) and was inundated to a depth of 2-inches at the time of the field visit. Numerous other hydrologic indicators, such as water marks, drift lines, sediment deposits and drainage patterns, were also noted. Principal wetland functions and values associated with the wetland are groundwater recharge/discharge, floodplain alteration, fish and shellfish habitat, sediment/toxicant retention, nutrient removal, production export, sediment/shoreline stabilization, wildlife habitat, and visual quality/aesthetics.

Soils within the wetland are mapped as Mixed Alluvium, which is typically poorly drained and often includes hydric soils. Soil samples were black and mucky to a depth of 20-inches. The dominant canopy species in the wetland are *Acer rubrum* (red maple) and *Liquidambar styraciflua* (sweet gum). The shrub layer is sparse, however, the dominant species in the herbaceous layer include *Saururus canadensis* (lizards tail), *Boehmeria cylindrica* (false nettle), and *Impatiens capensis* (jewelweed).

A large portion of the study area is mapped in the Soil Survey as having hydric soils; however, an extensive series of drainage ditches has effectively lowered the water table in many areas. The most problematic of these areas are associated with abandoned fields that have returned to woodland. Most of the ditches in the study area support hydrophytic vegetation. On-site inspection by the Corps of Engineers has determined which ditches are jurisdictional. The ditches have been identified and labeled on the alternatives mapping presented in Appendix A of this DEIS. Ditches have been included as jurisdictional wetlands where they are located immediately adjacent to wetland areas.

Table III-15: Wetland Summary

Wetland Number	Approx (1) Size (Ac)	Cowardin System	Dominant Vegetation		Hydrologic Indicators	Soils	Principal Function (2)	Other Observations
W-1	100	PEM1E	Spike Rush Wood Reedgrass Lurid Sedge Water Plantain Soft Rush	Eleocharis sp. Cinna Arundinacea Carex lurida Alisima plantago-aquatica Juncus effusus	Inundated Water Marks Sediment Deposits	Fallsington 0- 6" - sandy loam 10YR 5/2 6-18" - loamy sand 2.5Y 5/3 w/ 10YR 5/6	Grouped with W-3	Located at inlet and outlet of culvert under 113; ditched and disturbed by road; may have been natural tributary to Hardship Branch
W-2	>500	PFO1B	Red Maple Coast Pepperbush Wood Reedgrass Highbush Blueberry Arrow-wood Bayberry Sweetgum	Acer rubrum Clethra alnifolia Cinna Arundinacea Vaccinium corymbosum Viburnum dentatum Myrica cerifera Liquidambar styraciflua	Water Marks Sediment Deposits Saturated	Othello 4 to 12" - silt loam 2.5Y 5/1 with 10YR 5/8 redox	GR/D S/TR NR WH	Associated with broad drainage swale; northeast corner is farmed wetland
W-3	200	PEM1B (east) PFO1C (west)	Black Willow Soft Rush Green Bulrush Spike Rush Red Maple Sweetgum	Salix nigra Juncus effusus Scirpus atrovirens Eleocharis sp. Acer rubrum Liquidambar styraciflua	Inundated Saturated Sediment Deposits	Woodstown (hydric inclusion) 0-10" - sandy loam 10YR 6/1 with 7.5 YR 5/8 redox	WH	Appears to be a natural tributary to Patty's Branch that was ditched
W-4	2.0	PFO1E	Willow Oak Red Maple Coast Pepperbush Sweetgum Loblolly Blackgum	Quercus phellos Acer rubrum Clethra alnifolia Liquidambar styraciflua Pinus taeda Nyssa sylvatica	Inundated Saturated Water Marks	Sassafras Flooded - not described	(3)	Blocked ditch has impounded water; appears to have been flooded for several years based on water marks

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Wetland Number	Approx (1) Size (Ac)	Cowardin System	Dominant Vegetation		Hydrologic Indicators	Soils	Principal Function (2)	Other Observations
W-5	11.0	PEM/SS1B	Panic Grass Green Bulrush Ink-berry Red Maple MD Meadow Beauty Sedge St. Johnswort	Dichanthelium acuminatum Scirpus atrovirens Ilex glabra Acer rubrum Rhexia mariana Carex spp. Hypericum sp.	Saturated Inundated Pockets	Fallsington 8-18" - sandy loam 2.5Y 5/1	Grouped with W-5A	Cleared r/w for powerline maintenance
W-5A	2.0	PEM/PFO	Loblolly Groundsel Tree Soft Rush Common Reed Common Greenbrier Panic Grass Goldenrod	Pinus taeda Baccharis halimifolia Juncus effusus Phragmites australis Smilax rotundifolia Dichanthelium acuminatum Solidago spp	Saturated	Fallsington	GR/D WH	Area appears to have been excavated, possibly for original highway construction.
W-6	>500	PFO/EM1B	Common Cattail Lizard's Tail Fringed Sedge Great Angelica Red Maple Sensitive Fern Sweetbay Arrow-wood Pickeralweed Spatterdock	Typha latifolia Saururus cernuus Carex crinita Angelica aropurpurea Acer rubrum Onoclea sensibilis Magnolia virginiana Viburnum dentatum Pontederia cordata Nuphar luteum	Inundated Saturated Water Marks Sediment Deposits Drainage Patterns	Fallsington 0-16" - sandy loam 10YR 3-4/1	Grouped with W-8	Upper floodplain limit of Patty's Branch; drainage pattern bisected by road
W-7	>500	PFO1E PEM1E	Green ash Sweetgum Red Maple Lizard's Tail Brook-side Alder Black Willow False Nettle Spatterdock Buttonbush Elderberry	Fraxinus pennsylvanica Liquidambar styraciflua Acer rubrum Saururus cernuus Alnus serrulata Salix nigra Boehmeria cylindrica Nuphar luteum Cephalanthus occidentalis Sambucus canadensis	Inundated Saturated Drift lines Sediment Deposits Water Marks	Fallsington 0-18" - Black muck and sandy loam	Grouped with W-8	Patty's Branch and adjacent floodplain

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Table III-15: Wetland Summary (continued)

Wetland Number	Approx (1) Size (Ac)	Cowardin System	Dominant Vegetation		Hydrologic Indicators	Soils	Principal Function (2)	Other Observations
W-8	>500	PFO2/1E	Bald Cypress Red Maple Sweetgum Coast Pepperbush Highbush Blueberry Wood Reedgrass Royal Fern Lizard's Tail Brook-side Alder Winterberry	Taxodium distichum Acer rubrum Liquidambar styraciflua Clethra alnifolia Vaccinium corymbosum Cinna Arundinacea Osmunda regalis Saururus cernuus Alnus serrulata Ilex verticillata	Inundated Saturated Water Marks	Fallsington 10-16" - sandy loam 5Y 6/1 with 10YR 4/6 redox	GR/D FA S/TR NR PE WH UH VQ/A	Cypress swamp in floodplain of Purnell and Campground Branch
W-9	200	PEM/FO1B	Red Maple Black Willow Brook-side Alder Buttonbush Jewelweed New York Ironweed Swamp Milkweed	Acer rubrum Salix nigra Alnus serrulata Cephalanthus occidentalis Impatiens capensis Veronia noveboracensis Asclepias incarnata	Inundated Water Marks Sediment Deposits Drainage Patterns	Mixed Alluvium Not described due to flooding	NR WH S/TR	Floodplain of Poorhouse Branch
W-10	>500	PFO1E	Red Maple Green ash Lizard's Tail Arrow-wood Blackgum Sensitive Fern American Hornbeam Sweetgum	Acer rubrum Fraxinus pennsylvanica Saururus cernuus Viburnum dentatum Nyssa sylvatica Onoclea sensibilis Carpinus caroliniana Liquidambar styraciflua	Inundated Water Marks	Mixed Alluvium 0-18" - silt loam 5Y 3/2	Grouped with W-9	Floodplain of Five Mile Branch
W-11	100	PFO1E	Red Maple Arrow-wood Spicebush False Nettle Jewelweed Sedge	Acer rubrum Viburnum dentatum Lindera benzoin Boehmeria cylindrica Impatiens capensis Carex sp	Inundated Saturated Sediment Deposits Drainage Patterns	Fallsington Not described due to flooding	Grouped with W-9	Bank and bottom of unnamed perennial stream

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Wetland Number	Approx (1) Size (Ac)	Cowardin System	Dominant Vegetation		Hydrologic Indicators	Soils	Principal Function (2)	Other Observations
W-12	>500	PFO1E	Red Maple Sweetgum Spicebush Arrow-wood Sweetbay American Holly Netted Chainfern Lizard's Tail Sensitive Fern Winterberry Cinnamon Fern Clearweed	Acer rubrum Liquidambar styraciflua Lindera benzoin Viburnum dentatum Magnolia virginiana Ilex opaca Woodwardia areolata Saururus cernuus Onoclea sensibilis Ilex verticillata Osmunda cinnamomea Pilea pumila	Saturated	Portsmouth and Mixed Alluvium 4-12" - loam 7.5YR 2/0	Grouped with W-13	Broad headwater swale to Massey Branch; bisected by road
W-13	100	PFO1B	Red Maple Green ash Blackgum Sweetbay Magnolia Spicebush Sweetgum Skunk Cabbage Lizard's Tail Jewelweed False Nettle Coast Pepperbush Netted Chainfern	Acer rubrum Fraxinus pennsylvanica Nyssa sylvatica Magnolia virginiana Lindera benzoin Liquidambar styraciflua Symplocarpus foetidus Saururus cernuus Impatiens capensis Boehmeria cylindrica Clethra alnifolia Woodwardia areolata	Saturated	Mixed Alluvium 4-10" - loamy sand 2.5Y 6/2 with 7.5YR 5/8 redox; 10-16" silty clay 10YR 4/1	FA S/TR NR PE WH VQ/A	Floodplain of Porter Creek
W-14	100	PFO1C	Red Maple Netted Chainfern New York Fern False Nettle American Holly Cinnamon Fern	Acer rubrum Woodwardia areolata Thelypteris noveboracensis Boehmeria cylindrica Ilex opaca Osmunda cinnamomea	Inundated Saturated Drainage Patterns	Fallsington/Pocomoke 0-18" Sandy loam 10YR 2/1	(3)	Headwater swale to Goody Hill Branch

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Table III-15: Wetland Summary (continued)

Wetland Number	Approx (1) Size (Ac)	Cowardin System	Dominant Vegetation		Hydrologic Indicators	Soils	Principal Function (2)	Other Observations
W-15	5	PFO1C	Red Maple Sweetbay Spicebush Blackgum Seaside alder Arrow-wood Netted Chainfern False Nettle	Acer rubrum Magnolia virginiana Lindera benzoin Nyssa sylvatica Alnus maritima Viburnum dentatum Woodwardia areolata Boehmeria cylindrica	Inundated Saturated Sediment Deposits Drainage Patterns	Fallsington 4-18" Sandy loam 10YR 4/1	GR/D S/TR NR WH RES	Wetland of special state concern; seaside alder, state status rare.
W-16	200	PFO1C	Red Maple Green ash Sweetgum Arrow-wood Jewelweed False nettle Common Greenbrier Lizard's Tail	Acer rubrum Fraxinus pennsylvanica Liquidambar styraciflua Viburnum dentatum Impatiens capensis Boehmeria cylindrica Smilax rotundifolia Saururus cernuus	Inundated Saturated Drainage Patterns	Mixed Alluvium 0-18" silt loam 10YR 4/1	GR/D FA S/TR NR WH	Floodplain of Basset Creek
W-17	0.8	PFO1B	Red Maple Arrow-wood Sedge Water Purslane Bayberry	Acer rubrum Viburnum dentatum Carex sp. Didiplis diandra Myrica cerifera	Inundated Saturated Water Marks	Fallsington 4-12 sandy loam 10YR 5/1 12-18 sandy loam 10YR 7/1	(3)	Cable r/w has created depressions; wetter hydrology than normal
W-18	100	PFO1E	Red Maple Blackgum Sweetgum Sweetbay Arrow-wood Netted Chainfern American Holly Swamp Azalea Sphagnum	Acer rubrum Nyssa sylvatica Liquidambar styraciflua Magnolia virginiana Viburnum dentatum Woodwardia areolata Ilex opaca Rhododendron viscosum	Inundated Saturated Buttressed Trunks	Mixed Alluvium 0-14" Muck	GR/D FA S/TR NR WH	

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Wetland Number	Approx (1) Size (Ac)	Cowardin System	Dominant Vegetation		Hydrologic Indicators	Soils	Principal Function (2)	Other Observations
W-19	1.0	PFO1B	Brook-side Alder Red Maple Jewelweed Netted Chainfern Sweetgum Virginia Creeper	Alnus serrulata Acer rubrum Impatiens capensis Woodwardia areolata Liquidambar styraciflua Parthenocissus quinquefolia		Portsmouth 0-16" silt loam with high organic content	Grouped with W-18	Area has been drained by ditch; questionable hydrology
W-20	50	PFO1B	Red Maple Common Greenbrier Wood Reedgrass False Nettle Jewelweed Brook-side Alder	Acer rubrum Smilax rotundifolia Cinna Arundinacea Boehmeria cylindrica Impatiens capensis Alnus serrulata	Inundated Saturated	Fallsington 0 -10" sandy loam; 10YR 4/1 10-18" heavy sandy loam; 10YR 6/1	Grouped with W-18	Possible seaside alder
W-21	200	PFO1A	Arrow-wood Sweetgum Red Maple Lizard's Tail Multiflora Rose Jack-in-the-Pulpit Common Greenbrier	Viburnum dentatum Liquidambar styraciflua Acer rubrum Saururus cernuus Rosa multiflora Arisaema triphyllum Smilax rotundifolia	Saturated	Mixed Alluvium 4-8" silt loam 10YR 5/4 with 7.5 YR 5/4 redox; 8-18" silt loam 10YR 6/2 with 10YR 4/4 redox	Grouped with W-18	Floodplain of Poplartown Branch (east side of 113)
W-22	200	PFO1C	Red Maple Cottonwood Lizard's Tail Wood Reedgrass False Nettle	Acer rubrum Populus deltoides Saururus cernuus Cinna Arundinacea Boehmeria cylindrica	Inundated Saturated	Mixed Alluvium Not examined due to flooding	Grouped with W-18	Floodplain of Poplartown Branch (west side of 113)
W-23	3.0	PFO1C	Red Maple Sweetgum Blackgum Fetter-bush Possum-haw Netted Chainfern	Acer rubrum Liquidambar styraciflua Nyssa sylvatica Leucothoe racemosa Viburnum nudum Woodwardia areolata	Saturated Water Marks	Falllsington 3 -0" Fibric 0 -4" loam, 10YR 3/2 4-16"sandy clay loam	GR/D NR WH	Constricted outlet adjacent to railroad tracks

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Table III-15: Wetland Summary (continued)

Wetland Number	Approx (1) Size (Ac)	Cowardin System	Dominant Vegetation		Hydrologic Indicators	Soils	Principal Function (2)	Other Observations
W-24	1.0	PFO1C	Red Maple Sweetgum White Oak Coast Pepperbush	Acer rubrum Liquidambar styraciflua Quercus alba Clethra alnifolia	Inundated Saturated Water Marks	Woodstown 0-5" loam 2.5Y 3/2; 5-10" sandy loam, 2.5Y 5/3 10-24" 2.5Y 5/4	Grouped with W-23	Gravel driveway restricts positive drainage; soils have not yet developed hydric indicators
W-25	100	PFO1C	Red Maple Willow oak Highbush Blueberry Coast Pepperbush Netted Chainfern	Acer rubrum Quercus phellos Vaccinium corymbosum Clethra alnifolia Woodwardia areolata	Saturated	Fallsington 0-8" loam, 2.5Y 3/1 8-14" sandy loam, 2.5Y 6/1	Grouped with W-23	Depressional micro-relief in broad headwater swale
W-26	3.0	PFO/SS1B	Red Maple Sweetgum Wood Reedgrass Bayberry Groundsel Tree Common Greenbrier Soft Rush Wool-grass Redtop smartweed Sedge	Acer rubrum Liquidambar styraciflua Cinna arundinacea Myrica cerifera Baccharis halimifolia Smilax rotundifolia Juncus effusus rush Scirpus cyperinus Agrostis alba Polygonum sp. Carex sp. Carex sp.	Inundated Saturated Water Marks Sediment Deposits	Othello/Fallsington 0-6" loam 10YR 3/2 6-18" heavy sandy loam, 10YR 6/1 with 10YR 5/6 redox	GR/D NR WH VQ/A	Adjacent to railroad tracks; eastern and western edge is farmed wetland
W-27	200	PFO1E	Red Maple Willow Oak Arrow-wood Water oak American Holly American Hornbeam Common Greenbrier	Acer rubrum Quercus phellos Viburnum dentatum Quercus nigra Ilex opaca Carpinus caroliniana Smilax rotundifolia	Inundated Saturated Water Marks Drainage Patterns	Fallsington 0-8" loam, 10YR 3/1 8-16" loam, 10YR 5/1	Grouped with W-37	Extensive depressional micro-relief

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Wetland Number	Approx (1) Size (Ac)	Cowardin System	Dominant Vegetation		Hydrologic Indicators	Soils	Principal Function (2)	Other Observations
W-28	200	PFO1E	Red Maple Green ash Blackgum Winterberry American Holly Coast Pepperbush Lizard's Tail Jewelweed Netted Chainfern Arrow-wood	Acer rubrum Fraxinus pennsylvanica Nyssa sylvatica Ilex verticillata Ilex opaca Clethra alnifolia Saururus cernuus Impatiens capensis Woodwardia areolata Viburnum dentatum	Inundated Saturated Drainage Patterns	Mixed Alluvium 0-24" Muck	GR/D FA FSH S/TR NR PE WH SSS VQ/A	Floodplain of Church Branch
W-29	1.8	PFO1E	Red Maple Highbush Blueberry Sweetgum Loblolly Coast Pepperbush Common Reed	Acer rubrum Vaccinium corymbosum Liquidambar styraciflua Pinus taeda Clethra alnifolia Phragmites australis	Inundated Saturated	Fort Mott Not described due to flooding	GR/D WH	Isolated depression from previous sand and gravel excavation
W-30	>500	PFO1C	Red Maple Sweetgum Green ash American Holly Spicebush Coast Pepperbush Jewelweed False Nettle Netted Chainfern Lizard's Tail	Acer rubrum Liquidambar styraciflua Fraxinus pennsylvanica Ilex opaca Lindera benzoin Clethra alnifolia Impatiens capensis Boehmeria cylindrica Woodwardia areolata Saururus cernuus	Saturated Drift Lines Sediment Deposits Drainage Patterns	Mixed Alluvium 5-18" silt loam 10YR 5/2	Grouped with W-28	Floodplain of Middle Branch

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Table III-15: Wetland Summary (continued)

Wetland Number	Approx (1) Size (Ac)	Cowardin System	Dominant Vegetation		Hydrologic Indicators	Soils	Principal Function (2)	Other Observations
W-31	>500	PFO1C/E	Red Maple Blackgum American Holly Green ash Spicebush Sweetbay Jack-in-the-Pulpit Netted Chainfern Cinnamon Fern Lizard's Tail Winterberry	Acer rubrum Nyssa sylvatica Ilex opaca Fraxinus pennsylvanica Lindera benzoin Magnolia virginiana Arisaema triphyllum Woodwardia areolata Osmunda cinnamomea Saururus cernuus Ilex verticillata	Saturated Drainage Patterns	Mixed Alluvium 0-24" Muck	Grouped with W-28	Floodplain of unnamed tributary to Middle Branch
W-32	>500	PFO/SS1C	Red Maple Common Reed Sweetgum River birch Cinnamon Fern Netted Chainfern Bayberry	Acer rubrum Phragmites australis Liquidambar styraciflua Betula nigra Osmunda cinnamomea Woodwardia areolata Myrica cerifera	Inundated Saturated Water Marks Drift Lines	Fort Mott Not described due to flooding	(3)	Excavated depression adjacent to floodplain of unnamed tributary to Middle Branch; appears to be old sand and gravel pit
W-33	100	PFO1B	Red Maple Sweetgum Sweetbay Elderberry Netted Chainfern Cinnamon Fern Microstegium	Acer rubrum Liquidambar styraciflua Magnolia virginiana Sambucus canadensis Woodwardia areolata Osmunda cinnamomea Eulalai viminea	Saturated	Rutledge 0-12" loam 2.5Y 2.5/1 12-24"sandy clay loam, 2.5Y 5/1	GR/D NR WH	Scattered unvegetated depressions; ditched along southern edge
W-34	100	PFO1B	Red Maple Sweetgum Sweetbay Coast Pepperbush Netted Chainfern Cinnamon Fern Common Greenbrier Blackgum	Acer rubrum Liquidambar styraciflua Magnolia virginiana Clethra alnifolia Woodwardia areolata Osmunda cinnamomea Smilax rotundifolia Nyssa sylvatica	Saturated Drainage Patterns	Pocomoke 0-10" loam, 2.5Y 2.5/1 10-14" sandy loam, 2.5Y 6/2 14-24" sandy clay loam, 2.5Y 6/3	Grouped with W-33	Land surface significantly disturbed by past logging; scattered unvegetated depressional areas

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Wetland Number	Approx (1) Size (Ac)	Cowardin System	Dominant Vegetation		Hydrologic Indicators	Soils	Principal Function (2)	Other Observations
W-35	1.0	PFO1E	Red Maple Sweetgum Netted Chainfern Coast Pepperbush Highbush Blueberry greenbrier	Acer rubrum Liquidambar styraciflua Woodwardia areolata Clethra alnifolia Vaccinium corymbosum Smilax rotundifolia	Inundated Saturated Water Marks	Rutledge 0-18" Black silt loam with sapric material	(3)	Depressional wetland
W-36	5.0	PFO1E PEM1C	Red Maple Sweetgum Coast Pepperbush Netted Chainfern Common Greenbrier Wool-grass Soft Rush rough stem goldenrod Elderberry Aster	Acer rubrum Liquidambar styraciflua Clethra alnifolia Woodwardia areolata Smilax rotundifolia Scirpus cyperinus Juncus effusus rush Solidago rugosa Sambucus canadensis Aster sp.	Inundated Saturated Water Marks	Rutledge 0-20" Black muck and sandy loam	Grouped with W-33	Western portion of wetland along Rt. 113 has been cleared for power lines and billboards
W-37	200	PFO1B	Red Maple Sweetgum Highbush Blueberry Sweetbay Netted Chainfern Sedge Willow Oak	Acer rubrum Liquidambar styraciflua Vaccinium corymbosum Magnolia virginiana Woodwardia areolata Carex, sp. Quercus phellos	Saturated	Leon, Pocomoke, and Rutledge 0-24" loam to sandy loam, 2.5Y 2.5/1	GR/D NR WH	Scattered unvegetated depressional areas; land surface significantly disturbed by past logging
W-38	0.7	PEM1B	Royal Fern Water Purslane Lurid Sedge Soft Rush MD Meadow Beauty Canada Goldenrod Clustered Beakrush	Osmunda regalis Didiplis diandra Carex lurida Juncus effusus rush Rhexia mariana Juncus canadensis Rhynchospora glomerata	Saturated	Leon 0-12" sandy loam 2.5Y 2.5/1; 12-24" sandy clay loam, 2.5Y 5/2 with 2.5Y 3/1 redox	(3)	Mowed for billboard visibility; located between railroad tracks and Rt.113

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Table III-15: Wetland Summary (continued)

Wetland Number	Approx (1) Size (Ac)	Cowardin System	Dominant Vegetation		Hydrologic Indicators	Soils	Principal Function (2)	Other Observations
W-39	200	PFO1B/E	Red Maple Sweetgum Loblolly Pin Oak Coast Pepperbush Highbush Blueberry Netted Chainfern Blackgum Horse Sugar	Acer rubrum Liquidambar styraciflua Pinus taeda Quercus palustris Clethra alnifolia Vaccinium corymbosum Woodwardia areolata Nyssa sylvatica Symplocos tinctoria	Inundated Saturated Water Marks	Pocomoke 0-24" loam to sandy loam, 2.5Y 2.5/1	Grouped with W-37	Significant disturbance by previous logging
W-40	>500	PFO1E	Red Maple Sweetgum Lizard's Tail False Nettle Jewelweed	Acer rubrum Liquidambar styraciflua Saururus cernuus Boehmeria cylindrica Impatiens capensis	Inundated Saturated Water Marks Drift Lines Sediment Deposits Drainage Patterns	Mixed Alluvium 0-20" Black muck and sandy loam	Grouped with W-28	Floodplain of Carey Branch

Notes:

1. Approximate size of the total wetland outside the study area has been estimated from available Soil Survey and National Wetland Inventory information.

2. See Section H.3 for functional assessment methodology.
   - GR/D - Groundwater Recharge/Discharge
   - F/A - Floodflow Alteration
   - FSH - Fish and Shellfish Habitat
   - S/TR - Sediment/Toxicant Retention
   - NR - Nutrient Removal
   - PE - Production Export
   - SSS - Sediment/Shoreline Stabilization
   - WH - Wildlife Habitat
   - RES - Rare/Endangered Species Habitat
   - U/H - Uniqueness/Heritage
   - VQ/A - Visual Quality/Aesthetics

3. Wetland functions and values were not determined for wetlands that are less than one acre, or outside the study area for the alternatives under consideration.

3. Wetland Functions

Wetland functions and values were evaluated using The Highway Methodology Workbook Supplement - Wetland Functions and Values: A Descriptive Approach (ACOE, 1995). The methodology incorporates both wetland science and best professional judgment to determine what functions and values are present in the wetland, followed by a determination of principal functions and values provided by the wetland. Principal functions and values are defined as an important physical component of a wetland ecosystem (function only), and/or are considered of special value to society from a local, regional, or national perspective. The following functions and values are assessed by the "Descriptive Approach" methodology:

Groundwater Recharge/Discharge - This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area. It refers to the fundamental interaction between wetlands and aquifers, regardless of size or importance of either.

Floodflow Alteration - This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics, and provides social or economic value relative to erosion and/or flood prone areas.

Fish and Shellfish Habitat - This function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention - This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, and pathogens in runoff water from surrounding uplands, or upstream eroding areas.

Nutrient Removal/Retention/Transformation - This function considers the effectiveness of the wetland as trap for nutrients in runoff water from surrounding uplands or contiguous wetlands, and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or surface waters such as ponds, lakes, streams, rivers, or estuaries.

Production Export - This function evaluates the effectiveness of the wetland to produce food or usable products for man or other living things.

Sediment/Shoreline Stabilization - This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion.

Wildlife Habitat - This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge.

Recreation - This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting, and other active or passive recreational activities.

Educational/Scientific Value - This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage - This value considers the effectiveness of the wetland or its associated water bodies to provide certain special values. These may include archeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, or its relative importance as a typical wetland class for this geographic location.

Visual Quality/Aesthetics - This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat - This value considers the suitability of the wetland to support threatened or endangered species.

An interagency study team was established to evaluate the functions and values of fifteen representative wetlands in the project area. The study team included staff members of the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, the Maryland State Highway Administration, and the environmental consultant. The wetlands selected for assessment were determined to be representative of typical wetlands in the project area based on size, landscape position, location within the watershed, and surrounding land-use. Although all wetlands provide varying degrees of functions and values, the interagency team agreed to complete functional assessments only for wetlands larger than one acre, and wetlands that are located within the study area of the proposed alignments. Principal wetland functions and values provided by the wetlands are summarized in Table III-16. Detailed information, including data sheets, are provided in the Natural Resources Technical Report.

Table III-16 Wetland Functions and Values [1]

Wetland Number[2]	Wetland Type	Watershed	Groundwater Recharge/ Discharge	Floodflow Alteration	Fish and Shellfish Habitat	Sediment/ Toxicant Retention	Nutrient Removal	Production Export	Sediment/ Shoreline Stabilize.	Wildlife Habitat	Unique./ Heritage	Visual Quality/ Aesthetics
2	PFO1B	Patty's Branch	X	●		X	X	●		X		●
3	PEM/FO	Patty's Branch	●			●				X		
5A	PEM/SS	Patty's Branch	X				●	●		X		
8	PFO2/1E	Purnell Branch	X	X	●	X	X	X	●	X	X	X
9	PFO1B	Poorhouse Branch	●	●		X	X	●	●	X		●
13	PFO1B	Porter Creek	●	X	●	X	X	X	●	X	●	X
15[3]	PFO1C	Bassett Creek	X	●		X	X	●		X	X	
16	PFO1B	Bassett Creek	X	X		X	X	●	●	X	●	●
18	PFO1E	Catbird Creek	X	X		X	X	●	●	X		●
23	PFO1C	Church Branch	X	●			X	●		X		●
26	PFO/SS	Church Branch	X			●	X	●		X		X
28	PFO1E	Church Branch	X	X	X	X	X	X	X	X		X
29	PFO1E	Church Branch	X	●	●	●	●	●		X		
33	PFO1B	Birch Branch	X				X	●		X		●
37	PFO1B	Carey Branch	X				X			X		●

Notes:

X - Denotes principal wetland function and value using the USCOE Descriptive Approach.

● - Denotes that wetland function and value are present to some degree.

(1) - Recreation value and Educational/Scientific value were evaluated by the study team and were not found to be a principal function/value for any wetland.

(2) - Other wetlands in the study area have been grouped with the listed reference wetlands for the purpose of the DEIS. A functional assessment for each wetland associated with the selected alternative will be conducted for the FEIS. The following wetlands are grouped based on similar site characteristic: (1 and 3), (5 and 5A), (6, 7, and 8), (9, 10, and 11), (12 and 13), (18, 19, 20, 21, and 22), (23, 24, and 25), (27,37, and 39), (28, 30, 31, and 40), (33, 34, and 36). Functions and values were not assessed for wetlands that are less than one acre or outside the study area.

(3) - Wetland of special state concern; provides habitat for seaside alder (state status rare).

I. Vegetation and Wildlife

1. Vegetation

Vegetation within the study area primarily consists of plant species associated with forested areas, wetlands, farmlands, meadows and landscaped and turfed areas associated with developed commercial, recreational, institutional and residential land uses.

The forested vegetation habitats vary from bottomland floodplain areas dominated by species tolerant of semi-saturated and prolonged saturated and inundated conditions, to gently sloping and level uplands consisting of species tolerant of drier soil environments.

The forest density in general is variable with some areas having a fairly dense overstory, subcanopy, shrub and herbaceous cover while in other areas the subcanopy trees, shrubs and herbaceous species were sparse or lacking. Some forest areas were logged at sometime in the past and it is within these areas that dense stands of early growth loblolly pine, deciduous tree saplings and various grass and flowering ground cover species occur.

The upland forests are dominated primarily by red maple (*Acer rubrum*), white oak (*Quercus alba*), southern red oak (*Q. falcata),* tuliptree (*Liriodendron tulipifera*), loblolly pine (*Pinus taeda*), American holly (*Ilex opaca*), sweet pepper-bush (*Clethra alnifolia*), arrow-wood (*Viburnum dentatum*), Japanese honeysuckle (*Lonicera japonica*), common poison-ivy (*Toxicodendron radicans*) and Virginia creeper (*Parthenocissus quinquefolia*).

Three specimen trees were identified and the size and quality documented: a southern red oak with 34.5 inch Diameter at Breast Height (DBH), the trunk is in good condition and top crown is generally well shaped with minimal dead wood; two tulip trees, one 41.2 inch DBH and one 43 inch DBH, have trunks in good condition with fairly well-shaped crowns and minimal dead wood. These trees are located approximately 150 feet northeast of Poplartown Branch and approximately 60 feet west of US 113.

The bottomland forests are dominated primarily by several species also found in the upland forests which include red maple, loblolly pine, arrow-wood, sweet pepper-bush, Japanese honeysuckle as well as sweetgum (*Liquidambar styraciflua)* and blackgum (*Nyssa sylvatica*).

Wetlands which occur within or adjacent to streams and within floodplains or other areas where a prolonged high water table sustains plant species which are able to adapt and reproduce in soils which may be saturated or inundated for long periods of time. Such species include: silky dogwood (*Cornus amomum*), bald cypress (*Taxodium distichum*), seaside alder (*Alnus maritma*), narrow-leaved cattail (*Typha angustifolia*), spotted touch-me-not (*Impatiens capensis*), buttonbush (*Cephalanthus occidentalis*), Sedges (*Carex sp.)* and skunk-cabbage (*Symplocarpus foetidus).*

A few fallow fields are interspersed between the farmed areas, landscaped areas and forests and are dominated by various grasses as well as flowering ground cover and shrubby species. Plant species occurring in the fallow field areas include: meadow fescue (*Festuca pratensis*), Canada thistle (*Cirsium arvense*), sour dock (*Rumex crispus*), fragrant goldenrod (*Euthania tenuifolia*), common pokeweed (*Phytolacca americana*) and daisy fleabane (*Erigeron strigosus*).

Vegetation on the farmed areas consists primarily of crops such as soybean (*Glycine max*), corn (*Zea mays*) and wheat (*Triticum aestivum*).

The developed areas contain a wide variety of native, naturalized and ornamental trees, shrubs and herbaceous plants. Included are lawns and other turfed areas, hedge rows, foundation plantings and flower beds.

2. Wildlife and Wildlife Habitat

Based on vegetation, three major habitat types within the study area have been identified: terrestrial or upland, wetland, and aquatic. Many of the wildlife species found in the study area are generalists and use the variety of habitats found in the area. Some species, however, have more specific habitat requirements.

The southern study area parallels the existing alignment of US 113 and impacts many existing treelines and fringe portions of major and minor forested areas. These forested tracts are interrupted by croplands, commercial and residential properties and meadows. Several of the forested areas are extensive enough that they could be used for safe havens and breeding by many neotropical migrant and other interior dwelling species.

a. Terrestrial Habitat

In the developed areas, wildlife species able to adapt and coexist with humans are commonly found. Certain forest dwelling mammal species will also occasionally venture onto developed and cropland areas in search of food. Bird species expected to commonly use the developed, cropland and meadow areas, as well as the forested areas, include: Downy woodpecker (*Picoides pubessens*), Mourning dove (*Zenaida maccrouna*), American robin (*Turdus migratorius*), gray catbird (*Dumetella carolinensis*), northern mocking bird (*Mimus polyglottos*), common grackle (*Quiscalus quiscula*), and American crow (*Corvus brachyrhynchos*). Mammal and reptile species include: red fox (*Vulpes vulpes*), white-tailed deer (*Odozoileus virginianus*), woodchuck (*Marmota monox*), racoon (*Procyon loter*), gray squirrel (*Sciurus carolinensis*), eastern chipmonk (*Tamias striatus*), Virginia opossum (*Didelphis virginiana*), and black rat snake (*Elaphe obsoleta obsoleta*).

b. Aquatic and Wetland Habitat

The wetland habitats within and adjacent to both the north and south study areas are varied consisting of forested, scrub-shrub and emergent wetlands as well as riverine stream systems. The stream systems were identified and are described in Section III-F and the wetland systems are discussed in Section III-H. The streams crossed within the study area are primarily very slow moving with sand and mud bottoms, and the channels are mostly non-vegetated, other than plants occurring on the adjacent slopes which consist of emergent and scrub-shrub species. Palustrine deciduous forests often occur on the adjacent flood plains.

The Pocomoke River is widely known for the quality of its sport fishery. The tributary streams within the project's southern study area are generally small and offer limited sport fishing potential, they do however, provide important spawning grounds which support the Pocomoke River fishery.

Bird species which are dependent on these habitats include: belted kingfisher (*Ceryle alcyon*), great blue heron (*Ardea herodias*), mallard (*Anas platyrhynchos*), wood duck (*Aix sponsa*), and red-winged black bird (*Agelaius phoeniceus*). Mammal, reptile and amphibian species also utilizing these habitats include: muskrat (*Ondatra zibethius*), nutria (*Myocaster coypus*), bullfrog (*Rana catesbeiana*), common musk turtle (*Sternotherus odoratus*) and northern water snake (*Nerodia sipedon*).

Streams and ponds within and adjacent to the study area are considered to be aquatic habitats within which shallow depths permit the dense growth of certain submerged vascular plant species, which are either attached to the substrate or float freely in the water above the bottom or on the surface.

The stream systems which occur within both the Pocomoke River area and the Coastal Drainage Areas provide food sources and spawning environments for migratory fish species such as white perch (*Morone americana*), yellow perch (*Peraflavescens*), herring (*Alosa sp.*) and alewife (*Alosa pseudoharengus*) as well as resident species including: large-mouth bass (*Micropterus salmoides*), chain pickerel (*Esox niger*), blue-spotted sunfish (*Ennea conthus gloriosus*), and pumpkinseed (*Lepomis gibbosus*). Many of the upland species such as American robin, northern mockingbird, gray catbird, red fox, white-tailed deer, racoon, Virginia opossum and black rat snake also utilize the wetland and aquatic habitats.

3. Rare, Threatened and Endangered Species

Coordination with the US Fish and Wildlife Service (Wolflin, 1995) has revealed that there are no known Federally listed endangered or threatened species under their jurisdiction within the study area. Coordination with the Maryland DNR Wildlife and Heritage Division, however, (Dintaman, Jr., 1995, Davidson, 1996) indicates that there are several State rare, threatened and endangered plant species and a finfish species subject to potential impact within the study area.

The DNR Wildlife and Heritage Division has recorded 20 State rare, threatened and endangered plant species occurring within one mile of the southern section of the US 113 roadway study area. Within the immediate study area, four of these plant species are known to occur. The four species include: seaside alder (*Alnus maritima)*, swamp beggar-ticks (*Bidens discoidea)* and variable yelloweyed-grass (*Xyris difformis*), state status, rare and low water-milfoil (*Myriophyllum humile)* which is state endangered. On July 17, 1996 a field survey was conducted in the effort to verify the existence and location of the four species. Only the seaside alder was found and identified near the roadway.

The DNR also lists a finfish species, the blackbanded sunfish (*Enneaconthus chaetadon*), which may occur in Cary Branch located north of Berlin (Dintaman Jr., 1995) . The sunfish population is thought to be limited or declining in the State such that it may be threatened in the future and therefore is in need of conservation. No surveys were undertaken to verify the occurrence of the sunfish in Cary Branch or any other stream in the study area.

J. Air Quality

The US 113 project is located in Worcester County, which is not listed as a nonattainment area for carbon monoxide and ozone. Therefore, with the exception of construction procedures requirements, the conformity requirements of 23CFR770 do not apply to this project. The project is also in an area where the State Implementation Plan (SIP) does not contain any transportation control measures. Therefore, the conformity procedures in the Federal Register on November 24, 1993 do not apply to this project.

The air quality analysis serves as support documentation for the project and has been prepared in accordance with the U.S. Environmental Protection Agency (US EPA), Federal Highway Administration (FHWA), and Maryland SHA guidelines. The US 113 project is located in Worcester County, MD, which is in attainment for carbon monoxide and ozone. A CO attainment are is defined in Section 186 of the Clean Air Act Amendments of 1990 (CAA '90) as a region that has a design value of less that 9.1 ppm. Therefore, with the exception of construction procedures requirements, the conformity requirements of 23CFR770 do not apply to this project. Carbon monoxide (CO) impacts were analyzed as the accepted indicator of vehicle-generated air pollution.

1. Methodology

The EPA's CAL3QHC dispersion model was used to predict CO concentrations for air quality sensitive receptors for the year of completion (2000) and the design year (2020). These detailed analyses predict air quality impacts from CO vehicular emissions for both the No Build and Dualization Alternatives for each analysis year. Modeled 1-hour and 8-hour average CO concentrations were added to background CO concentrations for comparison to the State and National Ambient Air Quality Standards (S/NAAQS).

In order to calculate the total concentration of CO which occurs at a particular receptor site during worst case meteorological conditions, the background levels are considered in addition to the levels directly attributed to the facility under consideration. The background levels were derived from the application of rollback methodology to on-site monitoring conducted by the Maryland Department of the Environment, Air Management Administration at their Essex Site during the period of 1994.

2. Description of Air Sensitive Receptors

Sixty-five air receptor locations were selected to represent air quality sensitive locations within the study area. These locations, representing residences, places of worship, and historic properties, were selected to represent the worst case conditions for air quality impacts associated with the proposed project. The locations of the air quality sensitive sites presented on Figures III-13A through 13D, were verified by a site visit in November, 1996.

3. Background CO Levels

Background CO, in parts per million (PPM) were determined to be 2.6 ppm for a one-hour period and 0.9 ppm for an eight-hour period. These CO concentrations are lower than the S/NAAQS 1-hour CO concentration of 35 ppm and the 8-hour CO concentration of 9 ppm, at any air quality receptor location, in either analysis year.

K. Noise Quality

1. Design Noise Level/Activity Relationships

The design noise levels indicated in Table III-17 have been used to determine highway traffic noise impacts associated with different land uses or activities in existence at the time of project development. In addition, the design noise levels have been used to determine where further consideration of noise mitigation will be required during the final design of the project. The applicable activity category for developed land uses adjacent to US 113 is category "B" for which the L_{eq} (Exterior) design noise level is 67 dBA.

2. Existing Noise Environment

Ambient Noise Measurements

In order to determine the existing noise characteristics present within the corridors of the various build alternatives being considered, ambient noise measurements were recorded at 65 receptor locations during November, 1996. Results of the ambient measurements at the receptor locations chosen, indicate a variety of contributing sources to the local noise environment. These include birds chirping, rustling leaves, dogs barking, and trains, in addition to traffic-related noise from US 113. The local street network within the study area

120

has minimal influence on the respective communities. Major arterials intersecting with US 113 also contribute significantly to the noise environment for select sensitive receptor sites, however, they do not influence the overall result of the proposed improvements.

Description of Noise Receptor Sites and Recorded Ambient L_{eq} Noise Levels

The results of the ambient noise measurements are presented in Table III-18. Sixty-five receptor sites, representing residences, places of worship, and historic sites, were selected to represent the worst case conditions for noise quality impacts associated with the proposed project. Where feasible, sites were selected to represent groupings of residences. Additionally, sites were chosen where the proposed alternate would be significantly close to the noise sensitive area, and also in areas where normal exterior human activity would occur. The location of the noise receptor sites are shown on Figures III-13A through 13D

Table III-17: Noise Abatement Criteria, Activity Relationships in CFR 772 *

Activity Category	Design Noise Level Leq	Description of Activity Category
A	57 dBA (Exterior)	Tracts of land in which serenity and quietest of extraordinary significance and serve an important public need, and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose. Such areas could include amphitheaters, particular parks or portions of parks, or open spaces which are dedicated or recognized by appropriate local officials for activities requiring special qualities of serenity and quiet.
B	67 dBA (Exterior)	Residences, motels, hotels, public, meeting rooms, schools, churches, libraries, hospitals, picnic areas, recreation areas, playgrounds, active sports areas, and parks.
C	72 dBA (Exterior)	Developed lands, properties or activities not included in categories A and B above.
D	--	Undeveloped lands.
E	52 dBA (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals and auditoriums.

* Adapted from Title 23 Code of Federal Regulations Part 772, FHWA - 1988

Table III-18: Sensitive Receptor Sites and Ambient Noise Levels

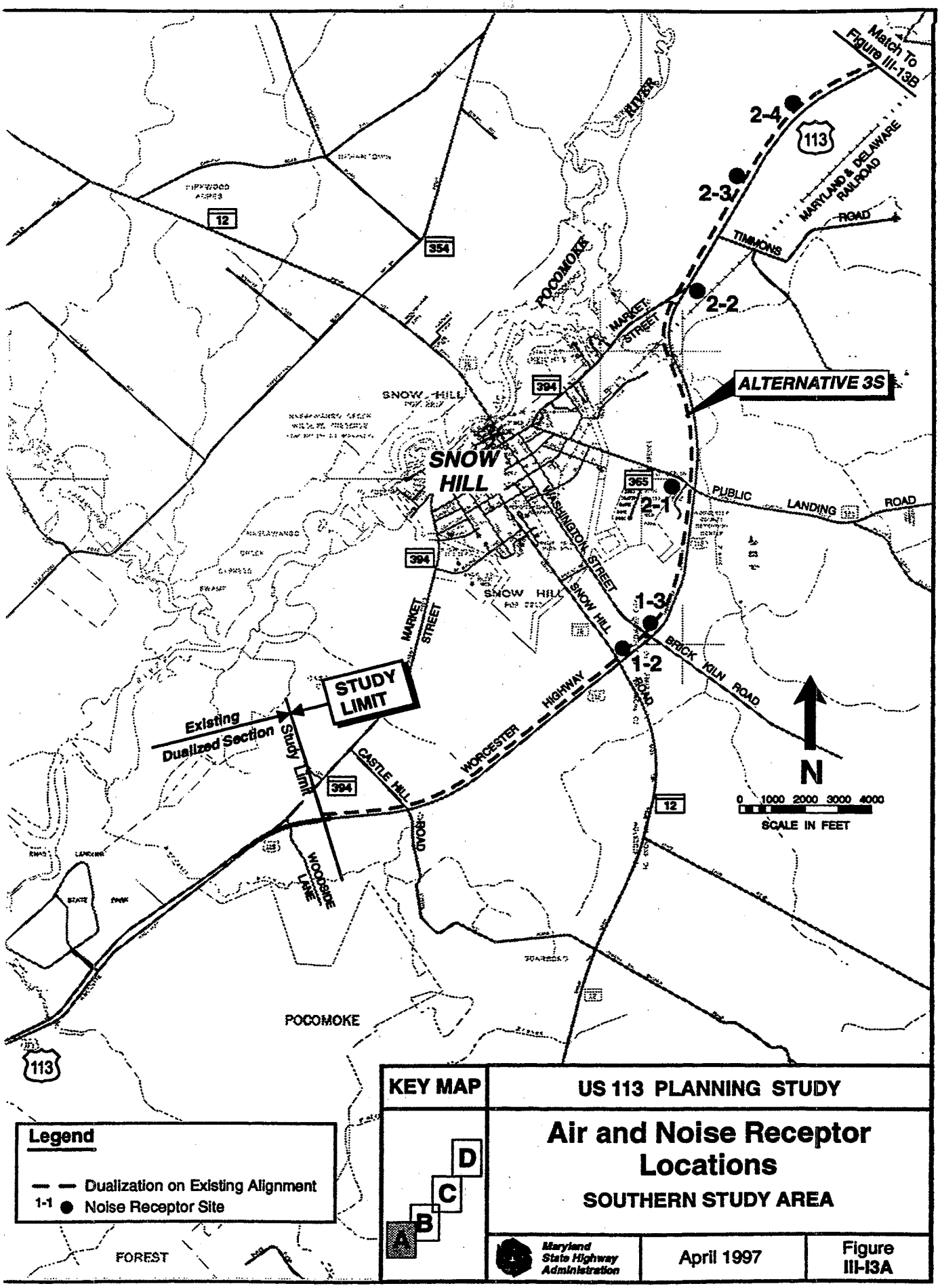
Site No.	Receptor Description	Ambient Noise Level L_{eq} (dBA)
1 - 1	Residence - 3932 Market Street (MD 394)	65
1 - 2	Residence - 4624 Snow Hill Road (MD 12)	56
1 - 3	Residence - 4712 Washington Street	59
2 - 1	Residence - 6108 Public Landing Road	58
2 - 2	Residence - 5658 Worcester Highway (US113)	60
2 - 3	Residence - 5809 Worcester Highway (US113)	58
2 - 4	Snow Hill Mennonite Church - Worcester Highway (US113)	63
2 - 5	Residence - 6074 Worcester Highway (US113)	64
2 - 6	Residence - 6224 Worcester Highway (US113)	67
3 - 1	Residence - 6369 Worcester Highway (US113)	63
3 - 2	Residence - Mason Bros. (Perdue) - Worcester Highway (US113)	66
3 - 3	Residence - 6570 Worcester Highway (US113)	65
3 - 4	Residence - 6641 Worcester Highway (US113)	71
3 - 5	Residence - 6858 Basket Switch Road	62
3 - 6	Residence - 7016 Worcester Highway (US 113)	58
3 - 7	Residence on Langmaid Road with no address posted; 250 feet west of US 113	56
3 - 8	Residence - 8412 Langmaid Road	61
3 - 9	Residence - 7170 Worcester Highway (US 113)	63
4 - 1	Residence on Worcester Highway (US 113) with no address posted; 2000 feet south of Gunning Club Road	58
4 - 2	Residence on Worcester Highway (US 113) with no address posted; 450 feet south of Croppers Island Road	64
4 - 3	Residence - 9118 Croppers Island Road	64
4 - 4	Residence - 7575 Worcester Highway (US 113)	58
4 - 5	Residence - 7620 Worcester Highway (US 113)	61
4 - 6	Residence - 9314 Goody Hill Road	58
4 - 7	Residence - 7809 Worcester Highway (US 113)	60

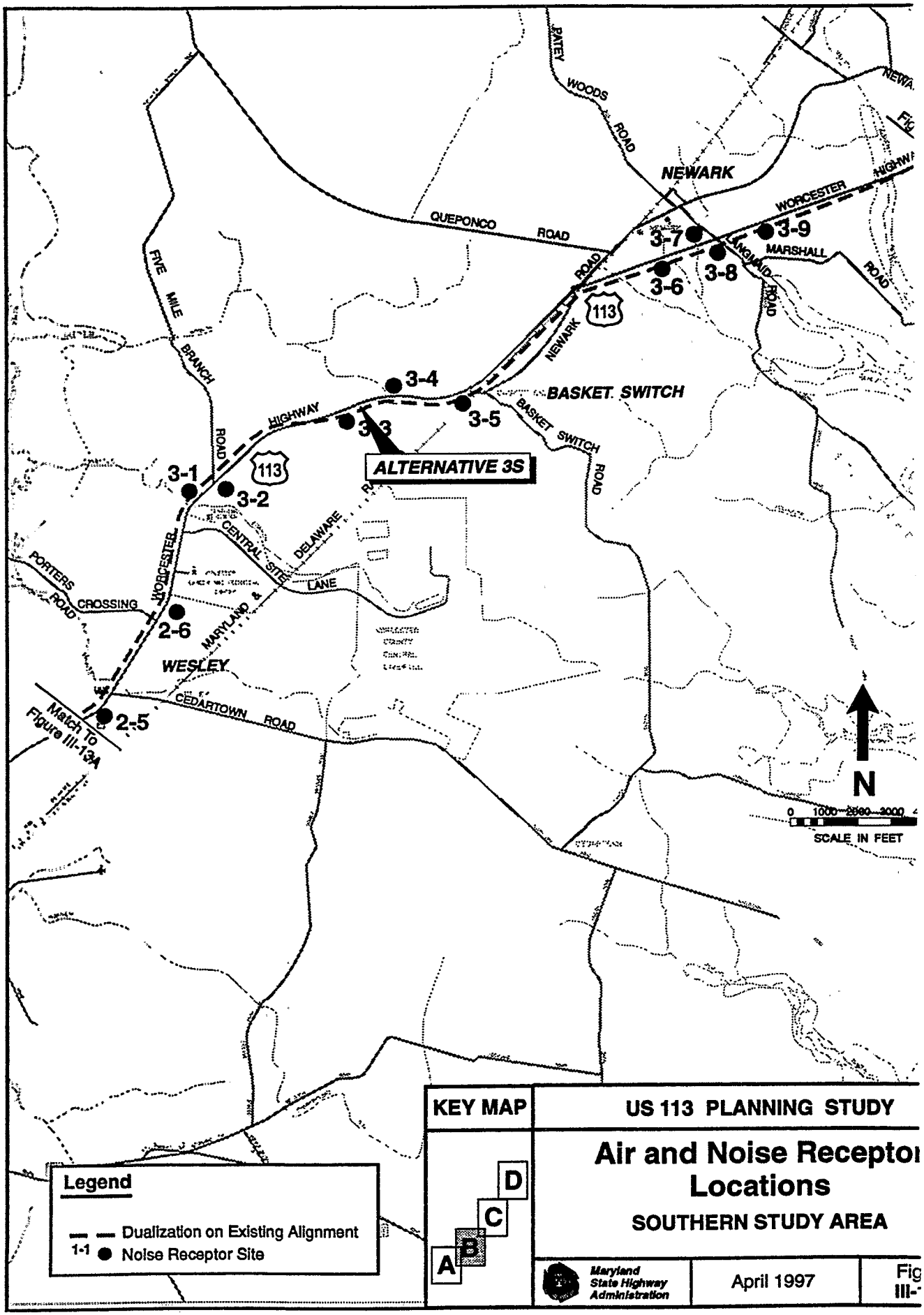
Table III-18: Sensitive Receptor Sites and Ambient Noise Levels, continued

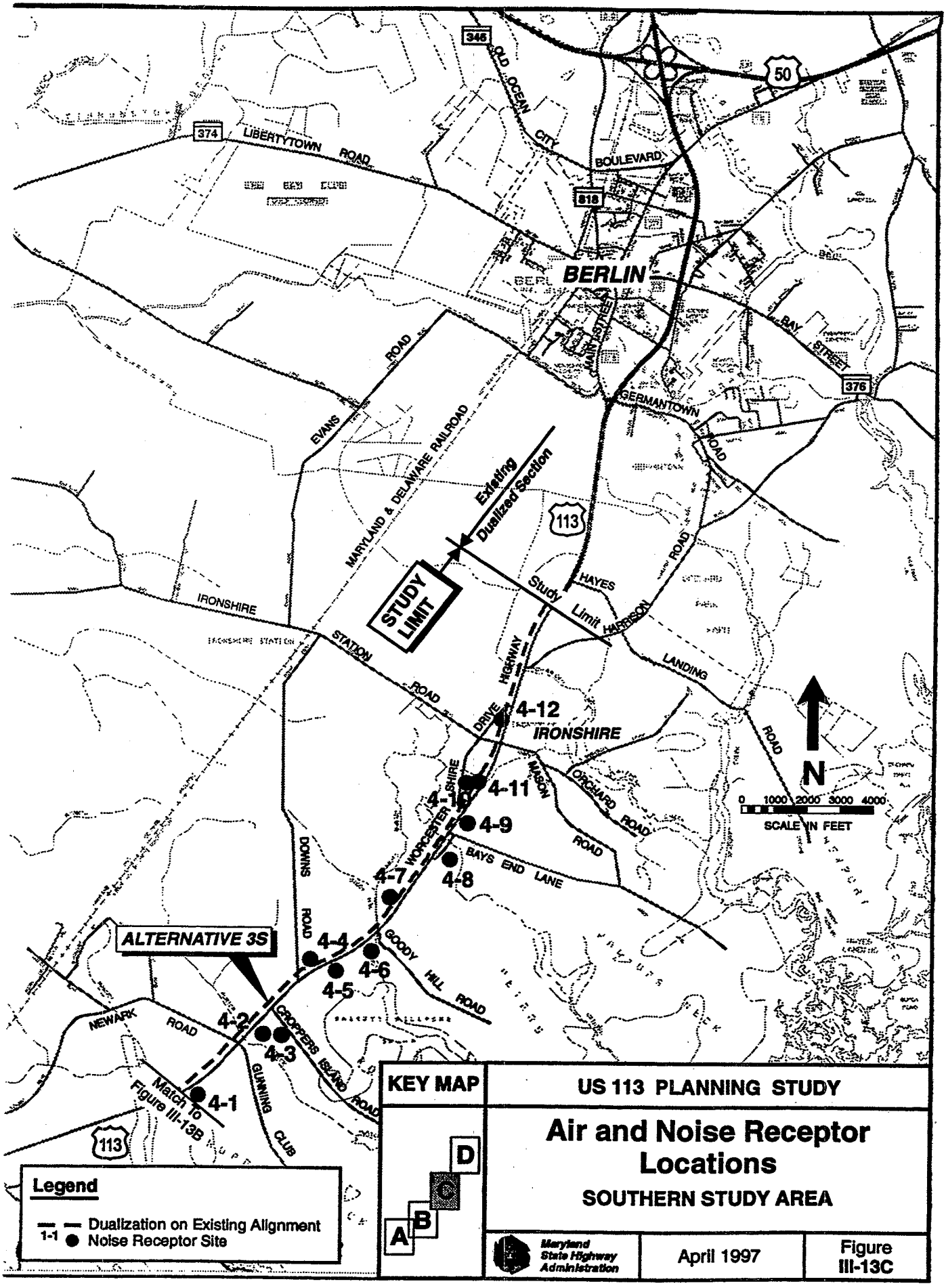
Site No.	Receptor Description	Ambient Noise Level L_{eq} (dBA)
4 - 8	Residence - 7924 Worcester Highway (US 113)	63
4 - 9	Residence - 8028 Worcester Highway (US 113)	64
4 - 10	Residence - 811 Shire Drive	58
4 - 11	Residence on Worcester Highway (US 113) with no address posted; 750 feet north of Shire Drive	63
4 - 12	Residence on Worcester Highway (US 113) with no address posted; 300 feet south of Ironshire Station Road	65
6 - 1	Residence - 10347 Worcester Highway (US 113)	63
6 - 2	Residence - 10421 Worcester Highway (US 113)	69
6 - 3	Residence - 10485 Worcester Highway (US 113)	69
6 - 4	Residence - 10494 Worcester Highway (US 113)	64
6 - 5	Residence on Worcester Highway (US 113) with no address posted; 450 feet south of Carey Road	63
6 - 6	Vic's Store - US 113; 125 feet south of Jones Road (Historic Site)	72
6 - 7	Residence on Carey Road with no address posted; 500 ft. west of US 113	59
6 - 8	Residence - 10239 Carey Road	58
6 - 9	Residence - 10680 Worcester Highway (US 113)	67
6 - 10	Residence - 10804 Worcester Highway (US 113)	60
6 - 11	Calvary Chapel - Victory Lane	52
6 - 12	Residence - 11047 Worcester Highway (US 113)	67
6 - 13	Residence - 11206 Worcester Highway (US 113) (Historic Site)	54
6 - 14	Residence - 11217 Worcester Highway (US 113)	65
6 - 15	Residence - 11241 Worcester Highway (US 113)	66
6 - 16	St. Martin's Church - Worcester Highway (US 113);300 ft. north of MD 589 (Historic Site)	65
6 - 17	Residence - 11628 Worcester Highway (US 113) (Historic Site)	65
6 - 18	Residence - 10129 Pitts Road	65
6 - 19	Showell Methodist Church - corner of Pitts Road and Church Road	65

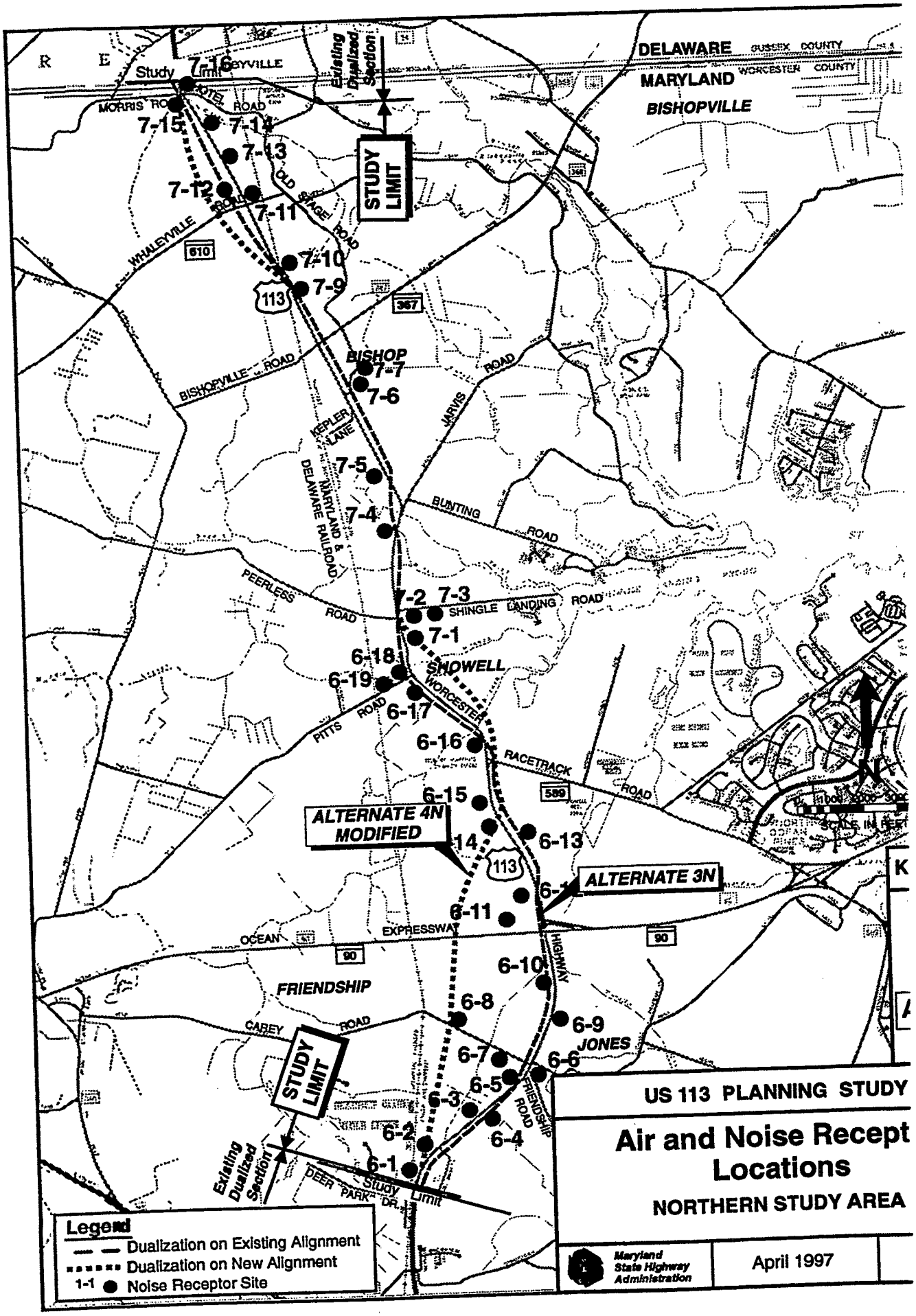
Table III-18: Sensitive Receptor Sites and Ambient Noise Levels, continued

Site No.	Receptor Description	Ambient Noise Level L_{eq} (dBA)
7 - 1	Residence on Worcester Highway (US 113) with no address posted; 500 feet south of Shingle Landing Road	73
7 - 2	Residence - 10122 Shingle Landing Road	55
7 - 3	Residence - 10204 Shingle Landing Road	59
7 - 4	Residential Property - 10045 Worcester Highway (US 113)	60
7 - 5	Residential Property - 12235 Worcester Highway (US 113)	68
7 - 6	Residence - 12538 Old Stage Road	56
7 - 7	Residence - 12558 Old Stage Road	53
7 - 9	Mausoleum - 1800 feet north of Bishopville Road	61
7 - 10	Residence - 12914 Worcester Highway (US 113)	69
7 - 11	Residence - 13102 Worcester Highway (US 113)	70
7 - 12	Residence on Worcester Highway (US 113) with no address posted; 400 feet north of MD 610	69
7 - 13	Residence - 13222 Worcester Highway (US 113)	70
7 - 14	Elk's Lodge 2173 on Worcester Highway (US 113) - no address posted; 1050 feet south of Hotel Road	72
7 - 15	Residence - 13419 Morris Road	62
7 - 16	Transpeninsular Line Marker (Historic Site)	65


Match To Figure III-13B
2-4
2-3
2-2
2-1
1-3
1-2
ALTERNATIVE 3S
SNOW HILL
POCOMOKE
MARKET STREET
WASHINGTON STREET
PUBLIC LANDING ROAD
BRICK KILN ROAD
MARYLAND & DELAWARE RAILROAD
TIMMONS ROAD
STUDY LIMIT
Existing Dualized Section
Study Limit
WORCESTER HIGHWAY
CASTLE HILL ROAD
WOODSIDE LANE
FOREST
12
354
394
365
113
N
0 1000 2000 3000 4000
SCALE IN FEET
Legend
Dualization on Existing Alignment
1-1 Noise Receptor Site
KEY MAP
A
B
C
D
US 113 PLANNING STUDY
Air and Noise Receptor Locations
SOUTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Figure III-13A


RATEY
WOODS
ROAD
NEWARK
QUEPONCO
ROAD
WORCESTER
HIGHWAY
3-7
3-9
3-8
3-6
MARSHALL
ROAD
LANGLAND
ROAD
FIVE MILE
BRANCH
ROAD
113
NEWARK
3-4
BASKET SWITCH
HIGHWAY
3-3
3-5
BASKET SWITCH
ROAD
ALTERNATIVE 3S
3-1
3-2
113
CENTRAL SITE
DELAWARE
LANE
PORTERS
ROAD
CROSSING
WORCESTER
2-6
MARYLAND &
WESLEY
CEDARTOWN ROAD
2-5
Match To
Figure III-13A
N
0 1000 2000 3000
SCALE IN FEET
Legend
Dualization on Existing Alignment
1-1 Noise Receptor Site
KEY MAP
A
B
C
D
US 113 PLANNING STUDY
Air and Noise Receptor Locations
SOUTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Fig
III-


346
OLD OCEAN CITY BOULEVARD
50
374
LIBERTYTOWN ROAD
818
BERLIN
MAIN STREET
BAY STREET
376
GERMANTOWN ROAD
EVANS ROAD
MARYLAND & DELAWARE RAILROAD
Existing Dualized Section
113
STUDY LIMIT
Study Limit
HAYES ROAD
HARRISON LANDING ROAD
IRONSHIRE
IRONSHIRE STATION ROAD
HIGHWAY
DRIVE
4-12
IRONSHIRE
MARION
ORCHARD ROAD
4-11
4-10
4-9
WORCESTER
BAYS END LANE
4-8
4-7
DOWNS ROAD
ROAD
ALTERNATIVE 3S
4-4
4-6
4-5
GOODY HILL ROAD
NEWARK ROAD
4-2
4-3
COOPERS ISLAND ROAD
GUNNING CLUB
Match to Figure III-13B
4-1
113
N
0 1000 2000 3000 4000
SCALE IN FEET
Legend
1-1 Dualization on Existing Alignment
Noise Receptor Site
KEY MAP
A
B
C
D
US 113 PLANNING STUDY
Air and Noise Receptor Locations
SOUTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Figure III-13C


DELAWARE
SUSSEX COUNTY
MARYLAND
WORCESTER COUNTY
BISHOPVILLE
Study Limit
Existing Dualized Section
STUDY LIMIT
MORRIS ROAD
HOTEL ROAD
OLD STAGE ROAD
WHALEYVILLE ROAD
610
113
367
BISHOPVILLE-PRINCESS ANNE ROAD
BISHOP
KEPLER LANE
MARYLAND & DELAWARE RAILROAD
JARVIS ROAD
BUNTING ROAD
PEERLESS ROAD
SHINGLE LANDING ROAD
SHOWELL
WORCESTER
PITTS ROAD
RACETRACK ROAD
589
ALTERNATE 4N MODIFIED
ALTERNATE 3N
OCEAN EXPRESSWAY
90
HIGHWAY
FRIENDSHIP
CAREY ROAD
JONES
FRIENDSHIP ROAD
DEER PARK DR.
Study Limit
7-16
7-15
7-14
7-13
7-12
7-11
7-10
7-9
7-7
7-6
7-5
7-4
7-3
7-2
7-1
6-18
6-19
6-17
6-16
6-15
14
6-13
6-12
6-11
6-10
6-8
6-9
6-7
6-6
6-5
6-3
6-4
6-2
6-1
Legend
Dualization on Existing Alignment
Dualization on New Alignment
1-1 Noise Receptor Site
US 113 PLANNING STUDY
Air and Noise Recept Locations
NORTHERN STUDY AREA
Maryland State Highway Administration
April 1997

L. Visual Quality

From a recreational standpoint, it is common for Americans to drive for pleasure along scenic roads. Additional mobile viewers of the landscape include commuters to work and truck drivers, among others. Stationary viewers of visual landscape include residents, farmers, business employees, consumers, and tourists.

1. Existing Visual Environment

The topography of the study area is relatively flat and the viewsheds are large. No scenic vistas or visually sensitive receptors exist within the study area.

The existing study area is predominantly rural farmland with small residential areas and communities scattered along the project limits. The visual landscape in the study area is dominated by these farms, mostly chicken farms, with vegetation bordering the roadway.

2. Methodology

Viewsheds were determined by review of land use mapping and field reconnaissance throughout the study area to assist in the evaluation of the visual quality of the area. A viewshed is "the surface area visible from a given viewpoint or series of viewpoints; it is also the area from which that viewpoint or series of viewpoints may be seen" (FHWA, 1981). It may also be defined as, "a tool for identifying the views that a project could actually affect" (FHWA, 1981).

M. Municipal, Industrial and Residual Waste Sites

1. Initial Site Assessment

Municipal, industrial and residual wastes and other environmentally sensitive materials may pose a considerable threat to human or environmental health if improperly treated, stored, or disposed of. An Initial Site Assessment (ISA) was conducted to identify and inventory municipal, industrial, and private properties which are known to or suspected to contain waste materials. The investigation consisted of a database search, property records research, field reconnaissance, and potential liability determination. The following databases were used during the background research:

- National Priority List (NPL)
- Delisted NPL (NPL Deletions)
- Resource Conservation and Recovery Information System (RCRIS-TSD)
- Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS)
- Comprehensive Environmental Response, Compensation, and Liability Information System (CERC-NFRAP)

- Corrective Action Report (CORRACTS)
- Permitted Aboveground Storage Tanks (AST)
- RCRA Administrative Action Tracking System (RAATS)
- Hazardous Materials Information Reporting System (HMIRS)
- PCB Activity Database System (PADS)
- Toxic Chemical Release Inventory System (TRIS)
- Federal Superfund Liens (NPL Liens)
- Toxic Substance Control Act (TSCA)
- Former Manufactured Gas Sites (Coal Gas)
- EPA Emergency Response Notification System (ERNS)
- State Hazardous Waste Site (SHWS)

The search of available Federal and state databases was conducted in accordance with the specific requirements of American Society for Testing and Materials (ASTM) standard practice for Environmental Site Assessment (E 1527-94). Full documentation for all sites found within the ASTM-specified study radii is located in the Initial Site Assessment prepared for this project in December 1995. A review of the Maryland Department of the Environment (MDE) Hazardous Waste Management Section's files was made in conjunction with this study.

2. Preliminary Field Reconnaissance Results

In general, the corridor is characterized agricultural and residential land uses. Many of the residential properties use fuel oil for home heating. This however, represents a minimal threat to the project and unless other factors of concern were noted, these residential sites were not included in the potential waste inventory.

The preliminary field reconnaissance revealed 23 potentially contaminated sites within the southern and northern study areas. Sites were ranked, based upon the perceived potential to pose a waste materials liability to the proposed project. The rankings are high, moderate, and low potential liability. Factors influencing the ranking of perceived potential threats include:

- The nature of the site activity,
- History of site use,
- Location of the site in relation to the study area,
- The observed condition of the site,
- Significance of database records for the site,
- Whether the site has a history of controlled material spills, hazardous materials handling, or waste production.

Sites that possess a high potential for liability are sites that either via direct observation, database records, or site use history present some potential to contain contamination. Sites that possess a moderate potential usually are included based on current or historic site use or documentation, but no evidence of potential contamination was revealed during the ISA.

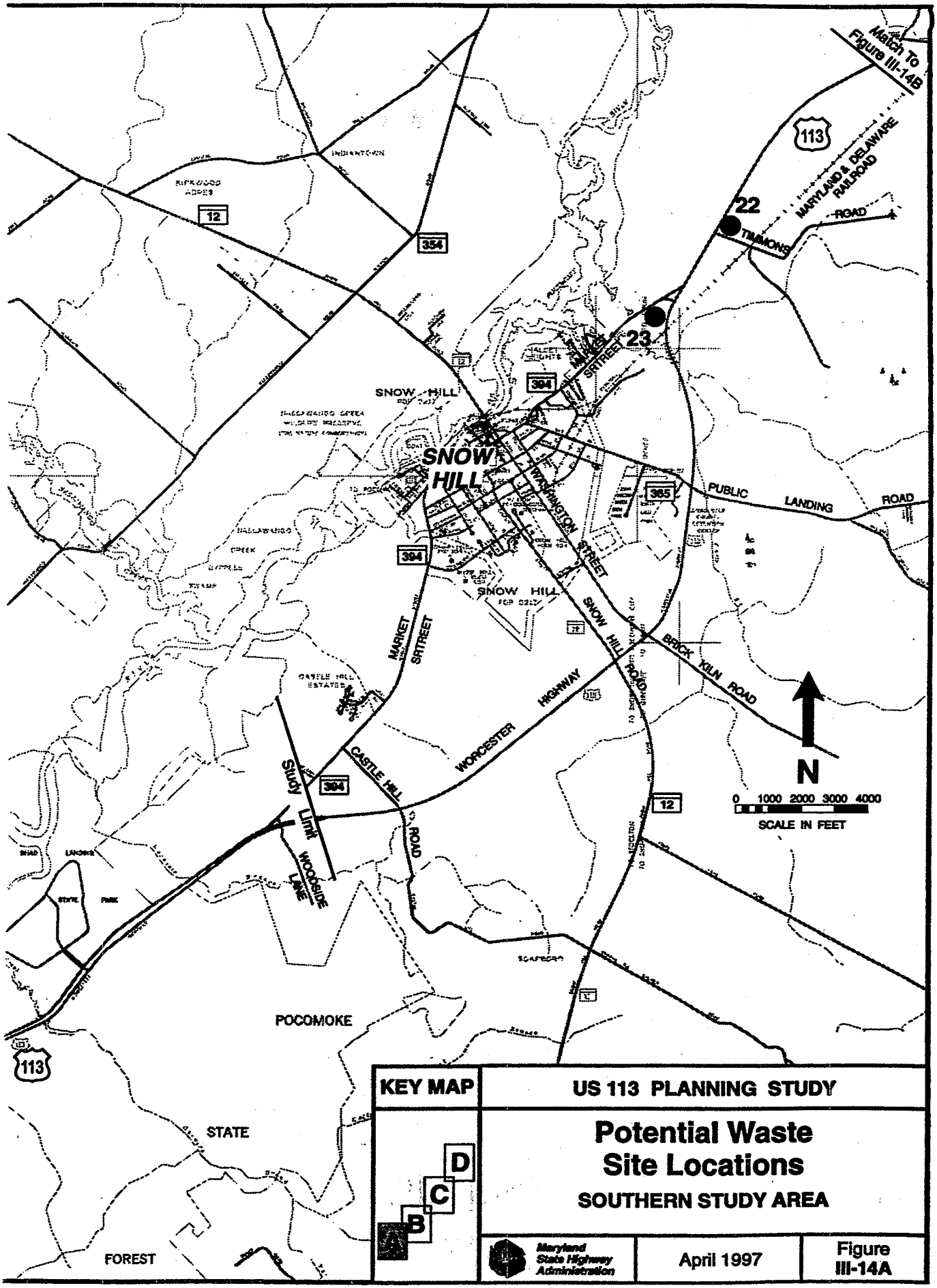
Sites that possess a low potential are included based on current or historic site use or documentation, however evidence gathered during the ISA revealed little likelihood of contamination. The analysis of the databases and preliminary field reconnaissance data that these sites may warrant further investigation and possible sampling and analysis. Three sites have a high potential for liability and warrant formal Phase I study and will probably require Phase II investigation. Sixteen sites possess a moderate potential for liability and while needing formal Phase I study will probably not require a Phase II investigation. Four additional sites have a low liability potential and should not require any additional investigation after the formal Phase I studies. Table III-19 lists the identified potential waste sites with the nature of the contamination and potential for liability. The locations of these sites are shown on Figures III-14A through 14D. More detailed information concerning the assessment methodology and findings is contained in the Hazardous Waste Initial Site Assessment (Gannett Fleming, 1995).

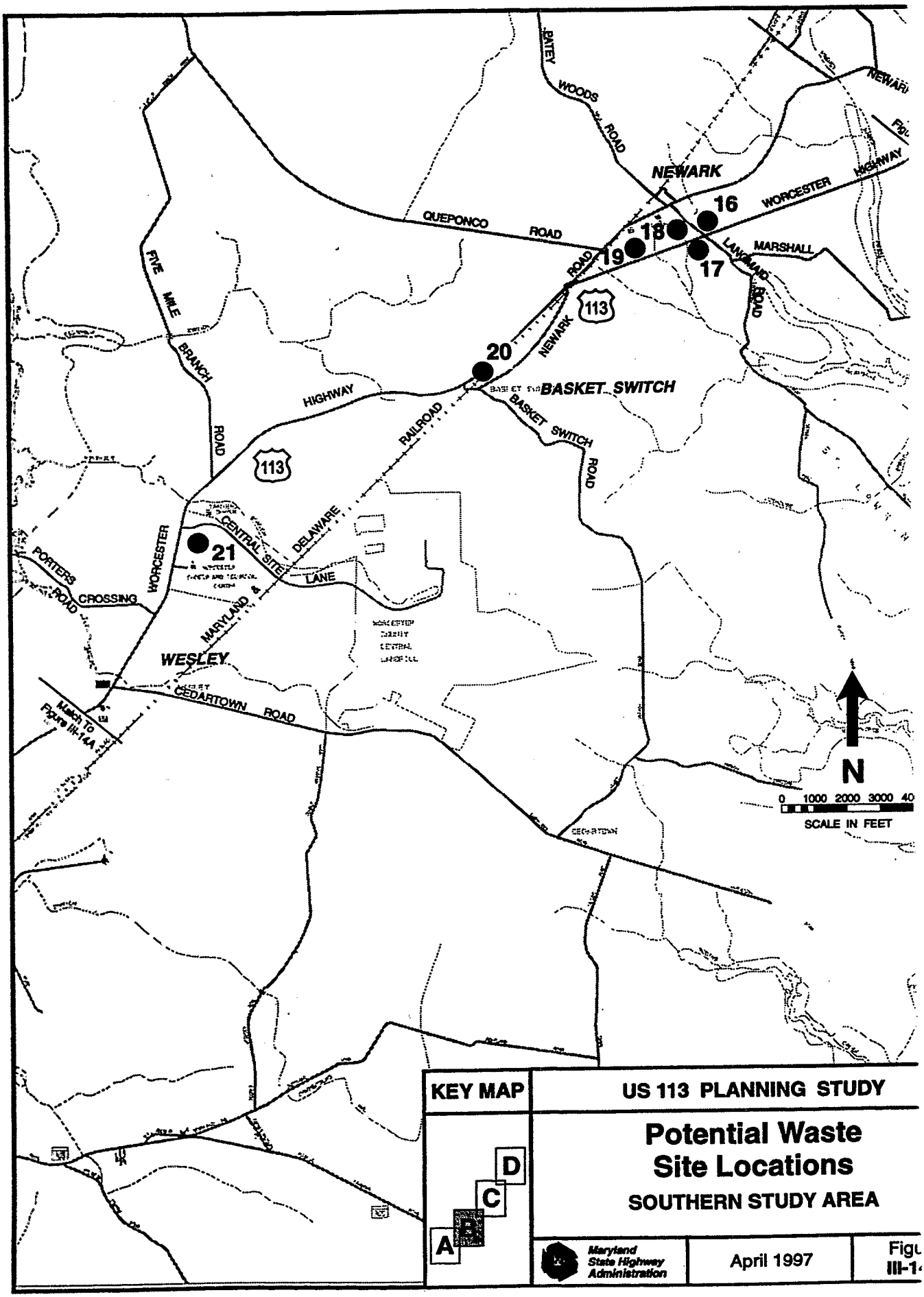
An area containing drums was identified by the US Army Corps of Engineers during wetland field reviews. This area was not identified as a site during preparation of the ISA. There are no records of waste material sites or source events at the identified location. The contents of the drums is unknown. If this area would be impacted by proposed expansion activity, then this location should be added to the sites to receive Phase I site investigations. The potential risk posed by the drums can be characterized at that time. This site, identified as site 24, has been added to the list of potential waste sites.

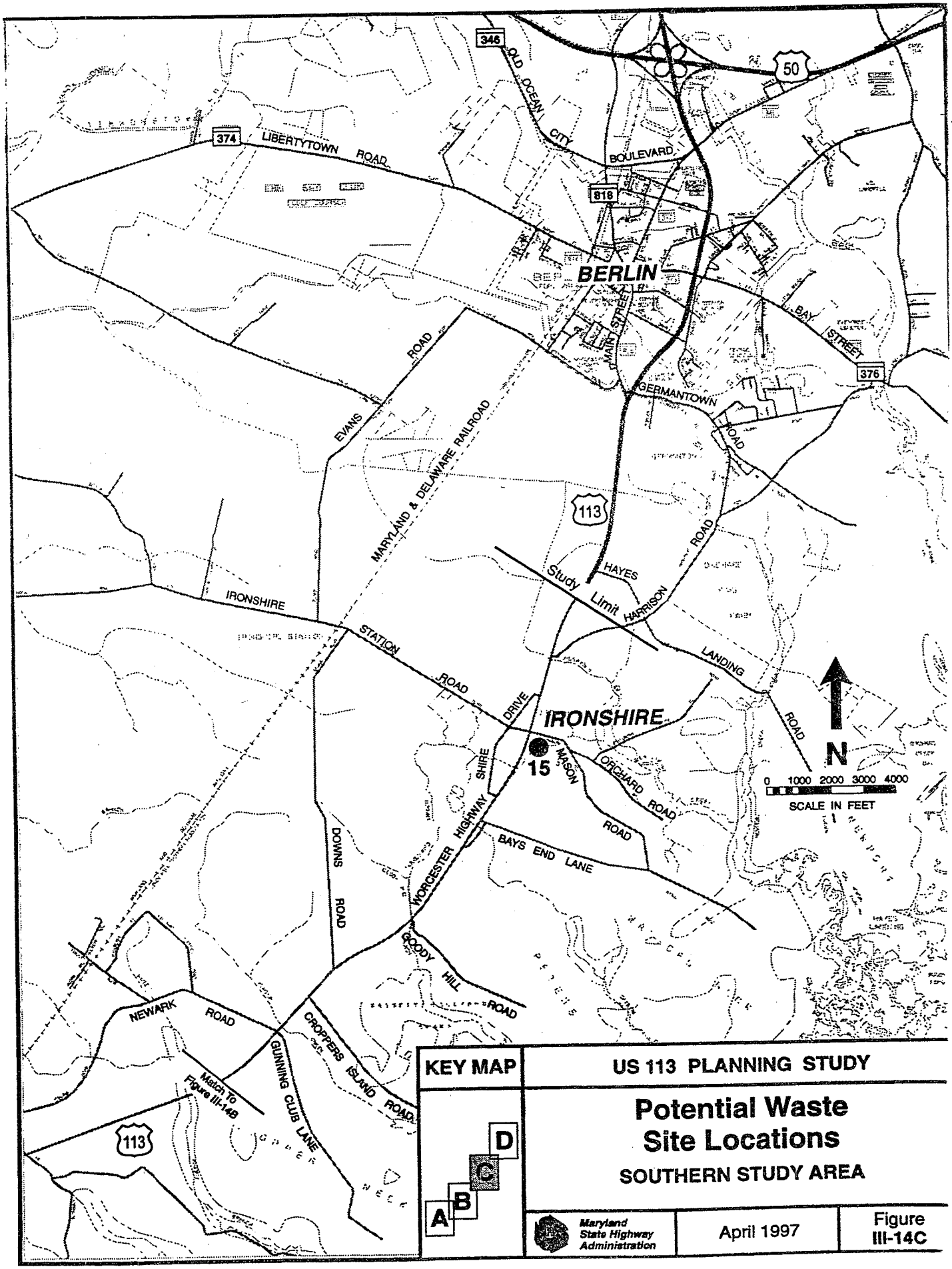
Table III-19: Potential Wastes Sites

Site ID	Potential Site	Nature of the Potential Contamination	Potential Liability
1	Ocean Designs Fiberglass and Boat Works	Boat repair; paint, solvent, petroleum products storage	Moderate
2	Cross Roads Carry Out	Possible former gasoline pumping station	Low
3	Abandoned Rendering Plant	Former industrial site; abandoned tanker trucks, process vessels, and 55-gallon drums found on site	High
4	TMT Design Co. 12829 Worcester Highway	Vehicle storage	Low
5	Sharpgas Propane Tank Enclosure	Propane storage and 55-gallon drums of solvents	Low
6	Open Field	Possible former mobile home manufacturing site; rusted paint cans and a 55-gallon drum found on site	Moderate
7	Kary Asphalt	Active asphalt processing facility	Moderate
8	Perdue Farms Hatchery #7	Above-ground and underground storage tanks	High
9	Hammonds Store	Gasoline pumps, a small repair garage, propane tank, fuel oil tank, and several 55-gallon drums on site	Moderate
10	Showell Poultry Processing Plant	Underground storage tanks	High
11	Davis Electric	Old gasoline pump	Moderate
12	Vic's Country Store	Former gasoline pumping station	Moderate
13	Sandbar Marine	Boat repair; paint, solvent, petroleum products storage	Moderate
14	9941 Deer Park	55-gallon drums	Moderate
15	The Little Country Store Deli/Gas Station	Former Gasoline pumping station	Low
16	Newark Station Strip Stores	Gasoline pumping station and kerosene pump; offices of Ocean Petroleum	Moderate
17	Air Illusions Paint Shop	Paint and solvent storage	Moderate
18	Custom Screen Printing Company	Inflammable materials storage	Moderate
19	Town of Newark Sewage Treatment Ponds	Sewage treatment ponds and chlorine storage	Moderate
20	Residential/Manufacturing Property	Vehicle storage and gasoline pumping	Moderate
21	Landfill Office	Underground storage tanks	Moderate
22	Worcester County Roads Maintenance Facility	Vehicle maintenance and storage, materials storage, and fuel pumping	Moderate
23	Duck-in Convenience Store	Gasoline pumping station	Moderate
24	Station 2315±	Drums of unknown content	TBD *

* to be determined


Match To Figure III-14B
113
MARYLAND & DELAWARE RAILROAD
ROAD
22
TIMMONS
23
MARKET STREET
SNOW HILL
354
12
394
SNOW HILL
WASHINGTON STREET
365
PUBLIC LANDING ROAD
SNOW HILL
MARKET STREET
SNOW HILL ROAD
BRICK KILN ROAD
HIGHWAY
WORCESTER
CASTLE HILL
ROAD
Study Limit
WOODSIDE LANE
POCOMOKE
STATE
FOREST
N
0 1000 2000 3000 4000
SCALE IN FEET
KEY MAP
A
B
C
D
US 113 PLANNING STUDY
Potential Waste Site Locations
SOUTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Figure III-14A


PATEY
WOODS ROAD
NEWARK
WORCESTER HIGHWAY
QUEPONCO ROAD
16
18
19
17
MARSHALL
LANGHAM ROAD
FIVE MILE BRANCH ROAD
113
NEWARK
20
BASKET SWITCH
HIGHWAY
RAILROAD
BASKET SWITCH ROAD
113
CENTRAL SITE
DELAWARE
LANE
21
PORTERS CROSSING ROAD
WORCESTER
MARYLAND
WESLEY
CEDARTOWN ROAD
Match To Figure III-14A
N
0 1000 2000 3000 40
SCALE IN FEET
KEY MAP
A
B
C
D
US 113 PLANNING STUDY
Potential Waste Site Locations
SOUTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Figu
III-1

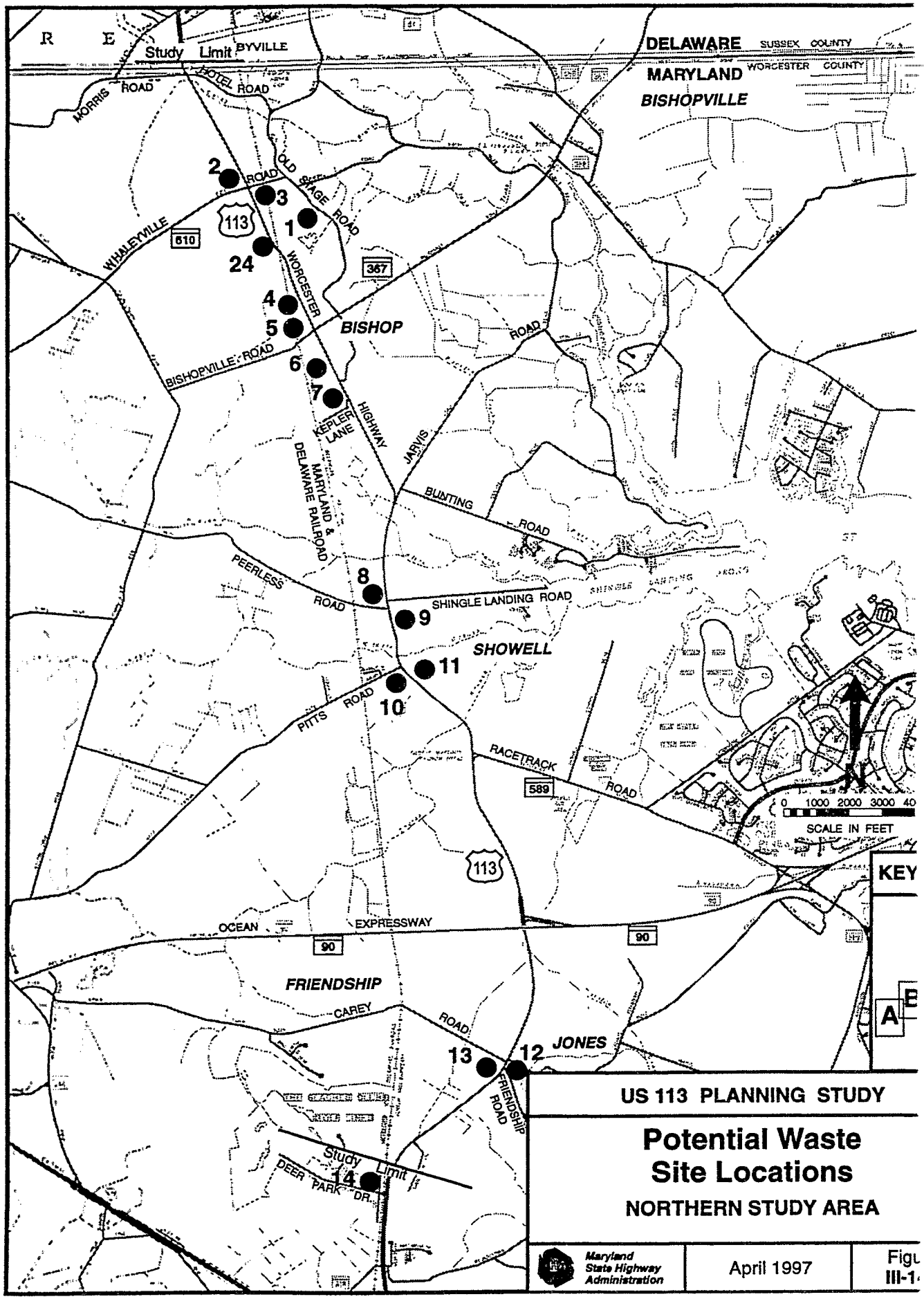


US 113 PLANNING STUDY

Potential Waste Site Locations

SOUTHERN STUDY AREA

Maryland State Highway Administration | April 1997 | Figure III-14C



US 113 PLANNING STUDY

Potential Waste Site Locations

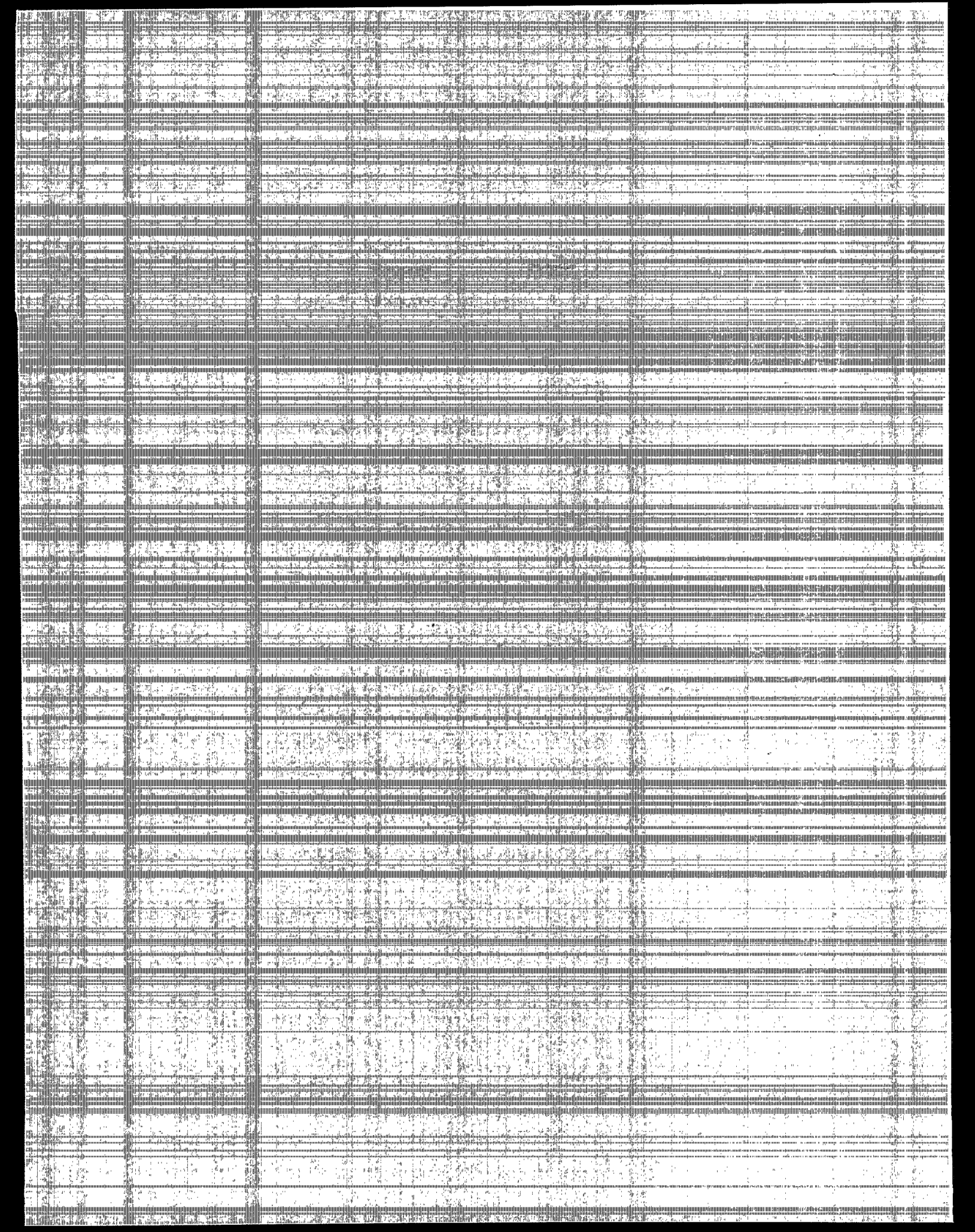
NORTHERN STUDY AREA

Maryland State Highway Administration | April 1997 | Figu III-1

IV.
ENVIRONMENTAL CONSEQUENCES

US 113 Planning Study
Snow Hill, Maryland to Delaware State Line

Office of Planning and Preliminary Engineering
Maryland State Highway Administration



IV. ENVIRONMENTAL CONSEQUENCES

The environmental consequences of the alternatives under consideration are described in this chapter of the DEIS, as well as a discussion of the consequences of avoidance and minimization of these impacts. Mitigation measures are also discussed where appropriate. The extent of impacts discussed in this chapter, as well as further opportunities to avoid and minimize impacts, will be refined during preliminary engineering, should a build alternative be selected.

A. Traffic and Transportation Network

Worcester County's transportation system is dominated by a combination of federal, state and county roads. US 113, the major north-south route serving the County, accommodates a wide range of vehicular traffic, including rural agricultural/residential trips, commercial trips, recreational trips, and through trips. Bus service consists of numerous school bus trips and demand response rural transit operated by the County's Commission on Aging. As discussed in Chapter III, Section A, the extensive poultry industry throughout the Eastern Shore contributes to the truck traffic along US 113. Tourist attractions, such as Ocean City, Pocomoke River State Park, Assateague Island and additional shoreline attractions located along the Eastern Shore, contribute to traffic demands that increase significantly during the summer months. US 113 is a four-lane divided roadway south of Snow Hill, through the Berlin area, and north of the Delaware State Line. The remaining two segments of US 113 consist of two-lane undivided highway.

The current **ADT** (year 1995) ranges from 3,500 to 7,500 vehicles per day for the southern study area and 6,400 to 12,200 vehicles per day for the northern study area. The current **summer ADT** (1995) ranges from 4,900 to 8,900 vehicles per day for the southern study area and 8,300 to 18,500 vehicles per day for the northern study area. Summer ADT volumes range from 19 percent to 52 percent higher than the yearly ADT for the same portion of US 113. Existing ADT volumes are presented in Table I-1 and on Figures IV-1A through 1D. Trucks currently make up 14 percent of the ADT volumes on US 113.

Design year (2020) traffic forecasts were prepared in accordance with the Comprehensive Development Plan for Worcester County and assume completion of four lanes along US 113 in Delaware. These design year forecasts indicate a 1 percent difference among the alternatives under consideration (i.e. between the No-Build and Dualize alternatives). The design year ADT for the southern study area ranges from 5,000 to 10,800 vehicles per day and 7,000 to 12,900 vehicles per day during the summer months. The design year ADT for the northern study area ranges from 10,100 to 20,000 vehicles per day during non-summer timeframe (or months) and 13,600 to 30,400 vehicles per day during the summer months. Projected ADT volumes are presented in Table I-1 and Figures IV-1A through 1D.

Traffic flow is measured by determining a level of service (LOS) for the roadway (see Chapter I, Section C for a description of each level of service). Each level of service coincides with conditions that drivers experience while traveling along a roadway. LOS designations, from A to F, are used to define traffic operations on any given section of highway. LOS A indicates ideal conditions and

LOS F indicates severe congestion with substantial delays. In the rural/agricultural areas through which US 113 passes (i.e., outside of the corporate limits of Berlin), travelers expect traffic conditions to be free of congestion, as represented by LOS A, B, or C.

The following paragraphs summarize expected traffic operations under each of the alternatives retained for detailed study:

1. No-Build Alternatives Baseline (Alternatives 1S and 1N)

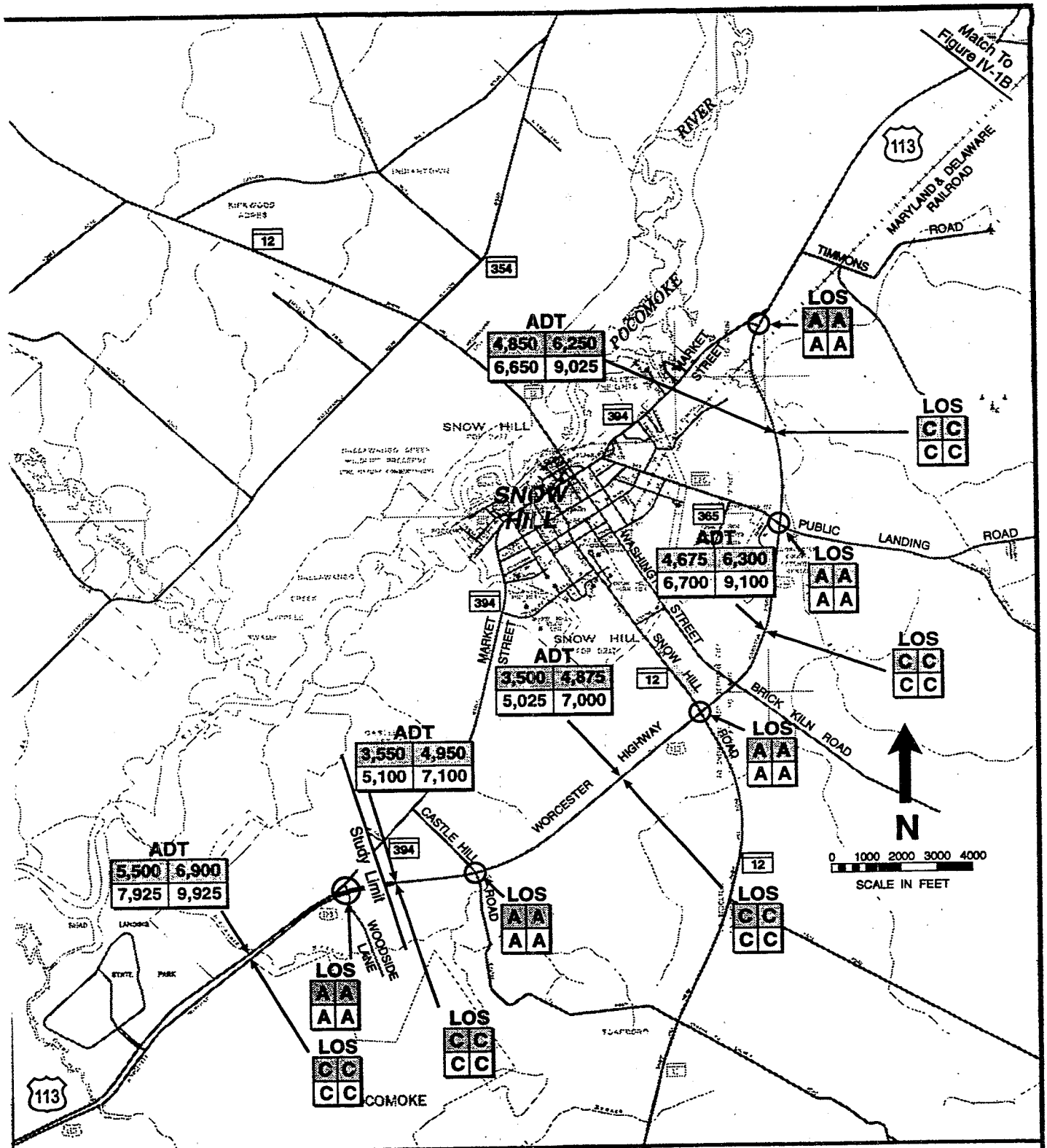
The No-Build Alternatives, as described in Chapter II, Section D.2, would not provide major improvements to the existing US 113 roadways. Specific improvements recently implemented or programmed for implementation are listed in Tables II-1A through 1D, and the locations of these improvements are shown on Figures II-2A through II-2D. Typical sections are shown on Figure II-3. The routine maintenance operations would not measurably affect roadway capacity. Spot improvements would continue as funding becomes available. Although the No-Build Alternatives will not meet the project need, they are being used as a basis of comparison for the analysis of the other alternatives. Existing and design year 2020 levels of service for the No-Build Alternatives are presented on Figures IV-1A through 1D and summarized on Table S-1.

2. Transportation Systems Management Alternatives (Alternatives 2S and 2N)

The Transportation Systems Management (TSM) Alternatives, as described in Chapter II, Section D.3, would provide improvements along the existing roadway to enhance safety and reduce traffic congestion without adding through traffic capacity or other major alterations to the existing two lane highway. The TSM improvements include intersection improvements and additional measures to improve the safety of the existing two-lane roadway. The TSM Alternatives include continued short-term spot improvements such as signing and marking, street lighting, and warning flashers, and addresses longer-term improvements with additional turning, acceleration/deceleration, and bypass lanes; skid resistant pavement overlays; rumble slots along the centerline and along the outside edges of pavement; and, the limiting of passing through some areas. The improvements would be prioritized during the final design phase. The TSM improvements are listed in Tables II-1A through 1D, and locations of these improvements are shown on Figures II-2A through 2D. Typical sections are shown on Figure II-3. Traffic operations (LOS) would be similar to the No-Build Alternatives, as shown on Figures IV-1A through 1D and as summarized on Table S-1.

3. Two-Lanes with 20' Median Alternative (Alternative 2S-20' Median)

This alternative would provide a 20-foot wide median (either paved or grass) with guardrail and typically one (1) lane per direction along existing US 113 in only the southern study area (see Chapter II, Section D.4.). At intersections, left turn lanes would be provided in the



Legend

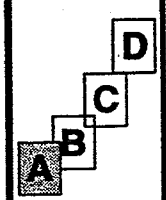
Average Daily Traffic (ADT)

	Yearly (weekdays all year)	Summer (Saturdays Memorial Day to Labor Day)
1995	5,500	6,900
2020	7,925	9,925

Level of Service (LOS)

	Yearly (weekdays all year)	Summer (Saturdays Memorial Day to Labor Day)
1995	C	C
2020	C	C

KEY MAP



US 113 PLANNING STUDY

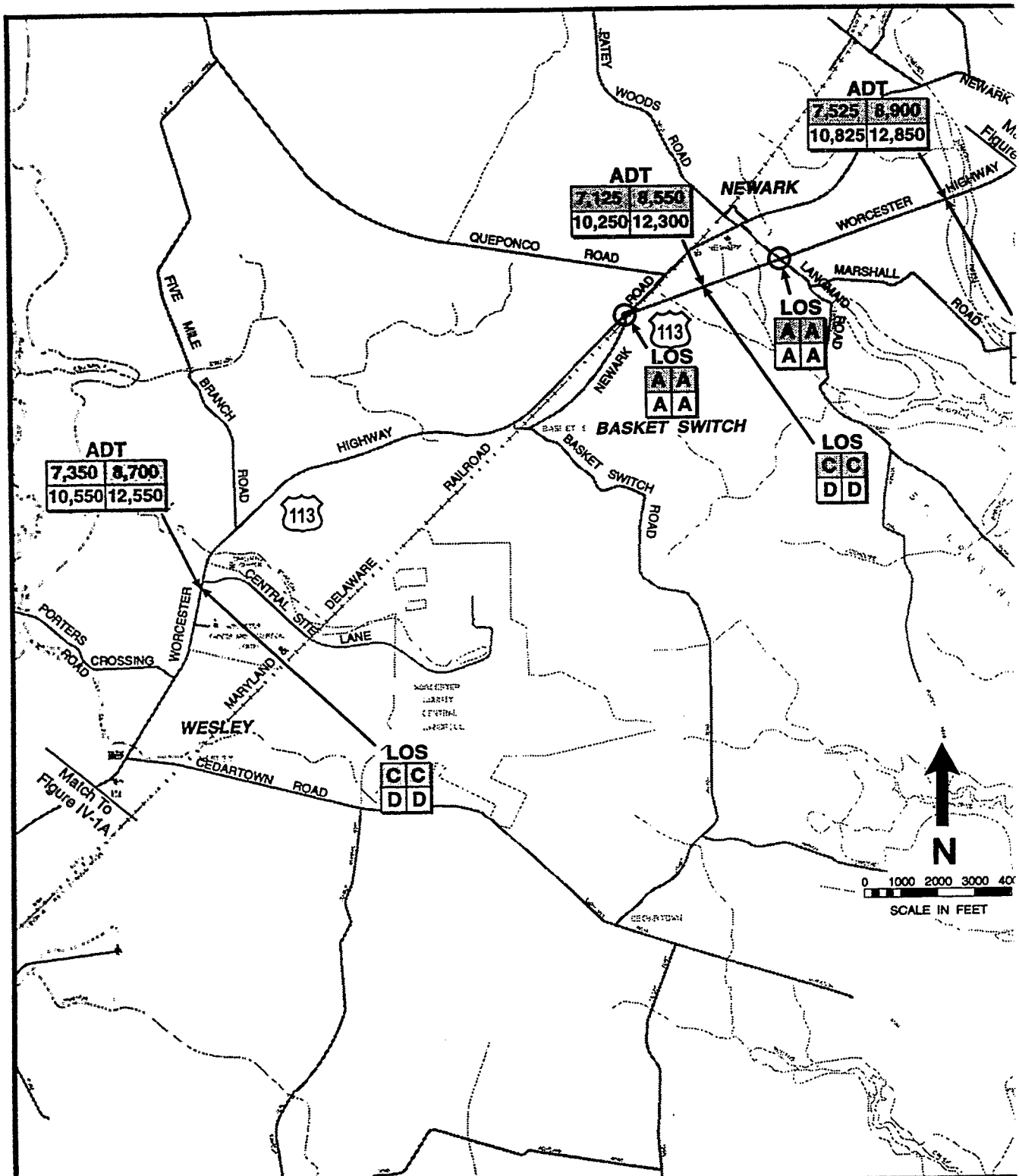
1995 & No-Build 2020 ADT & LOS

SOUTHERN STUDY AREA

Maryland State Highway Administration

April 1997

Figure IV-1A



Legend

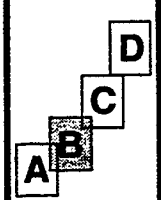
Average Daily Traffic (ADT)

	Yearly (weekdays all year)	Summer (Saturdays Memorial Day to Labor Day)
1995	5,500	6,900
2020	7,925	9,925

Level of Service (LOS)

	Yearly (weekdays all year)	Summer (Saturdays Memorial Day to Labor Day)
1995	C	C
2020	C	C

KEY MAP



US 113 PLANNING STUDY

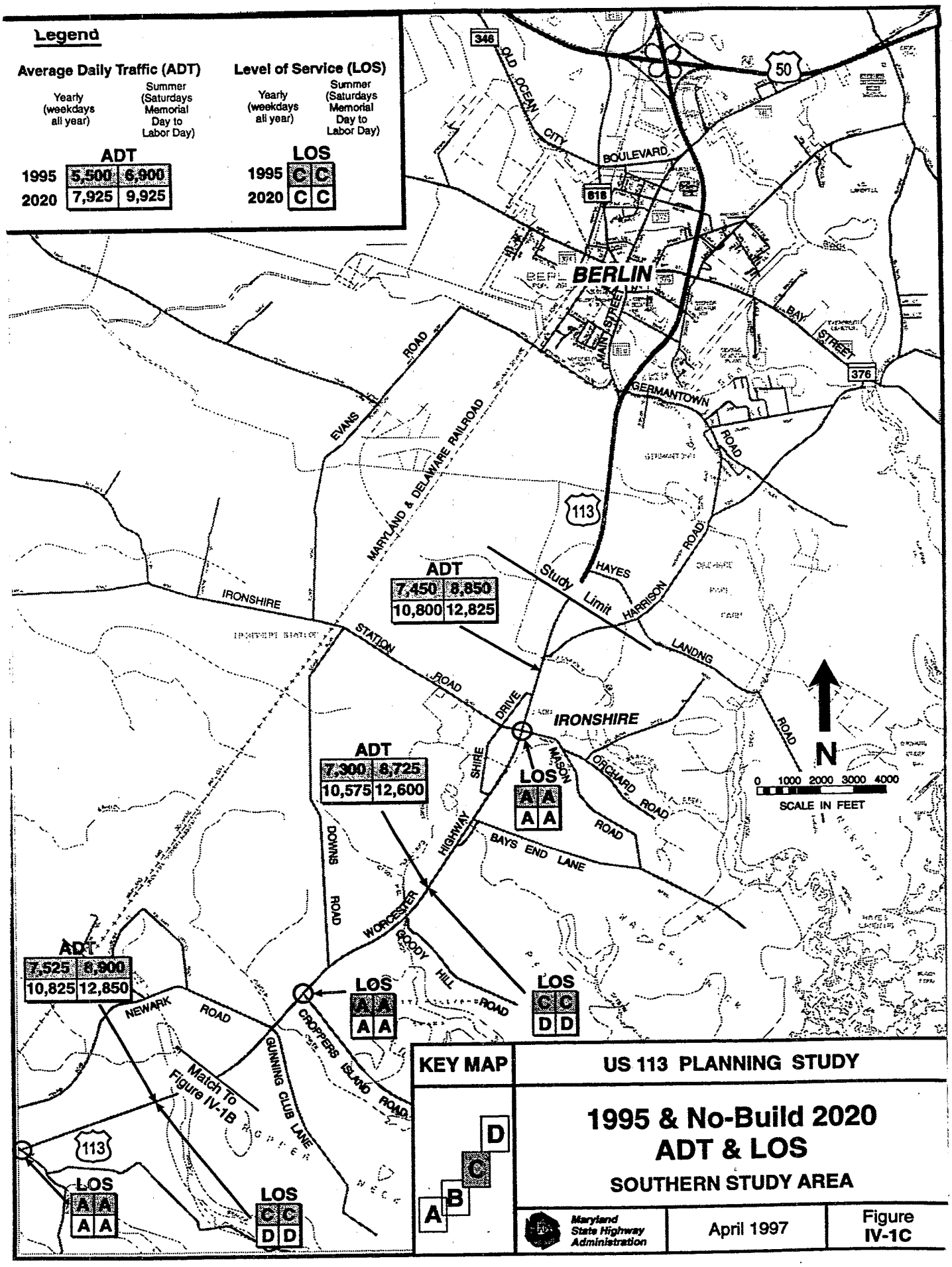
1995 & No-Build 2020 ADT & LOS

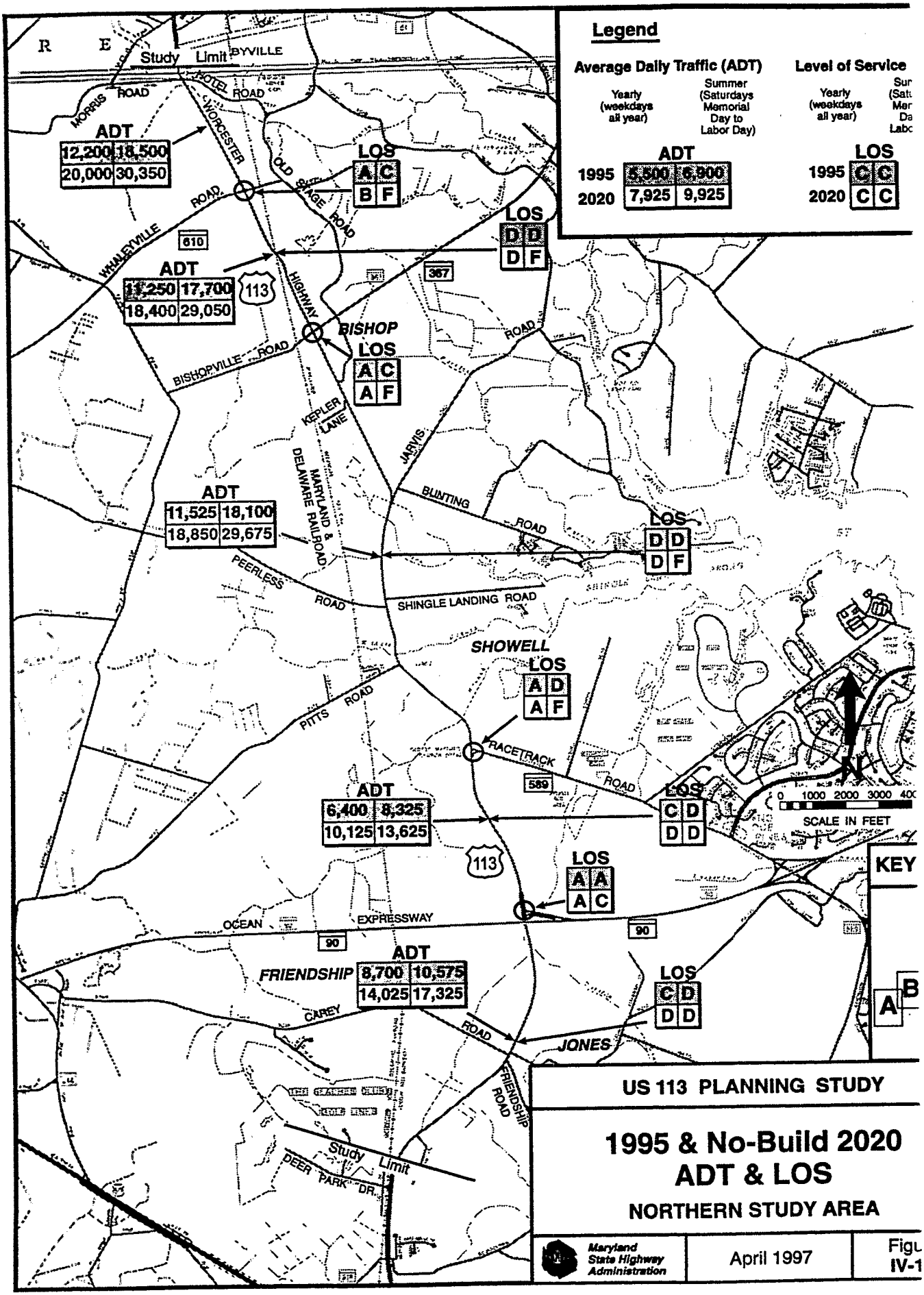
SOUTHERN STUDY AREA

Maryland State Highway Administration

April 1997

Figu IV-


Legend
Average Daily Traffic (ADT)
Yearly (weekdays all year)
Summer (Saturdays Memorial Day to Labor Day)
ADT
1995 5,500 6,900
2020 7,925 9,925
Level of Service (LOS)
Yearly (weekdays all year)
Summer (Saturdays Memorial Day to Labor Day)
LOS
1995 C C
2020 C C
348
OLD OCEAN CITY BOULEVARD
50
818
BERLIN
MAIN STREET
BAY STREET
376
GERMANTOWN ROAD
EVANS ROAD
MARYLAND & DELAWARE RAILROAD
113
HAYES ROAD
Study Limit
HARRISON LANDING ROAD
IRONSHIRE STATION ROAD
ADT
7,450 8,850
10,800 12,825
IRONSHIRE
DRIVE
MASON ORCHARD ROAD
LOS
A A
A A
ADT
7,300 8,725
10,575 12,600
DOWNS ROAD
HIGHWAY
BAYS END LANE
WORCESTER
GOODY HILL ROAD
ADT
7,525 8,900
10,825 12,850
NEWARK ROAD
LOS
A A
A A
LOS
C C
D D
CROPPERS ISLAND ROAD
GUNNING CLUB LANE
Match To Figure IV-1B
113
LOS
A A
A A
LOS
C C
D D
N
0 1000 2000 3000 4000
SCALE IN FEET
KEY MAP
A B C D
US 113 PLANNING STUDY
1995 & No-Build 2020 ADT & LOS
SOUTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Figure IV-1C


Legend
Average Daily Traffic (ADT)
Yearly (weekdays all year)
Summer (Saturdays Memorial Day to Labor Day)
Level of Service
Yearly (weekdays all year)
ADT
1995 5,500 6,900
2020 7,925 9,925
LOS
1995 C C
2020 C C
Study Limit
BYVILLE
MOTEL ROAD
MORRIS ROAD
WORCESTER
OLD STAGE ROAD
WHALEYVILLE ROAD
610
ADT
12,200 18,500
20,000 30,350
LOS
A C
B F
LOS
D D
D F
367
ADT
11,250 17,700
18,400 29,050
113
HIGHWAY
BISHOP
LOS
A C
A F
ROAD
BISHOPVILLE ROAD
KEPLER LANE
MARYLAND & DELAWARE RAILROAD
JARVIS
BUNTING ROAD
ADT
11,525 18,100
18,850 29,675
LOS
D D
D F
PEERLESS ROAD
SHINGLE LANDING ROAD
SHOWELL
LOS
A D
A F
PITTS ROAD
RACETRACK ROAD
589
ADT
6,400 8,325
10,125 13,625
LOS
C D
D D
0 1000 2000 3000 400
SCALE IN FEET
KEY
113
LOS
A A
A C
OCEAN EXPRESSWAY
90
90
ADT
FRIENDSHIP
8,700 10,575
14,025 17,325
LOS
C D
D D
CAREY ROAD
JONES
FRIENDSHIP ROAD
Study Limit
DEER PARK DR.
A B
US 113 PLANNING STUDY
1995 & No-Build 2020
ADT & LOS
NORTHERN STUDY AREA
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Figu
IV-1

median; right turn lanes would be provided where warranted by traffic volumes. In order to facilitate passing maneuvers, four (4) passing lanes 12-feet in width and approximately 1 to 1.25 miles in length (2 for northbound and 2 for southbound traffic) would be provided. Typical sections are shown on Figure II-4. The seven (7) plates for this alternative are presented in Appendix A (Scale: 1" = 400').

Traffic operations at intersections under this alternative would improve over the No-Build due to the provision of turn lanes at cross streets; although the basic number of lanes would remain at two with NO PASSING opportunities being severely limited in comparison to the No-Build and all other alternatives (i.e. passing would only be permitted along the four (4) passing lanes). In summary, traffic operations (LOS) would probably average slightly better than the No-Build Alternative 1S, as shown on Figures IV-1A through 1C and as summarized on Table S-1.

4. Dualization Alternatives (Alternatives 3S, 3N, 4N Modified, and Combination Alternatives)

Each of the dualization alternatives, as described in Chapter II, Sections D.5. through D.9, propose a four-lane divided roadway with a median (both 20- foot wide and 34-foot wide medians are being evaluated). Access would be partially controlled. The dualization alternatives in the southern study area are being evaluated in accordance with 60 MPH design criteria (Alternative 3S); 50 MPH and 60 MPH design criteria are being evaluated for the dualization alternatives along existing US 113 in the northern study area 3N alternatives; and the new location and combination alternatives are being evaluated for 60 MPH design criteria. Typical sections are shown on Figures II-6, -7, and -8. The ten (10) plates for the dualization alternatives are presented in Appendix A (Scale: 1" = 400').

Traffic volumes for the design year 2020 are forecast to increase slightly (less than 1 percent) over the No-Build. LOS, however, would greatly improve given the increased operational flexibility and capacity of the roadway under the dualization alternatives.

Intersections projected to operate at LOS F under No-Build conditions in the year 2020 would improve to LOS C or D under each of the dualization alternatives. Through traffic on the roadway would improve to LOS C or better under each of the dualization alternatives. See Figures IV-1A through 1D and the summary on Table S-1.

5. Safety

Accidents occurring in the study area are discussed in Chapter I, Purpose and Need. As shown on Table I-2, US 113 experienced a total of 947 accidents from January 1980 through December 1995 (a 16-year period). The fatal accident rate is equal to or greater than the statewide average rate for **both study areas**, and the rate for injury accidents and property damage accidents in the **northern study area** is greater than the statewide average rate for the 1980 through 1995 period.

Table I-3 presents a detailed analysis for the accidents which occurred along the two-lane portions of US 113 for the 6-year period from 1990 through 1995. The following observations may be drawn from these 6-years of accident data:

- the statistically determined fatal accident rate is equal to or higher than the statewide average rate for **both study areas** and **significantly** greater in the **northern study area**.
- the overall accident rate in the **northern study area** is greater than the statewide average rate.
- the accident rates in the **northern study area** for angle collisions, fixed object, opposite direction and pedestrian accidents are greater than the statewide average, and **significantly** greater statistically for angle collisions and fixed object accidents.
- furthermore, in the **northern study area,** the wet surface related accidents and alcohol related accidents are **significantly** greater statistically than the statewide average rate.

The high number of fatal accidents is a primary purpose for conducting this study. Fall and summer have represented the seasons that experience the highest number of fatal accidents. Figures I-1A through 1D identifies the locations and provides a description of the 40 fatal accidents for the period January 1980 through April 1997 (17 years plus 4 months). **A total of 46 people have died as a result of vehicular accidents along the two-lane portions of US 113 during the January 1980 through April 1997 period. Additional details on these fatal accidents are presented in Table I-4.**

An analysis of the potential consequences of each of the alternatives under consideration in terms of the total number of accidents has been completed, as follows (and are summarized in Table IV-1 and Table S-1).

- **Alternatives 1S and 1N (No-Build)**: The No-Build alternatives would not provide major improvements to the existing US 113 roadways. The minor improvements which would occur as part of normal maintenance and safety operations do not provide features that would prevent further opposite direction collisions where the probable cause was identified as the failure to drive in the designated lane or failure to keep right of the centerline. In addition, the No-Build alternatives would not remove obstructions along the edges of the existing shoulders, obstructions which contribute to hit-fixed-object accidents. Therefore, accidents would be expected to occur at a rate similar to the historical rate along the two-lane portions of US 113 for Alternatives 1S and 1N. Increasing traffic volumes will, correspondingly, increase the total number of accidents from the number being experienced today.
- **Alternatives 2S and 2N (TSM)**: The TSM Alternatives would provide operational improvements as previously discussed and could be expected to produce minor improvements in the overall accident rates. The pavement overlays, rumble strips, and

intersection improvements would slightly reduce the overall accident rate, although opposite direction and hit-fixed-object accidents would not be substantially altered. While the rate at which these accidents are predicted to occur would be lower than the rate anticipated for the No-Build, the total number of accidents will, with increasing traffic volumes, also increase.

- **Alternative 2S-20' Median:** This alternative would provide a 20-foot wide median with traffic barrier separating the single northbound and southbound traffic lanes. Designed in accordance with 60 MPH criteria, 10-foot wide paved shoulders and 20-foot wide safety grading would be provided (except in environmentally sensitive areas, where the safety grading would be replaced by guardrail to reduce impacts). The provision of this median would nearly eliminate opposite direction accidents (although the narrow median could be expected to increase the number of hit-fixed-object accidents due to the presence of guardrail in the median). The provision of full safety grading would reduce the hit fixed object accidents now occurring along the roadside edges. Because this typical section (i.e. one lane per direction separated by a median with traffic barrier) is somewhat unusual, and due to the narrow median width, however, the overall accident rate is expected to experience an improvement in comparison to the No-Build but less than the degree of improvement anticipated for the dualization alternatives.

- **Alternatives 3S, 3N, 4N Modified, and Combination:** An analysis of the accident rates for the dualized/new location alignments has been conducted based on two sources of research pertaining to median widths and their relation to accident experience. The first source (NYS DOT Traffic Safety Report, 1985, printed in *Traffic Conflict Techniques for Safety and Operations,* USDOT/FHWA, 1990) lists proposed roadway improvements and their predicted effect on overall accident rates. Based on this research, reconstructing a two-lane road to provide a median (no width specified) with left turn refuge areas should reduce accidents by 24%. A second source *(Association of Median Width and Highway Accident Rates,* TRR 1401, 1993) provided a log-linear regression analysis to predict the effect of median width on accident rates. This research, based on research from the states of Utah and Illinois, predicts a net reduction of accidents of 25% by increasing the median width from 0-feet to 34-feet. Applying the results from these sources to the dualization of US 113 with a median, a 24% reduction of the existing accident rates for both the northern and southern study areas is appropriate to establish the corresponding predicted accident rates. The presence of a traffic barrier in the median of the 20-foot median alternatives would nearly eliminate opposite direction accidents (although the number of hit fixed object accidents could be expected to increase).

  Access control measures, especially along the new location alignments, and the provisions of safety grading (9-feet for the 50 MPH design speed alternatives and 20-feet for the 60 MPH design speed alternatives) will also reduce angle collisions and hit fixed object accidents.

While the predicted number of accidents shown in Table IV-1 for the dualization alternatives may not be dramatically less than the numbers shown for the other alternatives, the accident severity is predicted to be substantially improved due to the provision of safety recovery areas, medians, and control of access to the extent possible.

The following table summarizes the results of these accident analyses:

Table IV-1: Projected Accident Data

Alternative	Existing Year (average for 1990-1995)	Design Year 2020
◆ SOUTHERN STUDY AREA		
Alt. 1S No-Build	29 accidents	40 accidents
Alt. 2S - TSM	---	38 accidents
Alt. 2S - 20' Median (60 MPH)	---	34 accidents
Alt. 3S - 20' Median (60 MPH)	---	31 accidents
Alt. 3S - 34' Median (60 MPH)	---	31 accidents
◆ NORTHERN STUDY AREA		
Alt. 1N No-Build	33 accidents	65 accidents
Alt. 2N - TSM	---	62 accidents
Alt. 3N-20' (50 MPH)	---	52 accidents
Alt. 3N-20' (60 MPH)	---	50 accidents
Alt. 3N-34' (50 MPH)	---	52 accidents
Alt. 3N-34' (60 MPH)	---	50 accidents
Alt. 4N Modified-20' Median (60 MPH)	---	46 accidents
Alt. 4N Modified-34' Median (60 MPH)	---	46 accidents
Alt. 3N/4N Modified-20' Median (60 MPH)	---	48 accidents
Alt. 3N/4N Modified-34' Median (60 MPH)	---	48 accidents

Footnote: Fatal accidents are much more difficult to predict. Clearly, however, the provision of a highway separated by a median will result in fewer catastrophic opposite direction and sideswipe accidents, and should reduce the fatal accident rate.

B. Social, Economic and Land Use

1. Social Environment

a. Residential Displacements

Residential property acquisition and relocations will be required in certain areas by Alternative 2S-20' Median and all dualize alternatives currently under consideration (as shown on alternatives mapping in Appendix A). All properties will be acquired in accordance with the requirements of the Uniform Relocation and Real Property Acquisition Act of 1970, as amended in 1987. Residential property acquisition includes unimproved property not owned by SHA that does not require the acquisition of a structure and relocations that will require the acquisition of a structure by all of the dualization alternatives. Most of the residences are one- to two-story detached dwellings and mobile homes. Table IV-2 shows the number of relocations and estimated right-of-way cost of each alternative.

Alternatives 1S and 1N, would not impact any residential properties, nor would it displace any residences. Alternatives 2S and 2N will not require any residential relocations, although right-of-way would need to be acquired from some residential properties. This would allow for intersection improvements, roadside safety modifications and improved signalization.

The Coastal Association of Realtors, located in Salisbury, Maryland, was contacted to determine the availability of housing in the study area. As of April 1997, over 90 single family houses are available in Berlin, Newark and Snow Hill. The list price of housing ranges between $25,000 and $692,000. There are also over 100 residential lots for sale in these areas ranging in price from approximately $10,000 to $1.4 million.

The provisions of the Federal and State laws require SHA to provide payments and services to persons displaced by a public project. The payments include replacement housing payments and moving costs. In the event comparable replacement housing is not available within the monetary limits for owners and tenants to rehouse persons displaced by public projects or available replacement housing is beyond their financial means, replacement "housing as a last resort" will be utilized to accomplish the rehousing. Detailed studies must be completed by SHA before "housing as a last resort" can be utilized. A person displaced by the acquisition of property by the State will not be required to move from their house until at lest one comparable house or apartment has been located and offered to that person. A summary of the Relocation Assistance Program of the State of Maryland is provided in Appendix C of this document.

After the SHA relocation counselor's study has been completed, the displaced person(s) will receive a letter stating the amount of replacement housing payment eligibility. This letter contains a promise that the displaced person will not have to vacate the property for at least 90 days. Once the state acquires the property, the displaced person(s) will receive a 30-day notice which contains a specific date to vacate (Maryland State Highway Administration, no date).

Title VI Statement

It is the policy of SHA to ensure compliance with the provisions of Title VI of the Civil Rights Act of 1964 and related civil rights laws and regulations which prohibit discrimination on the grounds of race, color, sex, national origin, age, religion, physical or mental handicap or sexual orientation in all SHA projects funded in whole or in part by the Federal Highway Administration. SHA will not discriminate in highway planning, design, or construction, the acquisition of right-of-way, or the provision of relocation advisory assistance. This policy has been incorporated into all levels of the highway planning process to ensure that proper consideration may be given to the social, economic and environmental effects of all highway projects. Alleged discriminatory actions should be addressed to the Equal Opportunity Section of SHA for investigation.

Table IV-2: Right-of-Way Impacts and Displacements by Alternative

Alternatives	Additional Right-of-Way Required	Residential Displacements	Business Displacements	Total Right-of-Way Costs
1S - No-Build	None	None	None	None
1N - No-Build	None	None	None	None
2S - TSM	Minimal	None	None	Minimal
2N - TSM	Minimal	None	None	Minimal
2S-20' Median	31 acres	4	1*	Minimal
3S-20' Median	67 acres	2	1*	$ 1.6 M
3S-34' Median	74 acres	2	1*	$ 1.7 M
3N-20' Median (50 MPH)	86 acres	19	7	$12.8 M
3N-20' Median (60 MPH)	122 acres	23	6	$12.8 M
3N-34' Median (50 MPH)	78 acres	22	7	$12.8 M
3N-34' Median (60 MPH)	136 acres	24	6	$14.2 M
4N Modified -20' Median	111 acres	7	4*	$ 9.4 M
4N Modified -34' Median	123 acres	8	4*	$10.4 M
3N/4N Modified -20' Median	102 acres	15	4*	$ 8.8 M
3N/4N Modified -34' Median	113 acres	15	4*	$ 9.8 M

Note: * One business is located on one of the residential units to be displaced

b. Effects on Elderly and Handicapped Groups

There are no known concentrations of elderly residents in the study area. Alternatives 1S, 1N, 2S, and 2N would not displace any elderly residents. All of the proposed alternatives in the northern study area are located in census tracts 9913, 9915, 9916, and 9917, which have elderly populations of 16.0 percent, 14.4 percent, 21.8 percent, and 16.0 percent respectively. All of the proposed alternatives in the southern study area are located in census tracts 9919 and 9920, which have elderly populations of 14.2 percent and 17.2 percent, respectively. Adverse impacts to the elderly community are not anticipated as a result of the proposed improvements.

Concentrations of handicapped individuals are located either in the existing dualized portion of the US 113 study area or outside of the proposed right-of-way of any of the alternatives. Adverse impacts to this population group are not anticipated by any of the alternatives. If required, appropriate relocation advisory services will be offered to displaced elderly and handicapped individuals.

c. Environmental Justice

Some minority residential displacements would be required as a result of the proposed roadway improvements. In order to determine the likelihood that minority communities may be impacted, each alternative was studied to determine which census tract it would impact and what percentage of minorities are present in those census tracts. The SHA District Office of Real Estate conducted an evaluation to determine the presence of minority-owned and occupied residences and businesses in the study area and drafted a Detailed Relocation Assistance Report.

African-Americans are the predominant minority population in Worcester County. All of the proposed alternatives in the northern study area are located in census tracts 9913, 9915, 9916, and 9917, which have African-American populations of 15.6 percent, 28.4 percent, 1.1 percent, and 1.6 percent respectively. All of the proposed alternatives in the southern study area are located in census tracts 9919 and 9920, which have African-American populations of 24.1 percent and 40.7 percent respectively. This information may not be indicative of the local racial population group distribution where displacements are projected to occur. In a public outreach effort to supplement the census tract information, the SHA sent correspondence to area churches requesting their assistance in informing their members of the project and helping to identify minority and low income concentrations in the project area. SHA also offered to meet with the churches to discuss the project.

All of the 3N and 3N/4N Modified alternatives would widen the existing roadway on the east side where the minority community of twelve houses is located just south of Bishop between US 113 and Old Stage Road. None of these houses will be displaced as a result of these alternatives. A small amount of right-of-way would need to be acquired from the unimproved driveway leading into this community. Indirect impacts as a result of land use growth patterns are not anticipated as a result of the proposed transportation improvements. This community is located in a light industrial (M-1) zone adjacent to land zoned A-1. A worst case scenario of five residential dwellings (which is the allowable residential density for a parcel of land zoned A-1) being constructed adjacent to this community is not anticipated to create adverse living conditions for this community.

Alternatives 1S, 1N, 2S, 2N, 4N Modified -20' Median and 4N Modified -34' Median would not generate any minority displacements and would not impact any minority communities. All of the 3N alternatives would require the acquisition of five minority residences. Both 3N/4N Modified alternatives would require the acquisition of four minority residences. The 3S alternatives would required the acquisition of one minority residence as would Alternative 2S-20' Median. No minority businesses will be displaced by any of the proposed alternatives.

According to SHA, income levels of families affected by the proposed improvements range from middle to lower income.

Noise and air quality sampling were conducted in the small minority community along Old Stage Road near Bishop. The ambient and design year (2020) noise levels did not exceed FHWA noise abatement criterion (see Table IV-18). The air quality analysis indicates that carbon monoxide impacts generated by any of the proposed alternatives would not result in a violation of the S/NAAQS 1-hour CO concentration of 35 ppm or the 8-hour CO concentration of 9 ppm (see Tables IV-15). Adverse noise and air quality impacts to this community are not anticipated as a result of the proposed alternatives.

The analysis of minority population groups and low income population groups in the study area indicates that no disproportionate amount of adverse impacts will occur as a result of any of the proposed alternatives. The proposed dualize alternatives would provide better access to community facilities and services for minority and low income populations living in the study area.

Appropriate relocation advisory services will be offered to displaced minority or low income persons, if required. Related environmental justice impacts will be addressed according to the provisions of Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." Also, Title VI of the Civil Rights Act, as highlighted previously in the "Residential Displacements" discussion of this Chapter, ensures that no person will be discriminated against by actions of the SHA, relating to the project.

d. Effects on Community Facilities

Places of Worship

No places of worship will need to be acquired with any of the proposed alternatives. Alternatives 1S, 1N, 2S and 2N do not require acquisition of right-of-way from places of worship in the study area. All of the proposed dualization alternatives would provide improved access to worship facilities in the study area with the additional lane provided in the design of these alternatives. All of the 3N Alternatives will provide a service road or improved driveway to Calvary Chapel and Temple Bat Yam. Parishioners of the Calvary Pentecostal Church near Bishop who travel north on US 113 would have to perform a U-turn at an intersection north of the place of worship to access it. The Snow Hill Mennonite Church would have a median break placed in front of it with the 3S alternatives.

Alternative 3S-34' Median (60 MPH) will require approximately 0.1 acres of right-of-way from the Snow Hill Mennonite Church property. Alternative 3N-34' Median (60 MPH) will require 0.3 acres of right-of-way from Temple Bat Yam, 0.5 acres of right-of-way from Calvary Chapel, 0.4 acre of right-of-way from the site of Trinity Charismatic Episcopal Church and approximately 0.3 acre from Calvary Pentecostal Church. Impacts will be less

with the 20' median alternatives. SHA will negotiate the acquisition of right-of-way with affected property owners.

Emergency Services

US 113 is the primary north/south route used by emergency personnel and is a crucial link between study area communities and emergency services. According to the Worcester County Fire Marshal's office, there have been no problems or complaints regarding response times to fires and other emergencies with existing US 113 (Taylor, 1996). The dualization alternatives will each add one travel lane in each direction, and the 2S-20' Median alternative provides an approximate one mile long passing lane in both the northbound and southbound lanes in the vicinities of Basket Switch and Snow Hill, allowing emergency vehicles to safely pass other vehicles. The proposed interchange at US 113 and MD Route 90 associated with all of the dualize alternatives in the northern study area will provide better access to emergencies as compared to the existing interchange. A flashing red light at the existing interchange warns vehicles to stop before proceeding onto MD Route 90 as the speed limit here is 50 miles per hour. The 2S and 2N Alternatives incorporate additional turning, acceleration/ deceleration and bypass lanes in its design which also provide better accessibility for emergency vehicles. The No-Build Alternative does not adversely impact emergency services.

Response times by emergency vehicles may increase with the alternatives that include a median. The median acts as a barrier, changing the access for emergency vehicles. For example, emergency vehicles traveling north would have to perform a U-turn at the nearest intersection to reach an emergency situation located on the southbound side of the road. The Worcester County Office of Emergency Services has been requested to review the alternatives under consideration and provide additional analysis as to how the alternatives might affect response times and service.

The Showell volunteer fire department, located on the northbound side of US 113 in the northern study area, is the only fire station located along US 113 in the study area. A mitigation measure that should be considered in the final design if either Alternative 3N-20' Median (50 MPH) or 3N-34' Median (50 MPH) is chosen as the Selected Alternative, is placing a median break in front of the fire station for official use only along with a flashing yellow signal in both directions of traffic. This signal would alert motorists to the presence of a fire station. The fire department would have the control of turning the signal to red to stop traffic and allow their emergency vehicles to safely proceed onto the roadway. Depending on where the emergency is located, station personnel could stop northbound traffic if the emergency is located in the north or both directions of traffic if the emergency is south of the station. The two 3N (60 MPH) alternatives would create an approximate 0.5 mile service road out of existing US 113 in the Showell area. This service road would provide access to residences and businesses as well as the Showell Fire Department.

Other Community Facilities

No libraries, health care facilities, schools, public parks, or senior citizens centers will be displaced or require the acquisition of land by the proposed alternatives. The additional travel lane incorporated into the dualization alternatives, along with the passing lanes associated with the 2S-20' Median alternative would provide better access to these facilities within the study area.

Recreation Opportunities

The additional travel lanes incorporated into the dualization alternatives and the passing lane included in the design of Alternative 2S-20' Median will improve access to recreational facilities and the beach resorts within the study area. Newark Road, which is part of the View Trail 100 Scenic bike trail, intersects with US 113 at Newark. Bicyclists will have additional travel lanes to cross on US 113 with Alternatives 3S-20' Median and 3S-34' Median; however, the median will provide refuge. The View Trail 100 will remain in the same location. There will be no loss in use or continuity of the trail, even during the construction phase. Construction will occur within SHA right-of-way and will not require additional right-of-way from other roads which comprise the trail. No parks or recreational facilities in the study area will be adversely affected by any of the Alternatives or require the acquisition of right-of-way.

SHA may look at ways to alert motorists to the presence of bicyclists in the area where the View Trail 100 crosses US 113. No other mitigation measures are considered necessary for recreational facilities in the study area.

Utilities

Permanent disruption of utility services is not anticipated as a result of the proposed alternatives. Temporary disruption of utility service may occur if utility lines located along the right-of-way need to be relocated. It will be necessary for SHA to coordinate with the utility companies and Worcester County to locate utility lines and prevent or minimize the amount of disruption of electric, gas, water, sewer, telephone and cable television service within the study area. The utility companies, in conjunction with the SHA, should inform their service areas by signage and/or media outlets regarding any planned service interruptions as a result of the proposed roadway improvements.

The Worcester County Comprehensive Development Plan states that one of the most powerful growth management tools available is the provision of sewerage and sewage disposal systems. The plan states that "new service should be extended only to those areas where control sewer facilities are required to accommodate anticipated higher growth" and that "new sewer service should not be extended to areas where high density growth is not desired." Future high density growth is not anticipated in the areas adjacent to US 113. Most of the future development is anticipated to occur east of US 113 along the waterfront of the coastal bay areas.

Transportation Systems

No adverse impacts to the County's transportation network are anticipated with the proposed alternatives. Alternatives 2S and 2N provide improvements to the existing roadway without major alteration to enhance safety and reduce traffic congestion. Improvements would be prioritized, based on detailed accident and traffic analyses. The dualize alternatives and Alternative 2S-20' Median will reduce the risk of a head-on collision between vehicles by separating northbound and southbound traffic with a median and decrease travel times, allowing the opportunity for faster moving vehicles to safely pass slower moving vehicles. The interchanges incorporated into the design of all of the northern study area dualization alternatives at US 113 and MD Route 90 will provide safer east/west and north/south access.

Air and water transportation will not be disrupted as a result of the proposed action. The Maryland and Delaware Railroad crosses US 113 just south of Market Street near Snow Hill; near the intersection of US 113 and Newark Road; and just north of Bishop within the study area. Coordination between the railroad and SHA will be undertaken to avoid delays in any scheduled rail service during construction and to determine if additional signage or traffic control devices are needed for safety.

e. Disruption of Neighborhoods and Communities

Impacts to the existing level of community cohesion are anticipated with the dualize and 2S-20' Median alternatives. Although these alternatives will not physically bisect any communities not already divided by US 113, they will create residential relocations as previously identified in Table IV-2 and disrupt the community cohesion of several communities with residences located on both sides of US 113 in the study area. These alternatives have a median incorporated into their designs. The median is a physical barrier, allowing only right in/right out access to and from the existing roadway. The median would change the access and travel patterns compared to the unlimited access northbound and southbound that US 113 currently provides. For example, a resident who lives on the northbound side of US 113 and wants to go somewhere located on the southbound side would have to drive northbound to the nearest intersection and perform a U-turn.

The 3N-34' Median (60 MPH) alternative would require the acquisition of 24 residences, the highest number of residential displacements out of all of the alternatives under consideration. The 1S, 1N, 2S and 2N alternatives do not displace any residences. The communities that will experience the majority of the residential displacements are Jones, Showell and Bishop, all located in the northern study area.

Relocating displaced residents in proximity to their former residences will reduce the impacts of the proposed dualize and 2S-20' Median alternatives on community cohesion in the study area. The construction phase of the proposed project may lead to increased travel times between communities as detours and delays in the flow of traffic are enacted to allow construction equipment access to the project area. This is considered a temporary impact.

Alternatives 1S and 1N will not directly impact any neighborhoods; however, these alternatives would do nothing to improve safety between neighborhoods for motorists, bicyclists and pedestrians, negating any opportunities for better community cohesion. By providing localized intersection and safety improvements, the 2S and 2N Alternatives would benefit neighborhoods to a limited degree and provide opportunities for improved community cohesion throughout the US 113 corridor.

County land use objectives include "encourage new development projects to locate in or near the existing population centers and service centers (where planned) but also discourage development of the rural areas of the County" and "maintain the rural character of Worcester and its existing population centers, small towns and villages" (Worcester County Planning Commission, 1989). The responsibility of regulating land use and development rests with the Worcester County Commission and the Worcester County Planning, Permits and Inspections (WCPPI) office. Some new single family houses have been constructed along Shingle Landing Road in the northern study area adjacent to the lot where a new garden center is being developed. A new place of worship, Temple Bat Yam, is presently under construction just north of the MD 90/US 113 interchange. No new development is taking place in the southern study area. New development is being targeted toward the existing population centers where infrastructure and community facilities and services are located. Development is occurring along the coastal bay areas of Ocean Pines, Cape Isle of Wight, St. Martin's Neck and West Ocean City.

Citizens of the Friendship/Jones community located in the northern study area along both sides of existing US 113 have expressed their concern regarding property values, residential displacements, access issues and noise levels as they relate to Alternative 3N-34' Median (60 MPH). Because of its proximity to the existing roadway, Alternative 3N-34' Median (60 MPH) would require right-of-way from property located adjacent to US 113, with some residential units and businesses being displaced. Eight residences in the Friendship/Jones area would be displaced with this alternative. This alternative is perceived by the community as a disruption to their cohesion because of the dualization of the existing road. In addition, residents who want to enter their vehicles onto the roadway from their driveways will not be able to cross the highway in most locations because of the grass median associated with this alternative separating northbound and southbound traffic.

The citizens in this community are in support of the 4N Modified alternatives because they avoid impacts to this established community and the quality of life they currently experience. Alternatives 4N Modified -34' Median and -20' Median are avoidance alternatives and would not impact any of the residences in the Friendship/Jones area that would be displaced by Alternative 3N-34' Median (60 MPH). Alternative 3N-20' Median (50 MPH) has been designed in an effort to minimize the amount of right-of-way required. The right-of-way line would be located further away from residences and would not require as many residential takes as Alternative 3N-34' Median (60 MPH) would. The changes in accessibility associated with Alternative 3N-34' Median (60 MPH) would also occur with this alternative. A mitigation measure to be considered if one of the 3N Alternatives is chosen as the Selected

Alternative is to relocate those displaced residents who wish to remain in the Friendship/Jones area as close to this community as possible.

Access control issues will be addressed on a property-by-property basis during the final design phase of the project. There are no new residences in the study area that would become frontal property as a result of the dualize alternatives. Residences already front existing US 113 there the 3S and 3N alternatives would be located parallel to the existing roadway. Farmland and forest front the 4N Modified and 3N/4N Modified alternatives. According to the Worcester County Assessment Office, property values, in the long term, may increase with the dualize alternatives (Slater, 1997).

f. Effects on Access to Services and Facilities

The schools, churches, health care facilities, recreational facilities, libraries and senior citizen centers would be provided with improved accessibility with dualize and 2S-20' Median alternatives. The additional lane of travel incorporated into the design of the dualize alternatives and the passing lane associated with the 2S-20' Median would allow faster moving vehicles to safely pass slower moving vehicles. The service roads incorporated into the design of the 3N Alternatives will provide access to businesses, residences, and emergency vehicles in Jones and Showell. The service roads also limit the number of access points to US 113, which would improve safety. Although the latest data shows that there have been no head-on collisions involving public safety vehicles, (Wilson, 1997), the dualization and 2S-20' Median alternatives separate northbound and southbound traffic allowing these vehicles to safely pass without the risk of a head-on collision. The alternatives with a median also allow motorists to stop for school buses traveling in the same direction letting motorists in the opposite travel lanes to continue moving. Alternatives 4N Modified -20' Median, 4N Modified -34' Median, 3N/4N Modified -20' Median and 3N/4N Modified -34' Median would separate through traffic from local traffic in sections of its design. This would allow those who want to bypass the local services to do so while providing motorists the opportunity to visit a local business, residence, or community facility. The 2S and 2N alternatives would only provide localized improvements and would not reduce traffic congestion in the region over the long term. Alternatives 1S and 1N do not provide improved access to the services and facilities in the study area.

The dualize and 2S-20' Median alternatives would change the access for area residents compared to current conditions. Motorists and emergency vehicles requiring access to the opposite side of US 113 from which they are driving would have to travel to the nearest intersection to make a U-turn. This situation would slightly increase the travel time to a destination compared to the existing condition of unlimited northbound and southbound access on US 113.

2. Economic Environment

a. Effects on Existing Businesses

Businesses will be displaced by roadway improvements associated with Alternative 2S-20' Median and by the dualize alternatives. Table IV-3 shows the business displacements associated with each alternative. Alternatives 2S-20' Median, 3S-20' Median and 3S-34' Median would require the acquisition of one business. The relocation of a produce stand will also be required with both 3S alternatives. Alternatives 3N-20' Median (50 MPH) and 3N-34' Median (50 MPH) would require the acquisition of seven businesses. Alternatives 3N-20' Median (60 MPH) and 3N-34' Median (60 MPH) would require the acquisition of six businesses. Alternatives 4N Modified -20' Median, 4N Modified -34' Median, 3N/4N Modified -20' Median and 3N/4N Modified - 34' Median would require the acquisition of four businesses. The 1S, 1N, 2S and 2N Alternatives will not generate any business displacements.

All of the proposed dualization alternatives in the northern study area will indirectly impact three businesses. Storage areas associated with Ocean Designs and a welding shop will be displaced by these alternatives. In addition, approximately half of the existing parking area in front of the Delmarva Veterinary Hospital will be relocated to the northern side of the facility. The welding shop and Ocean Designs may require total acquisition if replacement storage areas cannot be provided. A more detailed analysis of this situation will occur during final design if one of these alternatives is chosen as the Selected Alternative.

The employees of displaced businesses will also be affected by the roadway improvements. The distance and commute times to the relocated locations may increase so that employees would not be able to remain with their current employers. Business owners may also want to relocate their business out of the study area. No minority-owned businesses will be displaced as a result of the proposed roadway improvements. An inventory of the number of people employed at each displaced business was not conducted; however, the types of businesses that are to be displaced do not appear to employ a significant number of people and therefore, would not create a hardship to the community.

Based on a review of the local real estate market, suitable commercial property is presently available in all areas of the project. All commercial properties acquired by SHA for construction of the project will be compensated at fair market value and in accordance with the requirements of the Uniform Relocation and Real Property Acquisition Act of 1970, as amended in 1987. It is the responsibility of the individual owners to select new properties for their businesses.

Table IV-3: Business Displacements by Alternative

Alternatives	Name of Business								Tot
	General Store & Antiques	Vic's Country Store	Showell Store	Used Furniture and Collectibles	Pop-Pop's Repairs	K.L. Bradford Ceramic Tile & Marble	Warehouse	Cactus Cafe	
	Station 1353-L	Station 2035-R	Station 2177-R	Station 2182-R	Station 2198-R	Station 2205-L	Station 2268-R	Station 2371-L	
1S - No-Build	0	0	0	0	0	0	0	0	0
2S - TSM	0	0	0	0	0	0	0	0	0
2S-20' Median	X	0	0	0	0	0	0	0	1
3S-20' Median	X	0	0	0	0	0	0	0	1
3S - 34' Median	X	0	0	0	0	0	0	0	1
1N - No-Build	0	0	0	0	0	0	0	0	0
2N - TSM	0	0	0	0	0	0	0	0	0
3N-20' Median 50 MPH	0	X	X	X	X	X	X	X	7
3N-34' Median 50 MPH	0	X	X	X	X	X	X	X	7
3N-20' Median 60 MPH	0	X	X	0	X	X	X	X	6
3N-34' Median 60 MPH	0	X	X	0	X	X	X	X	6
4N Modified - 20' Median	0	0	0	0	X	X	X	X	4
4N Modified - 34' Median	0	0	0	0	X	X	X	X	4
3N/4N Modified - 20' Median	0	0	0	0	X	X	X	X	4
3N/4N Modified - 34' Median	0	0	0	0	X	X	X	X	4

Note - Alternatives 1S, 1N, 2S and 2N do not displace any businesses
X - Denotes displacement
L - Left of centerline of alternative
R - Right of centerline of alternative

Alternatives with a median would change the access to local businesses compared to the existing roadway. For example, potential customers traveling northbound may have to travel to the nearest intersection and make a U-turn to visit a business located on the southbound side of the road. Service roads incorporated into the 3N Alternatives would provide access to businesses in Showell and Jones.

The types of businesses in the study area are mixed. There are some restaurants, produce stands, and retail merchants that rely on drive-by traffic for their business. There are other businesses of a more industrial nature (feed mills, poultry-related industries) that do not rely on drive-by traffic for their business. There may be some loss of patronage of businesses by motorists not familiar with the study area or area residents who may decide it is not worth the effort to make a U-turn to patronize a business. However, it is anticipated that most area residents will make the turning movements necessary to patronize businesses with which they have a relationship. Providing more signage along US 113 to alert motorists to businesses located on the opposite side of the roadway would increase the visibility of local businesses and may encourage patronage.

b. Effects on Regional Business Activities

US 113 provides a critical link to the movement of goods and services along the east coast between Philadelphia and the Virginia Tidewater area. Roadway improvements can be an incentive to businesses to relocate or remain in an area by providing a safer, more efficient transportation system.

The poultry and tourism industries are vital to the regional economy. Farmers in the area contract with poultry processors to grow crops for feed and raise chickens for processing. Trucks use US 113 to travel to and from farms, processing plants and feed mills in the region. The addition of a travel lane in each direction associated with the dualization alternatives would facilitate the efficient movement of goods and services, reduce traffic congestion, improve safety, and reduce travel time. Improvements to US 113 would make it safer for vacationers and truck drivers traveling in the Delmarva region. A one percent increase in traffic volume over the No-Build Alternative traffic volume is projected with the Build Alternatives. Travel characteristics are not anticipated to change with any of the Build Alternatives. The interchange associated with the dualization alternatives in the northern study area would provide an easier and safer connection between US 113 and MD Route 90. Alternatives 2S and 2N would provide only localized improvements in safety conditions and would not reduce traffic congestion in the region over the long term. Alternatives 1S and 1N will not improve the safety or improve the efficiency of traffic flow along US 113.

The majority of the land use in the study area is agricultural. The County's Comprehensive Plan states that the County's land use objectives include encouraging growth in the existing population centers and discouraging new development in the rural areas. The proposed Build Alternatives will not adversely impact the local economy with the loss of businesses required for right-of-way.

According to the Ocean City engineering department, a new traffic signal will be placed at 41st Street and Coastal Highway in front of the convention center. No additional transportation improvements are being anticipated or have been requested as a result of the convention center expansion (McGehan, 1997).

c. Tax Base Effects

Residential, commercial and agricultural property will be displaced for this project with the proposed Build Alternatives. According to the Worcester County Assessment Office, an adverse effect on the tax base is not anticipated with the right-of-way acquisition and displacements associated with the proposed roadway improvements. If traffic volumes are increased by the dualization of the roadway, the value of properties fronting the roadway may increase, which would also increase the tax base (Slater, 1997).

3. Land Use

a. Existing

The purpose of the proposed roadway improvements is to improve the safety of the existing US 113 roadway. Current land use will be altered by the proposed dualization and 2S-20' Median alternatives through conversion of residential and commercial properties, farmland and natural resources to transportation use. Table IV-4 shows the additional right-of-way required by each proposed alternatives.

Table IV-4: Additional Right-of-Way Impacts by Alternative

Alternative	Additional Right-of-Way Required (Acres)
1S - No-Build	None
2S - TSM	Minimal
2S-20' Median	31
3S-20' Median	67
3S-34' Median	74
1N - No-Build	None
2N - TSM	Minimal
3N-20' Median (50 MPH)	86
3N-34' Median (50 MPH)	78
3N-20' Median (60 MPH)	122
3N-34' Median (60 MPH)	136
4N Modified -20' Median	111
4N Modified -34' Median	123
3N/4N Modified - 20' Median	102
3N/4N Modified - 34' Median	113

b. Future

Worcester County's population is projected to grow from 35,028 today to 46,000 by the year 2000; 58,000 by the year 2010; and 67,000 by the year 2020 (Hagar, 1997). New residential development, businesses, community facilities and services will likely be needed to accommodate the anticipated growth in the county's population. A study is underway by the WCPPI to evaluate the need for additional housing units in the County. According to the WCPPI office, there has been little interest in developing areas along the US 113 corridor. Most of the new development has been projected to occur in the coastal bays in the northern and central portions of the county. Based on a review of county plans and discussions with local government officials, there does not appear to be any development in the study area that is dependent on the US 113 roadway improvements for access. Access to land areas adjacent to US 113 is expected to remain virtually the same with all of the alternatives under consideration. The actual growth distribution will depend on the implementation of land use controls to focus potential growth into appropriate areas. The responsibility to guide development and land use rests with the Worcester County Commission and the WCPPI office.

Coastal Bay Area

The entire northern study area and the southern study area between Berlin and Newark are located in the Maryland Coastal Bay area. Maryland's Coastal Bay area is an ecologically sensitive watershed area in Worcester County that drains into the coastal bays. A review of the Maryland Coastal Bays Projected Land Use (Year 2005) Map was conducted to evaluate future land use in this area. Land use projections are consistent with those stated in the County Comprehensive Development Plan. Generally, higher density residential and commercial development are projected for the northern part of the coastal bay area east of the US 113 project area, while little development is projected for the southern coastal bay area.

Most of the land in the US 113 study area located in the coastal bay area is projected to be cropland/agriculture and forest/orchard. Some low density residential development is projected east of US 113 in the area bounded by Ocean Pines, US 113, St. Martin's Neck and US 50. Today, most of this land is farmland or forest. Medium density residential development exists around the communities of Bishopville in the northern study area and Newark in the southern study area and is projected to remain at this density. The only high density residential development in the study area is in Ocean Pines in addition to a small amount of commercial development. There is sufficient land in this community to support additional high density residential development. No additional commercial/industrial development is projected along US 113 in the coastal bay area.

Regions of the coastal bay area outside of the study area where high density residential development exists and is projected for expansion include Berlin, Ocean City, West Ocean City, Cape Isle of Wight, the MD 611 corridor paralleling Sinepuxent Bay and the area east

of Berlin between US 50, MD 611 and Assateague Road. Commercial/industrial development exists and is projected to expand for Berlin, Ocean City, West Ocean City and the US 50 corridor east of Berlin. The rest of the coastal bay area is projected for cropland/ agriculture, forest/orchard, beaches and wetlands.

Much of the land in the northern study area that is projected for future low-density residential development is currently in agricultural use. The dualization alternatives under consideration in this area would provide improved access with the additional travel lanes and may encourage residential development in Ocean Pines and St. Martin's Neck, areas currently zoned for low density residential development. The southern study area is projected to remain mostly forested or cropland. The alternatives under consideration in the southern study area are not anticipated to promote residential development in this area. Much of the projected growth in the County is anticipated to occur adjacent to the coastal bays.

Maryland has a federally approved Coastal Zone Management Program. The US 113 project is located in the Maryland coastal zone as defined by Maryland's federally approved program. The requirements of Section 307 of the Federal Coastal Zone Management Act of 1972 apply to the project and are being addressed through the NEPA/404 review process. These requirements are carried out by the Maryland Department of the Environment.

Indirect Impacts

Indirect impacts are described in the Council on Environmental Quality regulation (401508.8(b)) as "...caused by the action and are later in time or further removed in distance, but one still reasonably foreseeable". In general, an improved transportation facility may result in future zoning change requests to allow higher density development in areas not currently zoned for such development. Among the indirect impacts associated with the proposed roadway improvements is the potential for secondary development. Secondary development is defined as development which could potentially occur as a result of new highway construction.

Although the potential for secondary development exists, there are physical conditions and land use controls which may limit the amount of development occurring within the study area. The suitability of some of the soils to support development within the study area is questionable (Winbrough, 1997). Except in Newark, public sewer service is not available within the US 113 corridor. Although this does not prohibit development from occurring, a developer would be responsible for installing the sewerage and sewage disposal facilities if the proposed development cannot be supported by septic systems. In addition, there has not been much interest in developing areas along US 113 as most of the people who relocate to the area want to live adjacent to the water (Morris, 1997). For that reason, most of the growth in Worcester County is projected for the northern and central coastal bays east of the US 113 study area.

Presently, the following residential developments are taking place in the northern study area; each of these developments is anticipated to include large single family homes (typically 2,500 SF and greater) on individual lots with septic systems (indicated lot sizes include preservation of forested areas):

- Hudson Farm: US 113 @ Shingle Landing Road
  5 lots (ranging in size from 5± Ac. to 12± Ac.)

- Bishop Farms: 1,400' east of US 113 along Shingle Landing Road
  5 lots (ranging in size from 4± Ac. to 6± Ac.)

- Baker Farm: US 113 @ Bunting Road
  4 lots (ranging in size from 11± Ac. to 16± Ac.)
  1 lot @ 49± Ac.

In addition, in the vicinity of the US 113/MD 90 interchange, a new place of worship (Temple Bat Yam) is being constructed. The site of the future home of the Trinity Episcopal Charismatic Church is also located near this interchange.

County land use objectives stated within the Worcester County Comprehensive Development Plan are to "encourage new development projects to locate in or near the existing population centers and service centers (where planned) but also discourage development of the rural areas of the County" and "maintain the rural character of Worcester and its existing population centers, small towns and villages". In addition, most of the land located within or in proximity to the study area is zoned for agricultural use. Minor subdivisions of five residential units per property are allowed under this zoning classification. A description of the zoning classifications and a zoning map are located in Chapter III, Section A. "Land Use". Any request for a zoning change requires a public hearing by the Worcester County Commission. Development of agriculturally-zoned land for non-agricultural use is not consistent with the goals and objectives expressed in the County's Comprehensive Development Plan.

The Maryland Office of Planning has projected future land use changes to the year 2020. These land use changes are shown on Table III-10 and are projected to occur regardless of any roadway improvements to US 113. Worcester County does not have an adequate public facilities (APF) ordinance. An APF ordinance is a land use control measure that requires adequate schools, transportation facilities, and sewer and water services to be in place to support development before the development is allowed to occur.

In the northern study area, the 3N alternatives would only provide right-in/right-out access from driveways and minor service roads. The median incorporated into the design of each of these alternatives would change the access compared to the unlimited access now associated with the existing roadway. These four alternatives also have a new partial cloverleaf interchange which would replace the existing US 113/MD Route 90 interchange.

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New loops and ramps would be located in the northeast and southwest corners of the interchange. The land area around this interchange is developed or is in agricultural production.

The 4N Modified alternatives would provide east/west access at a new interchange with MD 90 located west of existing US 113. As currently planned, no driveways or minor service roads would be given direct access to the new dualized US 113. Median breaks and left turn bays would be restricted or limited to local public roads. The 3N/4N Modified alternatives would also provide east/west access at a new interchange with MD 90 located west of existing US 113 and right-in/right-out access above Bishopville Road. Wetlands, forest and farmland are adjacent to the location of the proposed interchange associated with these alternatives (impacts to these resources are tabulated in other sections of this Chapter).

In the southern study area, the additional travel lane associated with the 3S alternatives would generally increase the efficiency of the movement of goods and services within the corridor. The 2S-20' Median alternative provides two passing lanes in each direction spaced approximately 4 miles apart. The median associated with these alternatives would allow only right-in/right-out access from existing minor access points along US 113.

Existing US 113 currently provides access to developable land. Under the No-Build and TSM alternatives, developable land presently has access to the northbound and southbound lanes of US 113. The majority of the land in the study area is zoned for agriculture use (A-1). Farming activity and minor subdivisions up to five dwelling units are permitted in these zones. Adding one lane in each direction with the dualize alternatives along existing alignment (3S and 3N Alternatives) and a passing lane with Alternative 2S-20' Median would not improve access to developable lands. These alternatives change the existing access by providing right-in/right-out access only from driveways and minor service roads. The 4N Modified and 3N/4N Modified alternatives would be controlled access facilities. Because access will be permitted only at existing public crossroads, no new access to developable lands is provided. Access management strategies of all alternatives under consideration are discussed in Chapter II. If land is to be developed, plans must be submitted to local, state or federal agencies, or a combination thereof, for review, depending on the scale of the project and appropriate permits obtained prior to approval of the proposed project. A public hearing is required by the Worcester County Commission for any request for a zoning change. The Worcester County Commission and the WCPPI office are the local government agencies responsible for guiding land use.

As previously discussed in the Future Land Use sections in Chapters III and IV, the future growth of Worcester County is not projected for the US 113 study area. Growth is projected to occur in the northern and central coastal bay areas of the county located east of the US 113 study area. This growth is not contingent on the dualization of US 113 providing access.

The US 113 corridor was added to SHA's Access Management Program in 1997. Corridors in this program are eligible to use funds programmed in the Consolidated Transportation Program for the purchase of access controls along agricultural frontage and in some instances to purchase residential and commercial property. In the near term, a cross functional team will meet every few weeks to review all access permit requests in the corridor to make recommendations on limiting the number of access points and in some situations to recommend denial of access. The goal of these initiatives is to balance access to adjoining land with the need to preserve the flow of traffic and to improve safety and capacity of the highway system.

Through enforcement at the local level of the County's zoning ordinance and subdivision controls; use of the guidelines established in the County Comprehensive Development Plan; and implementation of SHA's Access Management Program, County land use objectives can be achieved, economic and population growth can be accommodated and unplanned development can be avoided.

The alternatives with a median would also increase indirect impacts to farmland, travel patterns and community cohesion. The alternatives on new alignment (4N Modified and 3N/4N Modified) would bisect some productive farmland parcels, creating access difficulties for the property owners. Farmland impacts are discussed in more detail in Chapter IV, Section D. The alternatives with a median would only allow residents living on US 113 right in/right out access to and from their driveways. Left turns would be allowed only at intersections with these alternatives. These alternatives would change the travel patterns for area residents, emergency vehicles, farm machinery and those who frequent the area for business or social purposes. The community cohesion would be disrupted temporarily as area residents would need some time to adjust to a new travel pattern.

Cumulative Impacts

Cumulative impacts are described by the Council on Environmental Quality regulation (40 1508 8(b)) as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and future actions regardless of what agency (Federal or non-Federal) or person undertaken such actions."

While Ocean City and the coastal bay area have experienced major residential and commercial development the US 113 study area has remained mostly quiet and rural in nature. Agriculture continues to be a way of life for many residents in the study area. Conditions in the study area are not likely to change much in the future as most of the new development is projected to occur along the coastal bays.

As shown on Table III-10, total development in Worcester County is projected to increase by approximately 38 percent between 1990 and 2020. The majority of this development is anticipated to be new residential development. The northern and central coastal bay areas, located east of the US 113 study area, are the projected growth areas for Worcester County.

The primary need for the proposed roadway improvements is safety and not traffic capacity (congestion is only a problem during summer weekends in the design year 2020). The development of land in the coastal bay areas is not dependent upon this project. Alternatives that increase the capacity of US 113 would not increase development rates in these areas since these areas are developed because of their proximity to the coast. Enlarging the capacity of US 113 is not projected to have an effect on the projected growth of the coastal bay areas. There are state and county roads in the study area that provide access to the coastal bay areas. The median associated with the dualize alternatives separates northbound and southbound traffic, improves the traffic flow and virtually eliminates the chances of head-on collisions occurring along the roadway. Of the 303,924 acres of land area in Worcester County, a total of 8 percent (approximately 24,364 acres) of the land area will be developed by 2020 (existing and projected development). These land use projections are not contingent on new roadway improvements in the US 113 study area. The land use objectives stated in the Worcester County Comprehensive Development Plan include "encourage new development projects to locate in or near the existing population centers and service centers (where planned) but also to discourage development of the rural areas of the County" and "maintain the rural character of Worcester and its existing population centers, small towns and villages".

No change in zoning is planned, however with or without the proposed project, and even under the County's future land use plans which do not include rezoning in these areas, it is possible to rezone property for alternative land uses.

In addition, SHA has stated that no new access will be provided to the relocated areas of these alternatives (4N Modified and 3N/4N Modified alternative). This would be consistent with US 113's proposed state and federal functional classifications.

In the event that both Worcester County and the SHA change their policies on these matters, then Alternatives 4N Modified and 3N/4N Modified would represent new access supporting the possible future change in zoning and the resultant development.

The proposed roadway along new alignment would not instigate this development as land along the existing US 113 roadway currently carries the same potential and yet remains unchanged.

The potential for natural resources being converted to residential and industrial uses exists within the US 113 study area due to current zoning classifications. Most of the study area is zoned for agriculture use (A-1). Minor subdivisions of up to five dwelling units are permitted per parcel in these areas. In the southern study area, an area of forest and farmland located between US 113, Castle Hill Road and MD 394 is zoned for high density residential development (R-4). Low density residential development (R-1) is permitted in an area currently used as farmland between Orchard and Mason Roads near Ironshire. The potential

for light manufacturing (M-1) exists in an area of farmland between Newark Road, Basket Switch Road and US 113 as well as an area of farmland and forest located north of Public Landing Road west of US 113. In the northern study area, an area of forest and farmland located just south of Kepler Lane between the railroad, US 113 and just north of Pitts Road is zoned for light manufacturing (M-1). The potential for heavy manufacturing (M-2) exists just south of Bishopville Road next to the railroad in a forested area. Low density residential development (E-1) in the form of large lot development (one dwelling unit per two acres) exists in an area that is mostly farmland just east of Showell. Access to these currently undeveloped areas is available from US 113. These areas are not dependent upon improvements to US 113 for access. The role of US 113 presently and in the future is to provide north and south access to and from these developable lands.

As previously mentioned in the Future Land Use discussion in Chapter III, there has been little interest, according to the WCPPI office, to develop large scale commercial or residential projects in the US 113 study area. The lack of public sewer service throughout most of the study area is a limiting, although not prohibitive, factor in development along the US 113 corridor. New development is being directed by the WCPPI office towards the northern and central coastal bay areas east of the study area because most of the people who relocate to Worcester County want to live on or as close to the water as possible (Morris, 1997). Improvements to US 113 would provide better access to this growth area, which is linked to US 113 by MD 90, Racetrack Road, Bishopville Road, Shingle Landing Road, Bunting Road and Jarvis Road. The dualization of the roadway in the study area would complete the dualization of US 113 throughout Worcester County, provide better access to the beach resorts to the east, along with points north and south of the study area and drivers' expectations would not change along the roadway. In addition, the separation of traffic by the median with all of the dualized alternatives and Alternative 2S-20' Median virtually eliminates the likelihood of opposite direction collisions.

The lower coastal plain of the Eastern Shore currently contains approximately 236,000 acres of non-tidal wetlands. Between 1955 and 1978, this area lost approximately 16,000 acres of non-tidal wetlands mostly to ditching and channelization, agricultural development, and the creation of ponds (accounting for 91% of the loss). The loss of wetlands to urbanization including transportation accounted for 8% of the loss. Some losses were also due to natural causes (Tiner, 1987). With the passage of state and federal wetland protection laws, the annual loss of wetlands (tidal and non-tidal) in Maryland has slowed from 1,000 acres per year to 20 acres per year (Tiner, 1984).

The US 113 corridor is a very old north-south route along the high ground between the Pocomoke River and Sinepauxent Bay. A roadway was in-place by 1697. The roadway has undergone many minor and a few major relocations through the years. The construction of the modern roadway impacted wetlands, farmland, forests and other resources. In an effort to quantify the impacts to wetlands caused by the reconstruction projects along US 113 in this century, historical construction plans were reviewed and approximations of acres of wetlands impacted were made. Using the current wetland designations along existing US 113 (see the figures in Appendix A for these numbers) and grouped by Maryland DNR

watershed number, the following summarizes the wetland impacts associated with the existing two-lane highway for US 113:

Table IV-4A: APPROXIMATE WETLAND IMPACTS ASSOCIATED WITH EXISTING US 113 (by Maryland DNR Watershed Number)

WETLAND NUMBER	WETLAND IMPACTS	WETLAND CLASSIFICATION
◆ **Pocomoke River & Tributaries: DNR #02-13-02-02**		
W-1	0.2	PFO
W-2	1.5	PFO
W-3	0.05	STREAM
W-7	3.1	PFO
W-8	3.4	PFO (Cypress Swamp)
W-9	0.2	PFO
TOTAL	8.5± Acres	-
◆ **Pocomoke River & Tributaries: DNR #02-13-02-05**		
W-10	0.4± Acres	PFO
◆ **Coastal Bay Area: #02-13-01-05**		
W-11	0.02	STREAM
W-12	4.8	PFO
W-13	0.9	PFO
W-14	NONE	
W-15	1.0	PFO
W-16	Combined with W-15	
W-17	NONE	
W-18	1.1	PFO
W-19	0.4	PFO
W-20	1.4	PFO
W-21	0.4	PFO
W-22	Combined with W-21	
TOTAL	10± Acres	-

Table IV-4A (Continued)

WETLAND NUMBER	WETLAND IMPACTS	WETLAND CLASSIFICATION
◆ **Coastal Bay Area: #02-13-01-02**		
W-23	0.3	PFO
W-24	NONE	
W-25	0.4	PFO
W-26	NONE	
W-27	NONE	
W-28	1.1	PFO
W-29	NONE	
W-30	0.02	STREAM
W-31	1.1	PFO
W-32	NONE	
W-33	NONE	
W-34	1.1	PFO
W-35	NONE	
W-36	0.5	PFO
W-37	1.0	PFO
W-38	Combined with W-37	
W-39	NONE	
W-40	0.5	PFO
Total	6± Acres	-
GRAND TOTAL	**25± Acres**	-

This project will impact up to 38.4 acres of wetlands (out of a county total of 21,805 acres of wetland), up to 111 acres of forests (out of a county total of 165,489 acres of forest), and up to 218 acres of productive farmland (out of a county total of 99,716 acres of farmland). Any new development, including roadway construction, that impacts wetlands and forestland will require mitigation. Wetland mitigation is required in accordance with the no net loss of wetlands policy. Much of the wetland mitigation that is required for the US 113 roadway improvements may occur at a 2:1 ratio to obtain no net loss of wetland resources. The construction of required wetland mitigation is likely to cause additional impacts to farmland. Maryland's Forest Conservation Act requires reforestation and/or afforestation when forestland is lost as a result of new development which will minimize forest impacts by this project and other development in the study area.

There are currently no planned federal actions located in or adjacent to the study area. As part of the State's 1997-2002 Consolidated Transportation Program, a safety study along MD 90 between US 50 and US 113 has been recommended along with the planned construction of safety improvements and a median barrier along 4.4 miles of MD 90 east of US 113. The MD 90 safety study would inventory the existing roadway conditions and recommend courses of actions to improve safety. If the safety recommendations of the study are implemented, it is anticipated that a better connection between US 113 and MD 90 would be made. The safety improvements associated with MD 90 east of US 113 are also anticipated to provide a safer and improved connection between the two roadways.

C. Cultural Resources

1. Historic Structures

Historic resources in the study area were identified and evaluated in accordance with the requirements of 36 CFR 800.4 for each alternative under consideration. Table IV-5 summarizes the effects of the various construction alternatives on identified historic standing structures. The specific effects of each alternative are described below, and the overall impacts on historic resources of each alternative are evaluated. The Maryland Historical Trust (MHT) rendered an adverse effect determination (see Chapter VI, MHT letter April 23, 1997) for the 3N alternatives and for alternatives 4N Modified and 3N/4N, the Combination Alternative, as identified on the table below.

Table IV-5: Summary of Impacts to Historic Structures

Alternative	Impact by Alternative					
	Historic Resource Inventory Number					
	WO-283	WO-472	WO-23	WO-284	WO-289	WO-479
1S - No-Build	n/a	No Effect	n/a	n/a	n/a	n/a
2S - TSM	n/a	No Effect	n/a	n/a	n/a	No Effect
2S-20' Median	n/a	No Effect	n/a	n/a	n/a	No Effect
3S-20' Median	n/a	n/a	n/a	n/a	n/a	n/a
3S-34' Median	n/a	n/a	n/a	n/a	n/a	n/a
1N - No-build	n/a	No Effect	n/a	n/a	n/a	n/a
2N - TSM	n/a	No Effect	n/a	n/a	n/a	No Effect
3N-20' Median / 50 MPH	Adverse	Adverse	Adverse	Adverse	Adverse	NAE
3N-34' Median / 50 MPH	Adverse	Adverse	Adverse	Adverse	Adverse	NAE
3N-20' Median / 60 MPH	Adverse	Adverse	Adverse	Adverse	Adverse	NAE
3N-34' Median / 60 MPH	Adverse	Adverse	Adverse	Adverse	Adverse	NAE
4N Modified-20' Median	No Effect	No Effect	Adverse	NAE	No Effect	NAE
4N Modified-34' Median	No Effect	No Effect	Adverse	NAE	No Effect	NAE
3N/4N Modified- 20' Median	No Effect	No Effect	Adverse	No Effect	No Effect	NAE
3N/4N Modified -34' Median	No Effect	No Effect	Adverse	No Effect	No Effect	NAE

*NAE = No Adverse Effect

WO-283 - Hale Farm/ Mariner Farm
WO-472 - Vic's Country Store
WO-23 - St. Martin's Church
WO-284 - Lemuel Showell House
WO-289 - Showell Store
WO-479 - Transpeninsular

St. Martin's Church. All of the 3N alternatives, 4N Modified alternatives and, 3N/4N Modified alternatives, are within the area of potential effect of St. Martin's Church (WO-23). which is on the National Register. These alternatives share an alignment segment south of Racetrack Road, but begin to diverge on the north side of the road just north of the church. The resource is on a slight rise above existing US 113 as the highway descends to cross Church Branch to the north. The area through which 4N Modified and 3N/4N Modified alternatives would cross is at the same elevation as the resource.

TSM improvements consisting of a skid resistant pavement overlay and rumble slots along the centerline and outside edges of the roadway, are proposed within existing right-of-way. Because the resource already fronts on a major highway, it does not appear that these minor improvements will affect the resource or substantially alter its setting. The location, setting, and use of the resource will remain the same. For these reasons, MHT concurred that the TSM improvements will have no effect on the St. Martin's Church.

No right-of-way will be acquired from the resource under any of these alternatives, however, the Maryland Historical Trust (MHT) has determined that the 3N, 4N Modified, and 3N/4N Modified alternatives will all affect its setting. Under all of these alternatives, the new roadway would be wider than the existing, and would have an adverse visual impact. This visual impact will likely occur, due to the placement of the alternatives in agricultural and forested land east of the resource. The Maryland Historical Trust has determined that this visual effect will be adverse, because the increased width of the roadway would cause a change in the historic setting (March 18, 1997 letter to SHA).

Regarding audible impacts, the predicted noise level for a No-Build scenario is higher at 69.9 dBA than the levels predicted for the 3N alternatives (65.3 dBA) and for the 4N Modified and 3N/4N Modified alternatives (63.7 dBA). Additionally, the predicted noise level for the 4N Modified and 3N/4N Modified alternatives is lower than the existing level at the resource (64.9 dBA).

Hale Farm/Mariner Farm. The alternatives proposed in the area of potential effect of the National Register eligible Hale/Mariner Farm (WO-283) include the 3N, 4N Modified, and 3N/4N Modified alternatives.

TSM improvements consisting of a skid resistant pavement overlay and rumble slots along the centerline and outside edges of the roadway, are proposed within existing right-of-way. Because the resource already fronts on a major highway, it does not appear that these minor improvements will affect the resource or substantially alter its setting. The location, setting, and use of the resource will remain the same. For these reasons, MHT concurred that the TSM improvements will have no effect on the Hale Farm/Mariner Farm.

Each of the 3N alternatives will affect the setting and use of the resource. The effect will be adverse because elements of the resource's integrity - its design, setting, materials, workmanship, and feeling - will be diminished. Approximately 17,500 square feet along the west edge will be acquired for right-of-way, amounting to roughly 14 percent of the total square footage of the historic property.

In accordance with 36 CFR Part 800.9, this action constitutes an adverse effect because a portion of the historic resource will be physically destroyed and altered, and visual, audible, and atmospheric elements out of character with the resource and its setting will be introduced. Construction of Alternative 3N will result in locating the highway 60 feet closer to the existing residential structure within the site boundary (i.e. at a distance of 465 feet instead of the existing 520 feet). A portion of the yard, entrance driveway, and ornamental plantings will be removed, as will the two brick walls flanking the driveway. Regarding audible impacts, the predicted noise level (56.0 dBA) will increase over the existing level (53.9 dBA) and that of the predicted for a No-Build scenario (54.2 dBA). For the above reasons, MHT has determined that all of the 3N alternatives will have an adverse effect on the Hale Farm/Mariner Farm.

The 4N Modified and 3N/4N Modified alternatives will not affect the location, setting, or use of the resource. These alternatives, which share the same alignment in this segment, will lie much farther from the resource boundary than the existing highway (some 565 feet farther to the northwest and 1,000 feet or more to the west and southwest). No right-of-way will be acquired from the resource boundary; however, right-of-way will be taken from the larger tax parcel containing the resource. It does not appear that a visual impact on the setting outside the boundary will occur due to the distance involved and the placement of the alignment in areas already concealed by tree lines and plantings. Where sections of the new road will be visible - to the southwest and northwest - the views will be distant, and the road will be on existing grade. In addition, the ornamental plantings along the resource's south and north boundaries will partially obscure some views in those directions. The end result will be a road farther from and better concealed from the resource. This will provide the resource with an ample new buffer. Views toward the new road will be similar to those available at present. Due to the distance, which is more than 970 feet, noise levels should be much reduced in the area of the resource. For these reasons, the MHT has concurred with the determination that the 4N Modified and 3N/4N Modified alternatives will have no effect on the Hale/Mariner Farm.

Lemuel Showell House. The alternatives proposed in the area of potential effect of the National Register eligible Lemuel Showell House (WO-284) include the 3N, 4N Modified, and 3N/4N Modified alternatives.

TSM improvements consisting of a skid resistant pavement overlay and rumble slots along the centerline and outside edges of the roadway, are proposed within existing right-of-way. Because the resource already fronts on a major highway, it does not appear that these minor improvements will affect the resource or substantially alter its setting. The location, setting, and use of the resource will remain the same. For these reasons, MHT concurred that the TSM improvements will have no effect on the Lemuel Showell House.

The 3N alternatives will not affect the location, setting (within the historic boundary), or use of the resource. These proposed alternatives will lie some 90 feet farther west of the resource boundary than the existing highway (Figures 2 and 7). Access to the new road will be provided via a four-way intersection at Pitts Road (existing US 113 will become a local access road). No right-of-way will be acquired from the resource boundary.

An adverse visual impact on the setting will occur, however, due to changes in the setting necessitated by the construction of the road. Alternative 3N will require the removal of the Showell Store (WO-289) at the intersection of US 113 and Pitts Road and the removal of a non-eligible historic dwelling across US 113 from the resource (part of the Showell Survey District, previously determined not eligible for the National Register). This will result in the loss of the west side of the cluster of buildings at the intersection that helps to define the character of Showell and will open up views to the west and northwest that currently do not exist. A line of small trees on the west side of US 113 may provide some concealment; however, this line will be removed some 500 feet to the south as the 3N alternatives rejoin the existing US 113 alignment. Although the new road will be farther from the resource, the changes in the setting across US 113 would appear to negate this benefit. In accordance with 36 CFR Part 800.9, the construction of the 3N alternatives will constitute an adverse effect because visual elements out of character with the resource and its setting will be introduced. Regarding audible impacts, the predicted levels associated with 3N alternatives (64.1 dBA) will be slightly lower than the existing level (65.7 dBA) and those predicted for a No-Build scenario (66.4 dBA). For the reasons noted above, MHT has concurred with the determination that the 3N alternatives will have an adverse effect on the Lemuel Showell House.

The 4N Modified and 3N/4N Modified alternatives will not affect the location, setting (within the historic boundary), or use of the resource. The alternatives, which share the same alignment in this segment, will lie approximately 585 feet east of the resource boundary. Additional right-of-way will not be acquired from the resource boundary. A visual impact on the setting will likely occur, however, due to the placement of the alternative in open land east of the resource that is presently used for crops and forest. For a number of reasons, it does not appear that this visual effect will be adverse. First, the resource already fronts on a major highway and is located at a major intersection. Second, the new alignment will be farther from the resource, affording it a buffer zone that currently does not exist. Third, the new alignment will run at existing grade. Fourth, a heavy buffer of mixed evergreen/deciduous vegetation currently shields views from the resource to the north and northeast, and this buffer will remain in place under the new alignment. Fifth, non-historic buildings currently obscure views from the resource to the south, and these will remain in place under the new alternative. Sixth, views of the fields and tree lines farther east will still be possible with the new road in place. Concerning noise impacts, the predicted noise level for the 4N Modified and 3N/4N Modified alternatives (53.6 dBA) is substantially lower than the levels predicted for the 3N alternatives, the No-Build scenario, and existing US 113. For the above reasons, MHT determined that the 4N Modified and 3N/4N Modified alternatives will have no adverse effect on the Lemuel Showell House.

Showell Store. The alternatives proposed for the area of the National Register eligible Showell Store (WO-289) include the 3N, 4N Modified, and 3N/4N Modified alternatives. The resource is on a slight rise above existing US 113. The 3N alternatives would run at this elevation, while the 4N Modified, and 3N/4N Modified alternatives would run at the slightly lower grade equal to that of existing US 113.

The 3N alternatives will affect the location, setting, and use of the resource. The effect will be adverse because all elements of the resource's integrity will be destroyed by demolition of the resource. The setting outside the historic resource boundary will also be adversely affected through the loss of the resource and a non-eligible historic dwelling on the south side of Pitts Road (part of the Showell Survey District, WO-286, previously determined not eligible for the National Register). The loss of these two buildings will remove the western edge of the cluster of buildings at the US 113/Pitts Road intersection, a cluster that defines the character of Showell. In addition, views to the west and northwest will be opened up where previously they were contained by surrounding buildings. Noise levels for the Showell Store were not monitored ormodeled because the structure will be taken under the 3N alternatives. Additionally, noise and atmospheric levels would be essentially the same as those for the Lemuel Showell House which is just across the street from this site. For the above reasons, MHT concurred with the opinion that the 3N alternatives will have an adverse effect on the Showell Store.

Investigations to date indicate that the prehistoric and historic archeological site 18WO209 identified on the property of the Showell Store is potentially eligible for the National Register, based on criterion D (ability to provide important information). The investigations indicate that the site does not warrant preservation in place. The 3N alternatives will adversely impact 18 WO209. The concurrence of the Maryland State Historic Preservation Officer (SHPO) will be solicited on this determination.

The 4N Modified and 3N/4N Modified alternatives will not affect the location, setting, or use of the resource. These alternatives, which share the same alignment in this segment, will lie much farther from the resource boundary than the existing highway (some 865 feet farther to the east). No right-of-way will be acquired from the resource boundary. It does not appear that a visual impact on the setting will occur due to the distance involved and the placement of the alignment in areas already concealed by buildings, tree lines, and plantings. The end result will be a road farther from the resource and better concealed from the resource. This will provide the resource will an ample new buffer zone than today. Views toward the new road will be the same as those available at present. Due to the distance, audible levels would be much reduced in the area of the resource. For these reasons, MHT concurred that the 4N Modified and 3N/4N Modified alternatives will have no effect on the Showell Store.

Vic's Country Store. The alternatives proposed in the area of potential effect of National Register eligible Vic's Country Store (WO-472) include the 3N, 4N Modified, and 3N/4N Modified alternatives.

No-Build improvements have been proposed for the intersection of US 113 and Friendship Road. These will consist of a northbound acceleration/deceleration lane and a southbound bypass lane. TSM improvements, consisting of a skid resistant pavement overlay, rumble slots along the centerline and outside edges of the roadway, and painted stop lines at Carey Road and Jones Road. All of the improvements will be constructed within existing right-of-way. Due to the fact that the resource already fronts a major highway within a major intersection, MHT concurred that these minor improvements will have no effect on the resource or substantially alter its setting, location, or use.

The 3N alternatives will affect the setting and use of the resource, and the effect will be adverse because right-of-way acquisition will diminish or destroy its integrity. The alternative calls for the edge of pavement for the northbound lanes to be moved closer to the resource. The new lanes will require acquisition of approximately 13,440 square feet of additional right-of-way, equaling roughly 27% of the historic property area, and may require demolition of the structure. For the above reasons, MHT concurred that the 3N alternatives will have an adverse effect on Vic's Country Store.

A visual impact on the setting outside the boundary will also occur, due to shifting of the northbound lanes to the east and the provision for southbound lanes on the west side of US 113 (the existing highway will be incorporated into the northbound lanes and the median in this area). For a number of reasons, it does not appear that this visual effect will be adverse. First, the resource already fronts on a major highway and is located within a major intersection. Second, much of the area to be used for the northbound lanes is already paved in front of the resource. Third, the new alignment will follow the same grade as the existing highway. Fourth, the buildings and landscape features on both sides of US 113 will be retained, except for the eastern edge of a large wooded tract on the west side of US 113 north of Carey Road. The majority of this tract will remain, however. Fifth, views of the fields, tree lines, and buildings beyond the existing highway will still be possible with the new alignment in place. Concerning noise impacts, the predicted noise levels for the 3N alternatives (70.6 dBA) and the No-Build improvements (69.7) are slightly lower than the existing level (72.1 dBA).

Investigations to date indicate that historic period archeological site 18WO213 identified on the property of Vic's Country Store is ineligible for the National Register, and gave no indication that the site warrants preservation in place. The 3N alternatives will not impact significant archeological resources. The concurrence of the Maryland SHPO will be solicited on this determination.

The 4N Modified and 3N/4N Modified alternatives will not affect the location, setting, or use of the resource. These alternatives, which share the same alignment in this segment, will lie much farther from the resource boundary than the existing highway (some 2,600 feet farther to the west). No right-of-way will be acquired from the resource boundary. It does not appear that a visual impact on the setting outside the boundary will occur due to the distance involved and the placement of the alignment in areas already concealed by buildings, tree lines, and plantings. The end result will be a road farther from the resource and better concealed from the resource.

This will provide the resource with an ample buffer not presently provided. Views toward the new road will be the same as those available at present. Due to the distance (more than 2,600 feet), audible and atmospheric levels should be much reduced in the area of the resource. For these reasons, MHT concurred that the 4N Modified and 3N/4N Modified Alternatives will have no effect on Vic's Country Store.

Transpeninsular Line Marker. The alternatives proposed in the area of potential effect of the National Register eligible Transpeninsular Line Marker (WO-479) include the 3N, 4N Modified, and 3N/4N Modified alternatives. All of these alternatives share the same alignment in the vicinity of this site.

TSM improvements, consisting of a skid resistant pavement overlay, rumble slots along the centerline and outside edges of the roadway and the addition of a southbound acceleration lane from Morris Road and oversized intersection warning and stop signs, are proposed within existing right-of-way. Because the resource already fronts on a major highway, it does not appear that these minor improvements will affect the resource or substantially alter its setting. The location, setting, and use of the resource will remain the same. For these reasons, MHT concurred that the TSM improvements will have no effect on the Transpeninsular Line Marker.

The 3N, 4N Modified and 3N/4N Modified alternatives, will not affect the location, setting (within the historic boundary), or use of the resource. These alternatives call for the edge of pavement for the northbound lanes in front of the resource to remain as is. No right-of-way will be required.

A visual impact on the setting outside the boundary will likely occur, however, due to the shifting of the southbound lanes and the incorporation of a much larger median. For a number of reasons, it does not appear that this visual effect will be adverse. First, the resource already fronts on a major highway and has direct views of the wider US 113 alignment in Delaware. Second, the new alignment will follow the same grade as the existing highway. Third, the buildings and landscape features on both sides of US 113 will be retained. Fourth, views of the west side of US 113 from the resource will still be possible with the new alignment in place. Concerning audible impacts, the predicted noise levels for the dualize alternatives (66.6 dBA) are slightly higher than the existing levels of 65 dBA and No-Build of 62 dBA range (see Table IV-18). For the above reasons, MHT has concurred that the alternatives will have no adverse effect on the Transpeninsular Line Marker.

Maryland/Delaware State Line Marker. The only alternatives proposed for the area of the Maryland/Delaware State Line Marker (WO-480) are the 3N/4N Modified alternatives at the Transpeninsular Line Marker (see above). The eastern edge of the alternatives will be some 1,500 feet west of the resource. The alternative will not affect the location, setting, or use of the resource. Due to the distance involved and the presence of a large wooded buffer between the resource and the alternatives, there will be no visual, audible, or atmospheric impact on the resource. Alternatives 3N/4N Modified are anticipated to have no effect on the Maryland/ Delaware State Line Marker.

Summary of Impacts to Structures

From the standpoint of historic standing structures, the 4N Modified and 3N/4N Modified alternatives all avoid adverse effects to four other structures that are impacted by the 3N alternatives: Hale/Mariner Farm, Lemuel Showell House, Showell Store, and Vic's Country Store.

2. Archeological Sites

Identification of archeological resources have been carried out in accordance with the requirements of 36 CFR 800.4 for each alternative under consideration.

The Phase IB archaeological survey of the US 113 corridor covered all of the high-probability areas for which access was obtained, as well as 20 percent of the low-probability areas. The survey identified 18 potentially significant archeological sites that might be impacted by one or more of the alternatives.

Preliminary eligibility recommendations are summarized in Table IV-6.

Table IV-6: Preliminary NRHP Recommendations For US 113 Sites
(Preliminary NRHP Assessment)

Components	Age	Probably Not Eligible	Possibly Eligible
Prehistoric			
	Woodland	2	3*
	Unknown	5	3
	Prehistoric Total	7	6*#
Historic	18th-19th century	2	5
	18th-20th century	3	2
	19th century	9	3#
	19th-20th century	6	5
	20th century	3	1
	Unknown	0	0
	Historic Total	23*	16#
TOTAL SITES		20	19#

* National Register eligibility assessment of three historic/prehistoric period sites was based on the potential of the prehistoric component only.

\# One site potentially eligible prehistoric/historic period site is outside the Area of Potential Effects of the undertaking.

About one-half of the recorded prehistoric sites are considered potentially eligible for the Register under criterion D, based on their ability to provide important information about the past. The Phase I archeological survey indicates that the remainder of the prehistoric sites lack the artifact density, patterned artifact distributions, or intact deposits necessary to provide significant data concerning the prehistoric occupation of the Eastern Shore. For these reasons, they are unlikely to yield important information, and are not considered eligible for the National Register of Historic Places.

Survey data suggest that about one-third of the historic period sites are potentially eligible for the National Register under criterion D, for their information potential. The presence of structural features, intact subplowzone remains, and information-rich artifact assemblages were used to identify potentially significant historic sites. More intensive investigations will be needed at all 18 potentially significant sites within the APE to conclusively evaluate their National Register status. The Phase I archeological survey indicates that the remainder of the historic period sites lack the artifact density, patterned artifact distributions, or intact deposits necessary to provide important information about the history of the region. For these reasons, they are unlikely to yield important information, and are not considered eligible for the National Register of Historic Places.

Alternative 2S-20' Median will impact 2 archeological sites that are potentially eligible for the National Register of Historic Places: 18WO190 and 18WO196.

Alternatives 3S will impact 10 archeological sites that may be eligible for the National Register of Historic Places: 18WO181, 18WO183, 18WO184, 18WO185, 18WO190, 18WO191, 18WO196, 18WO201, 18WO203, and 18WO204. Alternative 3N will impact 6 archeological sites that may be eligible for the National Register: 18WO194, 18WO195, 18WO197, 18WO202, 18WO209, and 18WO214. One of the latter will also be impacted by Alternative 4N Modified, which will affect a total of 2 archeological sites that may be eligible for the National Register: 18WO193 and 18WO212. The same two potentially eligible National Register sites would be impacted by the 3N/4N Modified alternatives: 18WO193 and 18WO212.

Based on the results of Phase I survey, all potentially significant archeological resources that might be impacted by the project are considered important chiefly for the information they contain. At this stage of work, there is no evidence to suggest that any of the sites warrant preservation in place, although confirmation of this must await completion of Phase II investigations. Phase II site evaluation will be conducted once a selected alternative is identified. Any mitigation efforts required for archeological resources would be accomplished chiefly through data recovery investigations, along with other appropriate measures such as interpretation of the results of investigations. Consideration will also be given to avoidance and/or minimization measures as warranted.

D. Farmlands

Active farmland (including properties which raise poultry), prime farmland soils and soils of statewide importance will be impacted as a result of this project. Based on the current alignments of the proposed alternatives, no farming operations will be put out of business. Table IV-7 is a summary of farmland and soil impacts.

In accordance with the Farmland Protection Policy Act (FPPA), a Farmland Conversion Impact Rating form has been completed for this project and evaluated by the Worcester County NRCS office to fulfill FPPA compliance. On this form, the amount in the block "Total Acres in Site" was derived from SHA right-of-way calculations which do not include right-of-way owned by SHA. Farmland impacts, however, include farmland within SHA right-of-way limits. A copy of the completed rating form along with the rationale used for the evaluation of the site assessment criteria is included in Appendix B.

According to the FPPA, the USDA recommends that the alternatives scoring more than 160 points be given higher levels of consideration for protection and alternatives receiving less than 160 points be given a minimal level of consideration for protection. Alternatives 4N-20' Median, 4N-34' Median, 3N/4N - 20' Median and 3N/4N -34' median all scored above 160 points. The USDA recommends for alternatives scoring 160 or more points that agencies consider alternatives that would serve the proposed purpose but convert either fewer acres of farmland or other farmland that has a lower alternative value.

In the southern study area, Alternative 3S-34' Median would directly impact the most agricultural land (115 acres) of all the proposed alternatives. The 3N/4N-34' Median alternative would directly impact the most agricultural land of (61.9 acres) of all of the proposed alternatives in the northern study area. The 1N alternative directly impacts approximately 0.5 acres of farmland on one parcel associated with the relocation of Bunting Road. The 2S alternative would only require small sliver takes of farmland for bypass and acceleration/deceleration lanes. The proposed dualize and 2S-20' Median alternatives would generally improve access on US 113 by allowing faster moving vehicles to safely pass slower moving farm machinery; however, slow moving farm machinery requiring access to the opposite side of the roadway from which they are traveling would have to cross 2 or 3 lanes (depending on if the equipment is traveling on the shoulder or right lane) to get to the left turn lane at an intersection in order to make a U-turn.

The alternatives on new alignment are the only alternatives that would indirectly impact farmland. These alternatives would bisect the same six farmland parcels, creating accessibility difficulties for the property owner. The amount of indirect impacts are shown on Table IV-7.

SHA will look at ways to minimize, where possible, the amount of farmland acreage necessary while maintaining required safety standards. Accessibility concerns will be addressed on a property-by-property basis during final design. Just compensation at fair market value will be offered to farm owners whose property is needed for right-of-way or for acquired property that is too small to profitably farm.

Table IV-7: Farmland Impact Summary

Alternatives	Subject					
	Prime Farmland Soils Impacted (acres)	Soils of Statewide Importance Impacted (acres)	Direct Productive Farmland Impacts (acres)	Indirect Farmland Impacts* (acres)	Number of Parcels Directly Impacted	Number of Parcels Indirectly Impacted
1S - No-Build	0.0	0.0	0.0	0.0	0	0
2S - TSM	0.2	0.0	0.2	0.0	3	0
2S-20' Median	20.0	10.0	19.8	0.0	19	0
3S-20' Median	39.4	19.4	103.5	0.0	48	0
3S-34' Median	43.8	21.6	115.0	0.0	48	0
1N - No-Build	0.5	0.0	0.5	0.0	1	0
2N - TSM	0.0	0.0	0.0	0.0	0	0
3N-20' Median 50 MPH	42.6	31.5	34.9	0.0	24	0
3N-34' Median 50 MPH	47.9	35.5	39.2	0.0	24	0
3N-20' Median 60 MPH	47.9	35.5	39.2	0.0	24	0
3N-34' Median 60 MPH	53.2	39.4	43.6	0.0	24	0
4N Modified-20' Median	103.4	81.1	55.0	47.0	19	6
4N Modified-34' Median	114.9	90.1	61.1	40.9	19	6
3N/4N Modified - 20' Median	107.1	68.4	55.7	47.1	20	6
3N/4N Modified - 34' Median	119.0	76.0	61.9	40.9	20	6

* Indirect impacts are a result of the alternatives bisecting a productive farmland parcel which may create accessibility difficulties for farmers.

Note: Additional farmland acreage may be required for wetland mitigation requirements.

E. Soils, Geology and Topography

The No-Build and TSM Alternatives will have minor localized impacts to soils where acceleration/deceleration, bypass and turning lanes are constructed. These small projects may require earth disturbances of up to 0.25 acres for construction. No bypass or turning lanes are planned for the southern study area under either Alternative 1S (No-Build) or Alternative 2S (TSM). Alternative 1N (No-Build) in the northern study area includes the planned relocation of the Jarvis Road intersection as well as the construction of three acceleration/deceleration lanes, two turning lanes, and four bypass lanes at various intersections. Alternative 2N (TSM) includes the construction of one additional acceleration/deceleration lane and one bypass lane. These minor disturbances are expected to have minimal impact on the soils, geology and topography. Impacts to soils will be minimized through the strict use sediment and erosion control measures.

It is anticipated that the proposed construction of 2S-20' Median and the dualize alternatives will not substantially impact soils, topography, or geology. The Othello and Mattapex soil types are classified as highly erodible soils and are encountered on approximately one-third of the project area. The remaining project area is comprised of moderately erodible soils. The Othello, Fallsington, and Pocomoke soils comprise approximately one-half of the project area and are labeled as hydric soils by the US Department of Agriculture. These soils and the majority of the soils found on the project area have a high water table. Foundation soils are expected to deteriorate if exposed to air, frost, water and construction activities.

The low relief of the land allows for little runoff of excess precipitation during periods of increased precipitation. Therefore, soils adjacent to roadways may become saturated during these times.

The soils to be encountered along the study area consist of sandy loam and silt loam underlain by loamy sand and sand. Based upon SCS testing, the maximum density of the soils ranges from 90 to 125 pounds per cubic foot. The optimum moisture content of the soils at these maximum densities ranges from 7 to 18 percent. The compatibility of the soils is dependent on the composition of the soil and the moisture at the time of compaction. It is anticipated that the soils available for roadway construction will be suitable and can be compacted to specification requirements (SCS, 1973).

Erosion control techniques such as infiltration, sediment basins and traps, and silt fencing will be employed to control soil erosion. To minimize deterioration, a mud mat may be placed to serve as a working platform for construction activities in wet areas. All areas of exposed soil will be vegetatively or structurally stabilized as soon as practical. A Maryland Department of the Environment approved stormwater management plan will also be required for this project. The stormwater management plan will include quality management for stormwater runoff prior to infiltration into the groundwater.

F. Groundwater Resources

The No-Build and TSM Alternatives will not have any impact on groundwater resources.

It is anticipated that the proposed construction of any of the dualization alternatives will not substantially impact the ground water table because the entire study area is underlain by aquifers which are recharged throughout the area. The rate of recharge of water to aquifers depends on the quantity of water available for recharge, the topography of the land and the permeability of the soils which water will travel. The low relief in topography and the generally high permeability of the soil allow for little runoff and large quantities of water to enter the ground.

The majority of water to recharge aquifers comes from precipitation that filters through the soil or water that seeps in from streams. Precipitation will recharge aquifers to sufficient levels throughout the year. Fluctuations of the groundwater level depend on variations in temperature and precipitation. Aquifers in this region are generally saturated. It is anticipated that a minimal change in relief and decrease in recharge area will not be significantly affect water recharge to the aquifers in this region. Additional usage of ground water as a result of an increase in growth and population is not anticipated to significantly affect the water supply (Maryland Department of Geology, Mining and Water Resources, 1955).

Adverse impacts to groundwater quality during construction of a Build Alternative will be mitigated through strict adherence to the Maryland Department of the Environment's (MDE) erosion and sediment control procedures.

G. Surface Water Resources

Surface water resources consisting mainly of major streams, minor drainage ditches, and intermittent stream channels, may be impacted by pollutants within highway runoff. The constituents of this runoff may include particulates, metals, oil and grease, organics, nutrients and other substances. Table IV-8 lists common highway runoff constituents and their primary sources.

The potential for impacts from highway runoff to existing surface water quality is determined by pollutant concentrations. These concentrations depend largely on the site conditions, the runoff event, and the rate of pollutant accumulation. Relevant site characteristics include: percent of impervious area, shoulder and/or curb type, drainage ditch lining, and the presence of retention or detention basins.

The TSM Alternatives are not expected to cause any disruption of major or minor stream systems.

Alternative 2S-20' Median and the dualize alternatives will require the crossing of several streams, tributaries and other drainageways within the study areas. The perennial streams have water quality which is conducive to the support of aquatic plant materials, migratory fish species as well as other

aquatic organisms. Other waterways are minor drainage ditches or intermittent streams which provide spatially and temporarily limited habitats for aquatic organisms. Table IV-9 lists the number, probable type, and preliminary size of each proposed stream crossing.

During construction of the alternatives, surface water quality may be temporarily impacted by increased sedimentation associated with grading operations. This impact will be temporary in nature, and limited to the construction period.

The potential toxic effects of certain constituents in highway runoff on biota within receiving waters may be related to inorganic chemicals such as heavy metals, salts, etc., and organic compounds such as oil and grease, herbicide and pesticides. These constituents can create problems with the physiology of aquatic organisms leading to stress, disease and mortality. Toxicity by runoff pollutants decreases bethic community diversity, and shifts community structure from pollution intolerant groups to pollution tolerant groups. Very toxic substances eliminate aquatic biota until dilution, dissipation or volitization reduces the concentration below the toxic threshold, (FHWA, 1976). Toxic effects at any level of the aquatic foodchain are seriously detrimental to the entire system.

Pollutant accumulation levels are determined by the initial surface pollutant load, the pollutant accumulation rate and the time of accumulation. The majority of pollutants are released from vehicles, therefore accumulation rates are largely dependent on the volume and velocity of traffic, (Kobriger et al., 1981). Following a large storm event, initial pollutant levels are considered to be negligible. Runoff from highways with high ADT levels has been associated with the toxic effects on aquatic biota [Winter and Gidley, 1980 (185,000 ADT)]; Portele et al., 1982, (50,000 ADT), whereas, runoff from rural low ADT highways has been associated with only minor effects to aquatic biota (Dupis et al., 1984). Because the ADT for all of the US 113 alternatives (including No-Build and TSM) in the design year 2020 are predicted to range from 5,000 to 20,000 only minor impacts would be expected.

Impacts to the aquatic biota of the streams located within the study areas will include a variety of temporary and permanent construction impacts which will be both and may impact local biota in various ways. Impacts to the streams and their biota may result from structures such as culverts, pipes, piers and abutments. Stream crossings using culverts and/or pipes have the potential to disrupt fish migrations, cause streambank and cause substrate instability which could lead to the loss of invertebrate biota and suitable fish habitat, especially fish spawning habitats. Measures to improve fish passage may include maintenance of low flow channels, provision of baffles, and the suppression of the culvert bottom to maintain a natural stream bottom.

Table IV-8: Common Highway Runoff Constituents and Their Primary Sources*

Constituent	Primary Sources
Particulates	Pavement wear, vehicles, atmosphere, maintenance
Nitrogen, Phosphorous	Atmosphere, roadside fertilizer application
Lead	Leaded gasoline (auto exhaust), tire wear (lead oxide filler material), lubricating oil and grease, bearing wear
Zinc	Tire wear (filler material), motor oil (stabilizing additive), grease
Iron	Auto body rust, steel highway structures (guardrails, etc.), moving engine parts
Copper	Metal plating, bearing and bushing wear, moving engine parts, brake lining wear, fungicides and insecticides applied by maintenance operations
Cadmium	Tire wear (filler material), insecticide application
Chromium	Metal plating, moving engine parts, brake lining wear
Nickel	Diesel fuel and gasoline (exhaust), lubricating oil, metal plating, bushing wear, brake lining wear, asphalt paving
Manganese	Moving engine parts
Bromide	Exhaust
Cyanide	Anticake compound (ferric ferrocyanide, Prussian Blue or sodium ferrocyanide, Yellow Prussiate of Soda) used to keep deicing salt granular
Sodium, Calcium	Deicing salts, grease
Chloride	Deicing salts
Sulphate	Roadway blends, fuel, deicing salts
Petroleum	Spills, leaks or blow-by of motor lubricants, antifreeze and hydraulic fluids, asphalt surface leachate
Polychlorinated Biphenyls	Spraying of highway right-of-ways, background atmospheric deposition, PCB catalyst in synthetic tires
Pesticides, Pathogenic bacteria (indicators)	Soil, litter, bird droppings and trucks hauling livestock and stockyard waste
Rubber	Tire wear
Asbestos	Clutch and brake lining wear

* Source: Kobriger, 1984

Table IV-9: Number, Probable Type, and Preliminary Size of Stream Crossings by Alternative

Alternative	Stream Crossing	Type and Length of Crossing	Size of Structure	Linear Feet of Stream Impact
1S - No-Build	Purnell Branch	Box Culvert	3 cell-23 feet	0
	Poorhouse Branch	Reinforced Concrete Pipe	3 cell-60 inches	0
	Five Mile Branch	Box Culvert	6 feet x 8 feet	0
	Massey Branch	Reinforced Concrete Pipe	2 cell-48 inches	0
	Porter Creek	Reinforced Concrete Pipe	2 cell-52 inches	0
	Goody Hill Branch	Box Culvert	6 feet x 14 feet	0
	Catbird Creek	Corregated Metal Pipe	36 inches	0
	Poplartown Branch	Box Culvert	5 feet x 9 feet	0
2S - TSM	Purnell Branch	Box Culvert	3 cell-23 feet	0
	Poorhouse Branch	Reinforced Concrete Pipe	3 cell-60 inches	0
	Five Mile Branch	Box Culvert	6 feet x 8 feet	0
	Massey Branch	Reinforced Concrete Pipe	2 cell-48 inches	0
	Porter Creek	Reinforced Concrete Pipe	2 cell-52 inches	0
	Goody Hill Branch	Box Culvert	6 feet x 14 feet	0
	Catbird Creek	Corregated Metal Pipe	36 inches	0
	Poplartown Branch	Box Culvert	5 feet x 9 feet	0
2S - 20' Median	Purnell Branch	Box Culvert	3 cell-23 feet	60
	Poorhouse Branch	Reinforced Concrete Pipe	3 cell-60 inches	90
	Five Mile Branch	Box Culvert	6 feet x 8 feet	60
	Massey Branch	Reinforced Concrete Pipe	2 cell-48 inches	40
	Porter Creek	Reinforced Concrete Pipe	2 cell-52 inches	55
	Goody Hill Branch	Box Culvert	6 feet x 14 feet	75
	Catbird Creek	Corregated Metal Pipe	36 inches	50
	Poplartown Branch	Box Culvert	5 feet x 9 feet	50
				480
3S - 20' Median	Purnell Branch	Box Culvert	3 cell-23 feet	170
	Poorhouse Branch	Reinforced Concrete Pipe	3 cell-60 inches	80
	Five Mile Branch	Box Culvert	6 feet x 8 feet	80
	Massey Branch	Reinforced Concrete Pipe	2 cell-48 inches	80
	Porter Creek	Reinforced Concrete Pipe	2 cell-52 inches	100
	Goody Hill Branch	Box Culvert	6 feet x 14 feet	115
	Catbird Creek	Corregated Metal Pipe	36 inches	80
	Poplartown Branch	Box Culvert	5 feet x 9 feet	85
				790
3S - 34' Median	Purnell Branch	Box Culvert Extension	3 cell-23 feet	180
	Poorhouse Branch	Reinforced Concrete Pipe Ext.	3 cell-60 inches	90
	Five Mile Branch	Box Culvert Extension	6 feet x 8 feet	90
	Massey Branch	Reinforced Concrete Pipe Ext.	2 cell-48 inches	90
	Porter Creek	Reinforced Concrete Pipe Ext.	2 cell-52 inches	110
	Goody Hill Branch	Box Culvert Extension	6 feet x 14 feet	125
	Catbird Creek	Corregated Metal Pipe	36 inches	90
	Poplartown Branch	Box Culvert	5 feet x 9 feet	95
				870

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Table IV-9: Number, Probable Type, and Preliminary Size of Stream Crossings by Alternative (continued)

Alternative	Stream Crossing	Type and Length of Crossing	Size of Structure	Linear Feet of Stream Impact
1N - No-Build	Crippen Branch Church Branch Middle Branch Birch Branch Carey Branch	Corregated Metal Pipe Box Culvert Box Culvert Box Culvert Box Culvert	2 cell-36 inches 8 ½ feet x 15 feet 7 ½ feet x 9 feet 7 feet x 16 feet 6 feet x 11 feet	0 0 0 0 0
2N - TSM	Crippen Branch Church Branch Middle Branch Birch Branch Carey Branch	Corregated Metal Pipe Box Culvert Box Culvert Box Culvert Box Culvert	2 cell-36 inches 8 ½ feet x 15 feet 7 ½ feet x 9 feet 7 feet x 16 feet 6 feet x 11 feet	0 0 0 0 0
3N - 20' Median (50 MPH)	Crippen Branch Church Branch Middle Branch Birch Branch Carey Branch	Corregated Metal Pipe Box Culvert Box Culvert Box Culvert Box Culvert	2 cell-36 inches 8 ½ feet x 15 feet 7 ½ feet x 9 feet 7 feet x 16 feet 6 feet x 11 feet	85 120 350 140 80 775
3N - 34' Median (50 MPH)	Crippen Branch Church Branch Middle Branch Birch Branch Carey Branch	Corregated Metal Pipe Box Culvert Box Culvert Box Culvert Box Culvert	2 cell-36 inches 8 ½ feet x 15 feet 7 ½ feet x 9 feet 7 feet x 16 feet 6 feet x 11 feet	95 130 380 150 90 845
3N - 20' Median (60 MPH)	Crippen Branch Church Branch Middle Branch Birch Branch Carey Branch	Corregated Metal Pipe Ext. Box Culvert Extension Box Culvert Extension Box Culvert Extension Box Culvert Extension	2 cell-36 inches 8 ½ feet x 15 feet 7 ½ feet x 9 feet 7 feet x 16 feet 6 feet x 11 feet	105 140 415 160 115 935
3N - 34' Median (60 MPH)	Crippen Branch Church Branch Middle Branch Birch Branch Carey Branch	Corregated Metal Pipe Ext. Box Culvert Extension Box Culvert Extension Box Culvert Extension Box Culvert Extension	2 cell-36 inches 8 ½ feet x 15 feet 7 ½ feet x 9 feet 7 feet x 16 feet 6 feet x 11 feet	115 160 430 170 130 1005
4N Modified - 20' Median	Church Branch Middle Branch Birch Branch Carey Branch	New Box Culvert New Box Culvert Box Culvert Extension Box Culvert Extension	8 ½ feet x 15 feet 7 ½ feet x 9 feet 7 feet x 16 feet 6 feet x 11 feet	270 500 160 115 1045
4N Modified - 34' Median	Church Branch Middle Branch Birch Branch Carey Branch	New Box Culvert New Box Culvert Box Culvert Extension Box Culvert Extension	8 ½ feet x 15 feet 7 ½ feet x 9 feet 7 feet x 16 feet 6 feet x 11 feet	285 520 170 130 1,105

Table IV-9: Number, Probable Type, and Preliminary Size of Stream Crossings by Alternative (continued)

Alternative	Stream Crossing	Type and Length of Crossing	Size of Structure	Linear Feet of Stream Impact
3N/4N Modified - 20' Median	Church Branch Middle Branch Birch Branch Carey Branch	New Box Culvert New Box Culvert Box Culvert Extension Box Culvert Extension	8 ½ feet x 15 feet 7 ½ feet x 9 feet 7 feet x 16 feet 6 feet x 11 feet	270 500 160 115 1045
3N/4N Modified - 34' Median	Church Branch Middle Branch Birch Branch Carey Branch	New Box Culvert New Box Culvert Box Culvert Extension Box Culvert Extension	8 ½ feet x 15 feet 7 ½ feet x 9 feet 7 feet x 16 feet 6 feet x 11 feet	285 520 170 130 1,105

Abrupt changes in channel width can result in increase scouring and erosion in areas where the channel has been narrowed and can also result in a broader shallower stream channel in areas where the stream is widened. This can result in disruption of fish migration due to a decrease in stream depth and channel formation.

Broader, shallower streams promote warming of the stream and a decrease in dissolved oxygen. An increase in temperature and dissolved oxygen can limit fish populations or result in changes in fish populations. They can also disrupt invertebrate populations and affect how pollutants such as metals are processed through the aquatic ecosystem.

During final design, consideration will be given to maintaining the geomorphic stability of the stream channels, "daylighting" portions of the culverts to maintain stream production and encourage animal usage, and maintaining the active floodplain of the streams crossed.

New stream crossings at Church Branch and Middle Branch would be required with the relocation alternatives (Alternatives 4N Modified and 3N/4N Modified). The type, size, and location (TS&L) of the crossings will be determined during final design when detailed hydrologic data is available. During final design, consideration will be given to maintaining geomorphic stability of the stream channels and the maintenance the active floodplain of the streams crossed. Full or partial bridging options will be given full consideration. Coordination with resource agencies will continue throughout all phases of this project.

The restoration of streams within the study area to compensate for stream loss will be considered during final design. Until detailed hydrologic data is available it is not possible to identify appropriate restoration methods.

The Pocomoke River, a Maryland wild and scenic river, is located at least 2,500 feet to the west of US 113. Because the river flows roughly parallel to the roadway, US 113 does not cross it. No impacts to the wild and scenic resource are expected.

Adverse impacts to water quality during construction of the roadway or borrow pits will be mitigated through strict adherence to the SHA erosion and sediment control procedures. All borrow material will be obtained from clean upland sites. All areas of exposed soil will be vegetatively or structurally stabilized as soon as practical. An SHA approved stormwater management plan will also be required for this project. The stormwater management plan will include both quantity and quality management for stormwater runoff prior to discharge into receiving waters.

Stormwater management facilities can cause several negative environmental impacts including: increasing downstream water temperatures, reducing downstream dissolved oxygen level during dry weather discharge, sacrifice of upstream channels, provide a barrier to the downstream movement of bedload, provide a barrier to fish movement, and the disturbance of wetlands (Schuler and Galli, 1991). These negative impacts will be minimized by the careful placement of these facilities outside stream channels and wetlands.

Other measures to minimize construction related impacts include:

- Initiating temporary stream closures where necessary.
- Minimizing equipment operation within the stream channels.
- Constructing temporary in-stream measures (Coffer dams, stream crossings) with clean materials.
- Locating equipment fueling and service staging areas away from aquatic resources.
- Constructing culvert extensions or new structures at stream crossings in such a manner as to promote continued easy fish migration and/or avoid any additional impact within stream channels.

All waters of the United States including Jurisdictional Wetlands are regulated under Section 404 of the Clean Water Act (CWA). These areas also regulated by the State of Maryland through its wetlands and waterways statutes. Project activities impacting jurisdictional waters and wetlands will require authorization from the Corps of Engineers and the Maryland Department of the Environment.

H. Floodplains

The No-Build and TSM Alternatives will not cause additional impacts to any 100-year floodplains.

Each of the Build Alternatives will traverse the 100 year floodplains associated with major stream systems in the study areas which include Purnell Branch, Poorhouse Branch, Five Mile Branch, Massey Branch, Porter Branch, Goody Hill Branch, and Poplartown Branch in the southern study area and Crippen Branch, Church Branch, Middle Branch, Birch Branch and Carey Branch on the northern study area. Table IV-10 shows the area of impact to these 100-year floodplains by each alternative.

Table IV-10: Impacts to the 100-Year Floodplain

Alternative	Proposed Floodplain Impact (acres)
1S - No-Build	No Impact
2S - TSM	No Impact
2S - 20' Median	9.5
3S - 20' Median	7.1
3S - 34' Median	8.4
1N - No-Build	No Impact
2N - TSM	No Impact
3N - 20' Median / 50 MPH	5.2
3N - 34' Median / 50 MPH	5.7
3N - 20' Median / 60 MPH	8.0
3N - 34' Median / 60 MPH	8.5
4N Modified - 20' Median	2.7
4N Modified - 34' Median	3.0
3N/4N Modified - 20' Median	2.9
3N/4N Modified - 34' Median	3.1

These estimates are based on preliminary structure sizes. Final determination of sizes will be made during the design phase of the project.

In accordance with the requirements of 23 CFR 650 Executive Order 11988, each encroachment was evaluated to determine its significance. A significant encroachment would involve one of the following:

- a significant potential for interruption or termination of a transportation facility which is needed for emergency vehicles or provides a community's only evacuation routes,
- a significant risk, or
- a significant adverse impact on natural and beneficial floodplain values.

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The use of standard hydraulic design techniques for all waterway openings which limit upstream flood level increases and approximate existing downstream flow rates will be utilized where feasible.

Use of state-of-the-art sediment and erosion control techniques and stormwater management controls will ensure that none of the encroachments would result in risks or impacts to the beneficial floodplain values or provide direct or indirect support to further development within the floodplain. Preliminary analyses indicate that no significant floodplain impacts are expected to occur as a result of any proposed Build Alternatives. A floodplain finding, if required, will be presented in the final environmental document.

All of the proposed culverts, culvert extensions or other structures at stream crossings will pass the 100-year flood flow without flooding of the roadway. Sections of roadway which may traverse a floodplain shall be located above the 100-year flood level for protection from flood damage. At the final design phase of the project, the plans will be reviewed by federal, state and local agencies to ensure that the design complies with state and local floodplains regulations.

Proposed floodplain encroachments must be in accordance with the provisions of Executive Order 11988. Crossings of the 100-year floodplain will be sized to safely convey the 100-year flood flow without overtopping the roadway or causing adverse impacts downstream.

I. Wetlands

Wetland identification methodology is described in Chapter III, Section H. A functional assessment of the wetlands has been conducted using the New England Corps Descriptive Approach. The findings of this assessment are presented in Chapter III, Section H, and are included in the wetland summary table, Table III-15.

Potential impacts to waters of the United States, including Jurisdictional wetlands and streams were determined based on right-of-way limits for each of the alternatives. This represents the "worst case" for the impacts and actual wetland impacts based on construction slope limits should be less. Impacts to waters of the United States including wetlands within the study area are unavoidable for any of the Build Alternatives. The placement of fill within some wetlands and the construction of stream crossings on others will cause the loss of wetland acreage which, in turn, may also impair one or more of the wetland functions detailed in Chapter III. Wetland values and functions may be further impaired by any impacts to surface water quality caused by the construction or operation of US 113 (Surface Water Resources, Section IV-G). Alternative alignments, slope limits, right-of-way, and wetlands locations are shown in Appendix A. The acreage of encroachment for each wetland within the dualization alternatives are included in Table IV-11. Total acreage of encroachment for each wetland class are included in Table IV-12.

Table IV-11: Impacts To Wetlands Within The Study Area By Each Build Alternative[1]

Southern Study Area						
Wetland Number[2]	Wetland Classification[3]	Stream	Total Wetland Area[4] (Acres)	Impacted Area (acres)		
				Alternatives		
				2S - 20' Median	3S - 20' Median	3S - 34' Median
W-1	PEM	Hardship Branch	100	<0.1	0.2	0.3
W-2	PFO	Patty's Branch	>500	1.1	1.1	1.3
W-3	PFO	Patty's Branch	200	<0.1	<0.1	<0.1
W-4	PFO	Patty's Branch	2.0	--	--	--
W-5	PEM/PSS	Patty's Branch	11.0	--	0.4	0.5
W-5A	PEM/PSS	Patty's Branch	2.0	--	0.5	0.6
W-6	PFO	Patty's Branch	>500	--	0.8	0.9
W-7	PFO	Patty's Branch	>500	0.6	--	--
W-8	PFO	Purnell Branch	>500	0.8	1.4	1.6
W-9	PSS/R2	Poorhouse Branch	200	<0.1	0.1	0.1
W-10	PFO	Five Mile Branch	>500	<0.1	--	--
W-11	PFO/R2	Massey Branch	100	1.7	0.1	0.1
W-12	PFO	Massey Branch	>500	0.3	3.6	4.0
W-13	PFO	Porter Creek	100	--	0.6	0.7
W-14	PFO	Bassett Creek	100	--	--	--
W-15	PFO	Bassett Creek	5.0	<0.1	0.6	0.7
W-16	PFO	Bassett Creek	200	0.2	0.5	0.6
W-17	PFO	Bassett Creek	0.8	<0.1	0.4	0.5
W-18	PFO	Catbird Creek	100	0.7	1.2	1.3
W-19	PFO	Poplartown Branch	1.0	--	--	--
W-20	PFO	Poplartown Branch	50	--	--	--
W-21	PFO/R2	Poplartown Branch	200	--	--	--
W-22	PFO	Poplartown Branch	200	0.2	0.3	0.4
TOTAL				5.8	11.8	13.6

1. Stream (waters of the US) impacts are discussed in Section IV-G and in Table IV-2.
2. Farmed wetlands to be verified for the FEIS.
3. Legend: PFO - Palustrine Forested Wetland, PSS - Palustrine Scrub/Shrub Wetland
   PEM - Palustrine Emergent Wetland, R2 - Perennial Stream
4. Total wetland area outside of the study area is estimated from Soil Survey and NWI information.

Apparent errors due to rounding.

NorthernStudy Area											
Wetland Number[2]	Wetland Classification[3]	Stream	Total Wetland Area (Acres)	Impacted Area							
				Alternatives							
				3N - 20' Median 50 MPH	3N -34' Median 50 MPH	3N-20' Median 60 MPH	3N -34' Median 60 MPH	4N Modified-20' Median	4N Modified - 34' Median	3N/4N Modified -20' Median	3N/4N Modified -34' Median
W-23	PFO	Church Branch	3.0	0.1	0.1	0.4	0.4	1.9	1.9	1.9	1.9
W-24	PFO	Crippen	1.0	<0.1	<0.1	<0.1	<0.1	--	--	--	--
W-25	PFO	Branch	100	0.3	0.3	0.4	0.4	--	--	--	--
W-26	PFO/PSS	Crippen	3.0	--	--	--	--	0.6	0.8	0.7	0.8
W-27	PFO	Branch	200	0.1	0.1	0.1	0.1	1.6	1.8	1.6	1.8
W-28	PFO	Church Branch	200	0.7	0.6	1.3	1.5	2.5	2.6	2.5	2.6
W-29	PFO/PSS	Church Branch	1.8	--	--	--	--	0.9	1.0	0.9	1.0
W-30	PFO	Church Branch	>500	0.5	0.4	1.6	1.8	0.9	1.0	0.9	1.0
W-31	PFO	Church Branch	>500	0.8	0.7	0.8	1.0	0.8	1.0	0.8	1.0
W-32	PFO/PSS	Middle Branch	>500	--	--	--	--	--	--	--	--
W-33	PFO	Birch Branch	100	--	--	--	--	--	--	--	--
W-34	PFO	Birch Branch	100	--	--	--	--	--	--	--	--
W-35	PFO	Birch Branch	1.0	--	--	--	--	--	--	--	--
W-36	PEM	Birch Branch	5.0	0.6	0.5	0.7	0.8	0.7	0.8	0.7	0.8
W-37	PFO	Perkins Branch	200	0.2	0.1	0.2	0.4	10.8	12.0	0.2	0.4
W-38	PEM	Perkins Branch	0.7	0.7	0.7	0.7	0.7	--	--	0.7	0.7
W-39	PFO	Carey Branch	200	--	--	--	--	1.3	1.5	--	--
W-40	PFO	Carey Branch Carey Branch Carey Branch	200	0.2	0.2	0.4	0.5	0.4	0.5	0.4	0.5
TOTAL				4.3	3.6	6.6	7.5	22.4	24.8	11.2	12.4

1. Stream (waters of the US) impacts are discussed in Section IV-G and in Table IV-2.
2. Farmed wetlands to be verified for the FEIS.
3. Legend:
   - PFO - Palustrine Forested Wetland
   - PSS - Palustrine Scrub/Shrub Wetland
   - PEM - Palustrine Emergent Wetland
   - R2 - Perennial Stream
4. Total wetland area outside of the study area is estimated from Soil Survey and NWI information. Apparent errors due to rounding.

Table IV-12: Impacts To Wetlands By Alternative By Wetland Classification

Alternative	Wetland Classification			
	Palustrine Forested	**Palustrine Scrub/Shrub**	**Palustrine Emergent**	**Farmed Wetlands[1]**
1S - No-Build	0.0	0.0	0.0	0.0
2S - TSM	0.0	0.0	0.0	0.0
2S - 20' Median	5.8	0.0	<0.1	0.1
3S - 20' Median	11.3	0.2	0.3	0.1
3S - 34' Median	13.0	0.3	0.3	0.2
1N - No-Build	0.0	0.0	0.0	0.0
2N - TSM	0.0	0.0	0.0	0.0
3N - 20' Median / 50 MPH	2.3	0.0	1.3	<0.1
3N - 34' Median / 50 MPH	2.8	0.0	1.4	<0.1
3N - 20' Median / 60 MPH	5.1	0.0	1.5	0.3
3N - 34' Median / 60 MPH	6.0	0.0	1.6	0.4
4N Modified - 20' Median	21.1	0.2	1.1	1.2
4N Modified - 34' Median	23.3	0.2	1.3	1.4
3N/4N Modified - 20' Median	9.2	0.2	1.8	1.1
3N/4N Modified - 34' Median	10.2	0.2	2.0	1.2

[1] Approximate impact to farmed wetlands to be verified and surveyed for the FEIS. Apparent errors due to rounding.

In addition to direct impacts to wetlands caused by earthwork and highway structures, post-construction impacts to wetland values and functions may also be realized. These may include such impacts as: the loss of wetland flora, fauna and habitat due to sediment and pollutant deposition or hydrologic changes; the interruption of reproductive cycles by highway related noise; and the interruption of migration into and out of wetland areas by highway traffic or structural barriers (Erickson, et al., 1980).

Existing functions for each wetland within a Build Alternative right-of-way were determined using New England Corps of Engineers Descriptive method. The definition and assessment criteria that were used during the field review of wetland functions is provided in Chapter III, Section H.3. The results of the wetland function assessment are summarized in Table III-16.

In general, most of the existing functions will continue to be provided by remaining portions of the wetlands although the quantity or magnitude of these functions would be reduced proportionally with the area lost. For some wetlands, the introduction of new sediment/toxicant sources; the introduction or loss of inlets, outlets or construction; the change in the input area; etc, will impact the wetland's effectiveness and/or opportunity to perform some or all functions. The wetland functions most impacted or limited by the Build Alternative include: sediment/toxicant retention, flood flow alteration, wildlife habitat and nutrient removal/ transformation.

Some encroachment into wetlands within the corridor was avoided during preliminary design. Where possible, alternatives were located to avoid wetland resources. Avoidance of the riverine wetlands that are nearly perpendicular to the alternative alignments was not achievable in several instances. Unavoidable impacts to all wetlands will be minimized by circumventing resources to the extent possible; maximizing slopes, thereby reducing fill; and using culverts and bridges to maintain existing stream channels and hydrologic connections.

Specific wetlands impacted by the Build Alternatives are detailed below. Avoidance or further minimization of impacts to these wetlands would cause additional displacements, alignment difficulties or additional wetlands impacts. The following provides the analysis of avoidance alternatives, in accordance with the Section 404 (b) (1) guidelines, for each of the dualization alternatives.

- **Southern Study Area**

  Wetland 1 is located on both sides of existing US 113, north of Castle Hill Road; shifting the dualization to the east would reduce the wetland impact to W-1, but would require approximately 1,500 feet of additional road reconstruction. To minimize the proposed impacts, 2:1 outside slopes and guardrail have been used to reduce the roadway footprint.

  Wetland 2 is located on both sides of existing US 113, south of Snow Hill Road; shifting the dualization to the east would cause additional impacts to W-2. To minimize the proposed impacts, 2:1 outside slopes and guardrail have been used to reduce the roadway footprint.

Wetland 3 is located on both sides of existing US 113, just south of Snow Hill Road; shifting the dualization to the east would impact approximately the same acreage of wetland of W-3 and increase the impact to W-2.

Wetland 4 is located to the east of US 113, south of Brick Kiln Road, and is not impacted by this alternative.

Wetland 5 is located to the west of US 113, north of Washington Street; shifting the dualization to the east would require approximately 2,000 feet of additional road reconstruction and cause an impact to a currently unimpacted farmed wetland and also increase impacts to W-7.

Wetland 5A is located to the west of US 113, south of Public Landing Road. Shifting the dualization to the east would require approximately 2,400 feet of additional roadway construction. Although this shift would reduce the impacts to W-5, W-6 and avoid W-5A, it would cause an impact to a currently unimpacted farmed wetland and the unimpacted W-7.

To minimize the proposed impacts to Wetland 5 and 5A, 2:1 outside slopes and guardrail have been used to reduce the roadway footprint.

Wetland 6 is located to the west of US 113, north of Public Landing Road. Shifting the alignment to the east would require approximately 2,000 feet of additional roadway construction. Although this shift could reduce the impacts to W-5, W-6 and avoid W-5A, it would cause an impact to a currently unimpacted farmed wetland and the unimpacted W-7. Impacts to Wetland 6 are further minimized through the use of 2:1 outside slopes and guardrail to reduce the roadway footprint.

Wetland 7 is located to the east of existing US 113, north of Public Landing Road. This wetland is not impacted by the dualization.

Wetland 8 is located along Purnell Branch on both sides of existing US 113, south of Market Street. This wetland could not be avoided, because of its size and how closely it is located along US 113. Shifting the dualization to the east would cause even greater impacts to the wetland. To minimize the proposed impacts, 2:1 outside slopes and guardrail have been used to reduce the roadway footprint.

Wetland 9 is located along Poorhouse Branch on both sides of existing US 113, north of Cedar town Road. Shifting the dualization to the east would cause greater impacts to W-9.

Wetland 10 is located along Five Mile Branch to the east of existing US 113, North of Cedral Site Lane and is not impacted.

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Wetland 11 is located on both sides of existing US 113. South of Langmaid Road. Shifting the dualization to the east would cause additional impacts to W-11. To minimize the proposed impacts, 2:1 outside slopes and guardrail have been used to reduce the roadway footprint.

Wetland 12 is located along Massey Branch on both sides of existing US 113, between Langmaid and Newark Roads. This wetland could not be avoided, because of its size and location along US 113. Shifting the dualization would decrease the wetland impacts, but would require approximately 3,500 feet of additional roadway construction. To minimize the proposed impacts, 2:1 outside slopes and guardrail have been used to reduce the roadway footprint.

Wetland 13 is located along Porter Creek on both sides of existing US 113, north of Newark Road. Shifting the dualization to the west could reduce the wetland impact, but would require approximately 3,000 feet of additional roadway construction and impact the currently unimpacted W-13A. To minimize the proposed impacts to W-13, 2:1 outside slopes and guardrail have been used to reduce the roadway footprint.

Wetlands 13A and 14 are located to the west and east respectively of existing US 113, between Newark and Goody Hill Roads. These wetlands are not affected by the dualization.

Wetlands 15 and 17 are located to the west, with **Wetland 16** located along Goody Hill Branch on both sides of existing US 113, near Goody Hill Road. Shifting the alignment to the east would avoid W-15 (a wetland of special state concern) and 17, and impact approximately the same acreage from W-16, but the shift would require approximately 2,000 feet of roadway construction and impact a currently unimpacted farmed wetland and increase impacts to W-18. Impacts to W-16 are further minimized through the use of 2:1 outside slopes and guardrail to reduce the roadway footprint.

Wetland 18 is located along Catbird Creek on both sides of existing US 113, south of Bays End Lane. This wetland could not be avoided. Shifting the dualization would increase the impacts to W-18. Impacts to W-18 have been minimized through the use of 2:1 outside slopes and guardrail to reduce the roadway footprint.

Wetlands 19 and 20 are located to the east of existing US 113, between Bays End Lane and Mason Road. These wetlands are not affected by the dualization.

Wetland 21 is located along Poplartown Branch to the east of existing US 113, south of Harrison Road, and is not impacted by the dualization.

Wetland 22 is located along Poplartown Branch to the west side existing US 113, south of Harrison Road. Shifting the dualization to the east would decrease the acreage impacted to W-22, but would impact the currently unimpacted W-21 and require approximately 2,500 feet of additional roadway construction. Impacts to W-22 have been minimized through the use of 2:1 outside slopes and guardrail to reduce the roadway footprint.

- **Northern Study Area**

Wetland 23 (Alternatives 3N and 4N Modified), is located to the west of existing US 113, north of Deer Park Road. Wetland 23, under Alternative 3N, could be avoided by shifting the alignment to the east requiring approximately 600 feet of roadway construction, increasing impacts to W-24 and W-25, additional residential displacements and greater loss of farmlands.

Wetlands 23 and 26, (Alternative 4N Modified), could not be avoided, because of their sizes and how closely they are located to Alternative 4N Modified alignments tie-in/take-off points with existing US 113 roadway.

Wetlands 24 and 25 (Alternative 3N), are located to the east of existing US 113 of the Three Penny Lane intersection. Shifting the dualization to the west would reduce the acreage impacted to W-24 and W-25, but would increase the impacts to W-23 and require approximately 1,000 feet of additional roadway construction.

Wetland 26 (Alternative 4N Modified), could not be avoided, because of their sizes and how closely they are located to Alternative 4N Modified alignments tie-in/take-off points with existing US 113 roadway.

Wetland 27 (Alternative 4N Modified), is located 2,400 feet to the west of existing US 113 between Carey Road and MD Route 90. This wetland could not be avoided, because of its size and being located so close to the existing graded MD Route 90 Interchange.

Wetlands 28, 30 and 31 (Alternatives 3N and 4N Modified). are stream valleys. Church, Middle and Birch Branch respectively, located to both sides of existing US 113 and the 4N Modified alignment crossing between Racetrack and Jarvis Roads. These wetlands could not be avoided by shifting the dualization or realigning the alignment, because of their length. Impacts to W-28, 30, and 31 have been minimized through the use of 2:1 outside slopes and guardrail to reduce the roadway footprint.

Wetland 29 (Alternative 4N Modified), is located 500 feet east of existing US 113, north of Church Branch and on both sides of Alternative 4N Modified. Shifting the alignment to the west would decrease the acreage impacted to W-29, and the roadway lengths would stay approximately the same, but the shift would increase impacts to W-28 and W-30, and require additional residential displacements.

Wetlands 32 and 35 (Alternatives 3N and 4N Modified), are located to the east, with **Wetlands 33 and 34** (Alternatives 3N and 4N Modified), located to the west of existing US 113, between Shingle Landing and Bishopville Roads. These Wetlands are not impacted by the dualization.

Wetland 36 (Alternatives 3N and 4N Modified), is located to the east of existing US 113, north of Old Stage Road. Shifting the dualization to the west would reduce the impacts to W-36, but would impact a currently unimpacted W-33 and require the taking of the C&P Telephone building along with approximately 600 feet of additional roadway construction.

Wetland 37 (Alternatives 3N and 4N Modified) is located to the west of existing US 113, between Bishopville and Whaleyville Roads.

Alternative 3N - Wetlands along existing US 113 could be reduced by shifting the alignment to the east requiring approximately 1,200 feet of additional roadway construction, along with additional residential (4) and business (3) displacements. The wetland impacts were minimized through the use of 2:1 outside slopes and guardrail to reduce the roadway foot print.

Alternative 4N Modified - This part of the wetland could not be avoided to the east or west, because of its size and location. To minimize the proposed impacts, 2:1 outside slopes and guardrail have been used to reduce the roadway footprint.

Wetland 38 (Alternatives 3N and 4N Modified), is located to the east of existing US 113, north of the Maryland and Delaware Railroad crossing. This wetland could not be avoided. Shifting the alignment to the west or east would reduce the acreage from W-38, but the shift would increase the impacts to W-37, require additional residential and business displacement, along with additional roadway construction.

Wetland 39 (Alternatives 3N and 4N Modified), is located 300 feet to the west of existing US 113, north of Whaleyville Road. This wetland could not be avoided. Shifting the alignment to the east would reduce the acreage to W-39, but would require additional residential displacement and roadway construction. Impacts to W-39 are further minimized through the use of 2:1 outside slopes and guardrail to reduce the roadway footprint.

Wetland 40 (Alternatives 3N and 4N Modified), is located along Carey Branch on both sides of existing US 113 and south of Morris Road. This wetland could not be avoided. Shifting the alignment to the east would increase the impacts to W-40, along with additional residential/business displacements and roadway construction. This shift would also impact a currently unimpacted Transpeninsular Line Marker historical property. To minimize the proposed impacts, 2:1 outside slopes and guardrail have been used to reduce the roadway footprint.

During the final design the feasibility of further wetland avoidance and minimization measures will be evaluated. Priority will be given to maintaining the existing acreages and functions of wetlands within the corridor. Where unavoidable impacts exist, mitigation measures will be developed.

In order to minimize impacts to existing wetlands, strict enforcement of the erosion and sediment control measures minimize construction-related impacts. These measures include:

- The use of surface mattings.
- Temporary and permanent seeding.
- The use of channel linings and slope rock protection.
- The use of energy dissipators.
- The use of silt barrier fencing.
- The use of turbidity curtains

The increase of impervious surface area associated with the highway construction will produce higher peak discharges and velocities. Many wetland species have specific water depth requirements, and the potential for exceedance of those requirements is great. The biotic potential of some wetland species may be jeopardized by increased peak discharges and velocities.

Increased velocities lead to erosion and sediment transport and the eventual formation of significant channels and/or aggradation which would limit the areas of inundation, thus shrinking wetland areas. Discharges and velocities will need to be controlled through the use of detention facilities that simulate pre-development conditions. This can be achieved through the use of detention basins and flow regulators. These water quantity measures will protect wetland areas from post development impacts. Best management practices will be used to ensure water quality.

Mitigation for impacted wetlands will be developed in consultation with the Army Corps of Engineers, US Environmental Protection Agency and Maryland Department of the Environment. Resource agency coordination is necessary when developing detailed mitigation measures to compensate for the loss of wetland acreage and functions. Such measures may include the restoration of former wetland areas, creation of new wetlands or the enhancement of degraded or low-functioning wetlands. Generally, impacts to vegetated wetlands are mitigated for through compensatory mitigation and impacts to non-vegetated Waters of the US will be minimized and may be compensated for through habitat improvements.

By agreement between the Army Corps of Engineers and Environmental Protection Agency, the following replacement ratios are a guideline for the mitigation of unavoidable wetland impacts.

- Forested Wetlands - 2:1
- Scrub/Shrub Wetlands - 2:1
- Emergent Wetlands - 1.5:1

These ratios are only a guideline for wetland mitigation and may be adjusted up or down as appropriate to compensate for losses of wetland functions and values and impacts to wetlands of special state concern.

A search for wetland mitigation sites has been initiated to identify areas that would be potentially suitable for wetland creation. The initial focus of the site search has been the identification of prior converted cropland, farmed wetlands, and recently abandoned agricultural land within or adjacent to the proposed right-of-way for US 113. Consultation with the Natural Resource and Conservation Service (NRCS) in Snow Hill, and the review of infra-red aerial photographs has been completed to identify potential wetland mitigation sites. Additional factors evaluated during the site search include adjacent land use/land cover, soils, distance to existing streams and wetlands, proximity to the location of proposed wetland impacts, and ownership. Seven landowners in the project vicinity have indicated an interest in creating wetlands on their property. Additional on-site investigations and negotiations with these landowners are planned to evaluate availability and hydrologic characteristics of the sites.

Seventeen potential wetland mitigation sites have been identified in the study area. Each site has been reviewed by the U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, and Maryland Department of the Environment (see meeting minutes dated March 20 and 28, 1997 in Chapter VI). Coordination with the agencies will continue as more detailed studies are completed for the FEIS.

Several sites will likely be required to compensate for the proposed loss of wetland acreage and functions. In areas that are designated as prior converted cropland, drainage ditches or tile drains would be blocked to restore wetland hydrology. The area would then be replanted with vegetation that is adaptable to wetland conditions and that is found in natural wetlands in the region.

Many of the natural streams in the project area have been ditched or otherwise modified for agricultural purposes. Restoration of natural channel characteristics would be incorporated into the wetland mitigation design where possible, by reestablishing natural fluvial geomorphology and riparian vegetation that is characteristic of the region.

J. Vegetation and Wildlife

1. Vegetation

The No-Build (Alternatives 1S and 1N) and TSM (Alternatives 2S and 2N) alternatives are not expected to cause additional impacts to natural vegetation in the study area.

Alternative 2S-20' Median and the dualize alternatives will require the clearing and grubbing of existing vegetation and the conversion of land for transportation purposes. This will result in the loss of agricultural, forested meadowland and residential and commercial frontage.

Some impacts to natural vegetation, crop fields and miscellaneous lawns and ornamental

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plants are expected to result from each of the 3S and 3N alternatives even as the proposed dualization of US 113 closely parallels the existing roadway.

The 4N Modified alternatives avoid impacts to many residential and commercial properties as the alignments diverges from the existing roadway and impacts primarily agricultural fields, forested and wetland areas.

The 3N/4N Modified alternatives would impact less forested, wetland, and meadow acreage and would impact more landscaped and turfed acreage than the 4N Modified alternatives.

A summary of the impacts on vegetation by each alternative alignment is shown in Table VI-13.

Three specimen trees, one Southern Red Oak and two Tulip Poplars, are located in the study area. They are clustered together, located just north of Harrison Road. A specimen tree is identified as any tree with a DBH (diameter at breast height) of 30 inches, or greater. These trees will be impacted by the Alternative 2S-20' Median and by the 3S alternatives. Impact to the Southern Red oak may be avoided through the inclusion of guardrail. This will be addressed in later stages of this project.

Impacts to forested areas will require reforestation in accordance with the revised Maryland Forest Conservation Act (1994). The mitigation of wetland impacts is addressed in Section IV-I of this document. Other mitigation options such as landscaping, for the impacts to vegetation by the build alternatives will be further defined and finalized in later stages of this project.

Table IV-13: Impacts to Vegetation

Alternative	Agriculture Land (ac)	Upland Forest (ac)	Upland Meadow (ac)	Wetland (ac)	Landscaped and Turfed Areas (ac)	Total (ac)
1S - No-Build	0	0	0	0	0	0
2S - TSM	0	0	0	0	0	0
2S - 20' Median	20	39	8	5.8	56	129
3S - 20' Median	104	47	10	11.8	67	240
3S - 34' Median	115	52	11	13.6	74	266
1N - No-Build	0	0	0	0	0	0
2N - TSM	0	0	0	0	0	0
3N - 20' Median / 50 MPH	35	14	15	3.6	46	114
3N - 34' Median / 50 MPH	39	13	14	4.3	42	112
3N - 20' Median / 60 MPH	39	15	17	6.6	51	129
3N - 34' Median / 60 MPH	44	17	19	7.5	57	145
4N Modified - 20' Median	102	53	15	22.4	15	207
4N Modified - 34' Median	102	59	17	24.8	17	220
3N/4N Modified-20' Median	103	48	17	11.2	17	196
3N/4N Modified-34' Median	103	53	19	12.4	19	206

2. Wildlife

Impacts to wildlife habitat and wildlife were assessed qualitatively based on the loss of areas of natural vegetation which is used as habitat. Based on the vegetative types various wildlife species would be impacted by the roadway alternatives.

Wildlife habitat may be impacted in several ways as a result of this project. The construction of the proposed roadway will cause the physical destruction of habitats but may also cause the fragmentation and/or degradation of habitats as well (Southerland, 1993). Each of the widening Alternatives will require the destruction of some habitat along the existing roadway. This destruction of natural environments will result in the loss of habitat and the wildlife found there. This loss of wildlife is explained in the concept of capability ratings, where each unit of habitat has a proportional wildlife carrying capacity (Schemnitz, 1980). The relocation alternatives (the 4N Modified and 3N/4N Modified alternatives) also will cause habitat fragmentation. The breaking up of large, contiguous tracts of habitat into smaller blocks may have negative impacts on area-sensitive species such as many neotropical migrant birds. The construction of the roadway may also act as a barrier to wildlife movement to and from these habitat fragments. The degradation of habitats may occur due to the disturbance of resident species by light and noise along the road, contamination with pollutants, and the introduction of exotic species. This effect will be minimal for the widening alternatives because of the proximity of the existing road. The relocation alternatives have the potential to further degrade the habitat along the proposed new roadway.

The No-Build Alternative will not cause any additional impacts to wildlife or wildlife habitat within either the southern or northern study areas. Because the TSM (Alternatives 2S and 2N) and 2S-20' Median and 3S and 3N, alternatives closely parallel the existing roadway, the degradation and fragmentations of wildlife habitat will be minimized. The widening will require the removal of natural vegetation from the proposed right-of-way and a proportional loss of wildlife habitat and the wildlife using that habitat.

The 4N Modified alternatives require the provision of right-of-way area sufficient enough to include the divided roadway, shoulders and safety grading (minimum of 200 feet). This alternative as well as portions of the 3N/4N Modified alternatives on new location, primarily impact agricultural fields and forested areas resulting in fragmentation of wildlife habitat within the corridor in addition to the physical removal of natural vegetation.

The dualization of US 113 will increase the possibilities of migratory animal mortality. Research (Michael, 1975) found that the construction of a new roadway had little effect on the distribution or density of animals within the remaining habitats. The new right-of-way vegetation (such as grasses) may however attract some species to areas which had formerly been forested such as American robin and woodchuck. Also, the edge created between two

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habitat types known as the ecotone, will be beneficial to other species such as the white-tail deer and black rat snake (Leedy and Adams, 1997). These effects will be minimal however because of the large, existing areas of open agricultural land and the existing ecotones throughout the study areas.

The wildlife species found within the vicinity of the alignments along existing US 113 are generally tolerant of man induced noise. Wildlife species found in the areas of new alignment may be exposed to new noise elements. Noise levels may have a negative impact on breeding birds who depend on vocal communication for attracting mates. It is expected that additional pollutants carried into adjacent water resources by surface runoff could result in some water quality degradation, thereby affecting biota within the receiving water resources, however, as shown in Section IV-G these effects are expected to be minimal. Minor additional air pollution is not expected to have an adverse affect on wildlife as it will be readily dispersed by wind.

The associated loss of wildlife caused by alternatives may be mitigated by the enhancement of the wildlife habitat through reforestation including vegetation with high wildlife food value (mast producing trees, seed or berry producing shrubs, etc.), and plants which will provide cover for wildlife.

To protect aquatic resources including anadromus fish species such as yellow perch, white perch, alewife, and blueback herring, no instream construction will be permitted between February 15 and June 15.

SHA has coordinated with US Fish and Wildlife Service and with the Maryland Department of Natural Resources to identify rare, threatened or endangered species in the study area.

3. Rare, Threatened and Endangered Species

There are no federally listed rare, threatened, or endangered (RTE) species known to occur within the study area therefore no impacts will occur. Of the five state listed RTE species recorded in the project area, two of these, the state rare seaside alder (*Alnus maritima*) and the blackbanded sunfish (*Enneaconthus chactadon*) which is in need of conservation, are potentially impacted by the dualization alternatives. The presence of several seaside alders within the southern study area was verified during field surveys in July 1996. Although the presence of the blackbanded sunfish was not confirmed during this study, it has been identified during previous surveys of Carey Branch in the northern study area.

The No-Build and TSM alternatives are not expected to cause any impacts to rare, threatened, or endangered species or their habitats within the northern or southern study area.

Impacts to the seaside alder by Alternative 2S-20' Median and the 3S alternatives will be minimized through the minimization of impacts to the wetland habitats where it is found (Davidson, 1996). Prior to disturbance by either of these build alternatives, the seaside alders that occur within the proposed impact area could be transplanted to other suitable habitat. Consideration will be given for including seaside alder groves in wetland creation/restoration areas if possible.

Impacts to the blackbanded sunfish by the 3N, 4N Modified, and 3N/4N Modified alternatives will be minimized by strictly adhering to the required stream closure for in-stream work from February 15 to June 15 (Dintman, 1995). To protect aquatic resources no instream construction is allowed to take place during the closure period. Impacts will be further minimized by strict sediment and erosion control measures which will prevent sediment contamination of Carey Branch.

K. Air Quality

The air quality analysis indicates that carbon monoxide impacts resulting from the implementation of the No-Build, TSM, or any of the Build Alternatives would not result in a violation of the S/NAAQS 1-hour CO concentration of 35 ppm or the 8-hour CO concentration of 9 ppm, at any air quality receptor location, in either analysis year. Table IV-14 shows the predicted No-Build/TSM and Build 1 hour and 8 hour CO concentrations for the southern study area for 2000 and 2020. Table IV-15 shows the predicted No-Build, TSM and build CO concentrations for the northern study area for same analysis years.

The construction phase of the proposed project has the potential to impacts the local ambient air quality by generating fugitive dust through activities such as demolition and materials handling. the State Highway Administration has addressed this possibility by establishing "Standard Specifications for Construction and Materials" which specifies procedures to be followed by contractors involved in site work.

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

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TABLE IV-14: CO Concentrations - Southern Study Area

Receptor	2000				2020			
	No-Build		Build		No-Build		Build	
	1-Hr.	8-Hr.	1-Hr.	8-Hr.	1-Hr.	8-Hr.	1-Hr.	8-Hr.
1-1	2.6	0.9	2.7	0.9	2.6	0.9	2.7	0.9
1-2	2.7	0.9	2.8	1.0	2.8	0.9	2.8	1.0
1-3	2.7	0.9	2.7	0.9	2.7	0.9	2.7	0.9
2-1	2.7	0.9	2.8	0.9	2.7	1.0	2.8	0.9
2-2	2.9	1.0	2.8	1.0	2.9	1.0	2.8	1.0
2-3	2.9	1.0	2.9	1.1	2.9	1.0	2.9	1.1
2-4	3.2	1.1	3.0	1.1	3.1	1.1	3.0	1.1
2-5	3.1	1.1	3.1	1.1	3.0	1.1	3.1	1.1
2-6	3.5	1.3	3.3	1.3	3.5	1.3	3.3	1.2
3-1	3.0	1.1	3.1	1.1	3.0	1.1	3.1	1.1
3-2	3.3	1.2	3.2	1.2	3.3	1.2	3.2	1.2
3-3	2.9	1.0	3.0	1.1	2.9	1.0	2.9	1.0
3-4	3.4	1.2	3.0	1.2	3.4	1.2	3.0	1.1
3-5	3.0	1.1	3.1	1.1	3.0	1.1	3.1	1.1
3-6	2.9	1.0	3.0	1.1	2.9	1.0	3.0	1.1
3-7	3.1	1.1	3.1	1.1	3.1	1.1	3.1	1.1
3-8	2.8	1.0	2.8	1.0	2.8	1.0	2.8	1.0
3-9	2.9	1.0	2.9	1.1	2.9	1.0	2.9	1.1
4-1	3.0	1.1	3.2	1.1	3.0	1.1	3.2	1.1
4-2	3.0	1.1	2.9	1.1	3.0	1.1	2.9	1.1
4-3	2.8	1.0	2.7	0.9	2.8	1.0	2.7	0.9
4-4	2.9	1.1	3.1	1.1	2.9	1.1	3.1	1.1
4-5	3.1	1.1	2.9	1.1	3.1	1.1	2.9	1.1
4-6	3.4	1.3	3.2	1.1	3.4	1.3	3.2	1.1
4-7	2.9	1.0	3.0	1.1	2.9	1.1	3.0	1.1
4-8	3.0	1.1	2.9	1.0	3.0	1.1	2.9	1.0
4-9	3.2	1.1	3.1	1.1	3.2	1.1	3.1	1.1
4-10	2.8	1.0	2.8	1.0	2.8	1.0	2.8	1.0
4-11	2.9	1.0	3.0	1.1	2.9	1.0	3.0	1.1
4-12	2.9	1.0	2.9	1.1	2.9	1.0	2.9	1.1

Notes: 1-hour average CO concentrations include a 2.6 ppm background concentration. Worse Case (a.m. or p.m.) shown.
8-hour average CO concentrations include a 0.9 ppm background concentration.
The S/NAAQS for the 1-hour average is 35.0 ppm.
The S/NAAQS for the 8-hour average is 9.0 ppm.

TABLE IV-15: CO Concentrations - Northern Study Area

Receptor	2000						2020				
	No-Build		Build				No-Build		Build		
			3N		4N Modified				3N		4N Moc
	1-Hr.	8-Hr.	1-Hr.	8-Hr.	1-Hr.	8-Hr.	1-Hr.	8-Hr.	1-Hr.	8-Hr.	1-Hr.
6-1	3.0	1.0	3.0	1.1	2.9	1.1	3.0	1.0	3.0	1.1	2.9
6-2	3.1	1.1	3.0	1.1	2.6	0.9	3.1	1.1	3.0	1.1	2.7
6-3	3.7	1.3	3.1	1.2	2.6	0.9	3.7	1.4	3.1	1.2	2.6
6-4	2.9	1.0	2.9	1.1	2.6	0.9	3.0	1.0	3.0	1.1	2.6
6-5	3.1	1.1	2.9	1.1	2.6	0.9	3.1	1.1	2.9	1.1	2.6
6-6	2.6	0.9	2.6	0.9	2.9	1.0	2.6	0.9	2.6	0.9	2.9
6-7	2.7	1.0	2.8	0.9	2.6	0.9	2.7	1.0	2.8	0.9	2.6
6-8	3.3	1.2	3.2	1.2	2.6	0.9	3.3	1.2	3.2	1.2	2.6
6-9	3.3	1.2	3.1	1.1	2.6	0.9	3.4	1.3	3.1	1.1	2.7
6-10	2.9	1.0	2.9	1.0	2.7	0.9	3.0	1.0	3.0	1.1	2.7
6-11	3.0	1.0	3.0	1.0	2.8	1.0	3.0	1.1	3.1	1.1	2.8
6-12	2.9	1.0	2.9	1.0	2.7	0.9	2.9	1.0	2.9	1.0	2.7
6-13	2.9	1.0	2.9	1.0	2.6	0.9	2.9	1.0	2.9	1.0	2.7
6-14	3.0	1.1	2.9	1.0	2.7	0.9	3.0	1.1	2.9	1.0	2.8
6-15	3.1	1.1	2.9	1.0	2.9	1.0	3.2	1.1	2.9	1.0	2.9
6-16	5.4	2.0	3.9	1.4	3.9	1.4	5.9	2.3	4.2	1.6	4.2
6-17	3.1	1.1	2.8	1.0	2.6	0.9	3.1	1.1	2.8	1.0	2.7
6-18	2.8	1.0	2.9	1.0	2.6	0.9	2.9	1.0	2.9	1.0	2.6
6-19	3.1	1.1	3.3	1.3	2.6	0.9	3.2	1.1	3.3	1.3	2.6
7-1	3.5	1.3	3.0	1.2	3.2	1.2	3.6	1.3	3.1	1.2	3.3
7-2	2.8	1.0	2.8	1.0	2.8	1.0	2.8	1.0	2.8	1.0	2.8
7-3	2.8	0.9	2.8	0.9	2.8	0.9	2.8	1.0	2.8	0.9	2.8
7-4	3.0	1.1	3.1	1.2	3.1	1.8	3.0	1.1	3.1	1.2	3.1
7-5	3.2	1.2	3.7	1.5	3.7	1.5	3.3	1.2	3.7	1.5	3.7
7-6	2.9	1.0	2.9	1.1	2.9	1.1	2.9	1.0	2.9	1.1	2.9
7-7	2.8	1.0	2.9	1.1	2.9	1.1	2.8	1.0	2.9	1.1	2.9
7-8	3.0	1.0	3.1	1.1	3.1	1.1	3.0	1.1	3.1	1.2	3.1
7-9	3.3	1.2	3.1	1.2	2.9	1.0	3.4	1.2	3.1	1.2	2.9
7-10	3.4	1.2	3.1	1.2	2.8	1.0	3.4	1.3	3.2	1.2	2.8
7-11	5.7	2.4	4.9	2.0	3.2	1.1	5.6	2.5	5.0	2.1	3.2
7-12	3.4	1.2	3.6	1.4	3.2	1.1	3.6	1.3	3.7	1.4	3.3
7-13	3.4	1.2	3.2	1.2	3.0	1.0	3.4	1.2	3.3	1.2	3.0
7-14	3.7	1.3	3.4	1.3	3.3	1.3	3.8	1.4	3.5	1.3	3.3
7-15	3.0	1.1	3.2	1.1	3.1	1.1	3.0	1.1	3.1	1.1	3.1
7-16	3.1	1.1	2.9	1.1	2.9	1.1	3.1	1.1	3.0	1.1	3.0

Notes: 1-hour average CO concentrations include a 2.6 ppm background concentration. Worse Case (a.m. or p.m.) shown.
8-hour average CO concentrations include a 0.9 ppm background concentration.
The S/NAAQS for the 1-hour average is 35.0 ppm.
The S/NAAQS for the 8-hour average is 9.0 ppm

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L. Noise Quality

1. Criteria for Determining Noise Impact

The existing noise environment of the area residential receptors involved in this study reflects a base of steady "background" noise, which is the sum of many distant noise sources. Super-imposed on this background noise is the noise from traffic on US 113.

To describe noise environments, and to assess impact on noise sensitive areas, a frequency weighing measure which simulates the human perceptions is customarily selected. A-weighted ratings of noise sources, which reflect the human ear's reduced sensitivity to low frequencies, have been found to correlate well with human perceptions of the annoying aspects of noise, particularly from traffic noise sources. Consequently A-weighted noise levels, described in decibels-A or dBA, are the values cited by Federal Highway Administration (FHWA) in its noise criteria. Noise levels can often be predicted by knowing the general characteristics of the source and its surroundings.

One area of environmental acoustics that has received considerable attention is the development of methods to describe the impact of highway noise on the community. Attempts to correlate noise environments with community annoyance have led to the development of several single-number noise descriptions for the assessment of community reaction. To accurately reflect peoples' reactions to noise, a descriptor should describe the fluctuating noise levels completely by including intensity and frequency characteristics along with the variation of both over time. Furthermore, it should describe, in a single number, the known effects of noise on humans. A descriptor that satisfies these requirements is the Equivalent Noise Level, L_{eq}, which is the constant noise level that contains the same amount of acoustical energy as the actual fluctuating level of interest over the same period of time. The FHWA has designated the hourly Equivalent Noise level value, $L_{eq}(h)$, in its noise criteria.

Criteria adopted by the Maryland SHA for the determination of an impacted receptor have been implemented throughout the analysis for this project and are summarized as follows:

According to the procedures described in FHWA Title 23 Code of Federal Regulations Part 772, noise impacts occur when predicted noise levels for the design year (2020) approach or exceed the noise abatement criterion for a particular land use category, or when predicted noise levels are substantially higher than existing ambient noise levels. The Maryland State Highway Administration and FHWA defines "approach" as 66 dBA or above, and uses a 10 dBA increase to define a substantial increase. Under SHA's current noise policy, once an impact has been identified, the following factors are evaluated to determine whether mitigation is feasible and reasonable:

Feasibility

- Can noise levels be reduced by at least 3 decibels at impacted receptors? The noise reduction goal for receptors with the highest noise levels (first right-of-way receivers) is 7-10 decibels.

- Will the placement of a noise barrier restrict pedestrian or vehicular access or cause a safety problem, such as limiting sight distance or reduction of a vehicle recovery area?

- Will the construction of a noise barrier result in utility impacts?

- Will the construction of a noise barrier have an impact upon existing drainage?

- Will an impact occur to a Section 4(f) resource? Section 4(f) resources include publicly owned recreation areas and parks, wildlife areas, conservation areas and historic sites that are either on or eligible for the National Register of Historic Places.

- Are there other non-highway noise sources in the area that would reduce the effectiveness of a noise barrier?

Reasonableness

- Acceptability of proposed abatement. SHA requires that 75% of impacted and benefited residents approve of the proposed abatement.

- Comparison of no-build to build noise levels. Noise abatement is considered reasonable if a 3 decibel or greater change in design year build noise levels over design year no-build levels will result from the proposed highway improvements. The cumulative effects of the highway improvements made after the construction of the original highway will also be considered.

- If noise levels equal or exceed 72 decibels at impacted receptors, SHA will consider noise abatement reasonable for any proposed improvements that will increase the noise levels.

- Is the cost of abatement reasonable? SHA defines reasonable cost as a maximum of $50,000 per residence. SHA feels it is reasonable to include in the cost calculation all impacted receivers that would receive a 3 decibel or greater reduction from a barrier. SHA will consider all receptors that <u>will not</u> experience noise levels equal to or greater than 66 decibels or an increase of 10 decibels over ambient levels as benefited by a noise barrier if they receive a 5 decibel or greater reduction from a noise barrier.

The most recent five years of bidding experience will be used to calculate the square foot factor used to estimate noise barrier cost. Currently, SHA is using a cost of $178.03 per square meter ($16.54 per square foot). This cost figure is based upon current costs of panels, footings, and installation.

- Will the noise barriers have a significant negative visual impact at impacted receptors?

- Are there any special circumstances, i.e. historical/cultural significance at the receptors that should be evaluated?

2. Predicted Noise Levels

Analysis Procedures

This analyses was conducted in accordance with standard Federal Highway Administration guidelines and current State Highway Administration procedures and policies. The analysis began with the determination of existing noise levels along US 113 by measuring ambient noise levels at 65 receptor sites. Existing noise levels were recorded using a Metrosonic db-308 Sound Analyzer for a 15-minute period. An acoustic analysis was performed utilizing the STAMINA 2.0 traffic noise prediction model. The computer model incorporates the following:

- Traffic characteristics (volume, speed, percentage of heavy and medium trucks)
- Topography (distance, elevation, vegetation, barriers)
- Roadway characteristics (distance and elevation)
- Sensitive receptors (distance and elevation)

The STAMINA 2.0 computer model was established based upon proposed roadway improvements and projected future traffic conditions which included prediction points along the existing roadway, and the aforementioned field receptors. The predicted increase in noise levels was computed by subtracting the predicted noise levels from the existing noise levels. Additionally, a future No-Build scenario was modeled. The No-Build model is based upon the existing roadway conditions and projected future traffic conditions. This allows comparison of the future noise levels between the No-Build and build alternatives. The SHA criteria for determining an impacted receiver can be applied.

Traffic Data

Traffic data were recorded in 15 minute samples during monitoring at several ambient receptor sites and then converted to hourly volumes. The traffic samples were utilized in calibrating the STAMINA 2.0 models. Samples were recorded for autos, medium trucks and

heavy trucks and their associated speeds noted. Medium trucks are defined as two axle trucks and heavy trucks as three or more axles. Future traffic volumes for the No-Build and Build conditions, including truck percentages and directional split, were predicted by the SHA Travel Forecasting Section.

Under some conditions, future traffic volumes were predicted which are worse than Level of Service (LOS) 'C'. Volumes were analyzed using the 1985 Highway Capacity Manual procedures. Maximum noise levels due to roadway traffic occur when a roadway operates at LOS 'C'. Therefore, for these areas, the roadway volume which produces LOS 'C' was defined and utilized in the noise model. For conditions where the roadway operates at a level better than LOS 'C', the predicted actual traffic volumes were used in the noise model.

Predicted Results

Table IV-16 presents the predicted noise levels for the design year No-Build alternative.

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Table IV-16: Summary of Noise Levels

Receptor Number	Ambient Noise Level (dBA)	Design Year 2020 Noise Levels (dBA) (No- Build)
1-1	65	53
1-2	57	52
1-3	59	58
2-1	58	58
2-2	60	63
2-3	58	60
2-4	63	64
2-5	64	64
2-6	67	67
3-1	63	61
3-2	66	62
3-3	65	69
3-4	71	67
3-5	62	61
3-6	58	63
3-7	56	58
3-8	61	58
3-9	63	59
4-1	58	57
4-2	64	63
4-3	64	55
4-4	60	61
4-5	61	61
4-6	58	60

Shaded area indicates a noise level which approaches or exceeds the FHWA Design Noise Level of 67 dBA.

Table IV-16: Summary of Noise Levels, continued

Receptor Number	Ambient Noise Level (dBA)	Design Year 2020 Noise Levels (dBA) (No- Build)
4-7	60	63
4-8	63	63
4-9	64	66
4-10	58	56
4-11	63	61
4-12	65	61
6-1	63	61
6-2	69	68
6-3	69	70
6-4	64	63
6-5	63	69
6-6	72	70
6-7	60	53
6-8	58	44
6-9	67	60
6-10	60	56
6-11	52	59
6-12	68	62
6-13	54	54
6-14	65	62
6-15	66	65
6-16	65	70
6-17	65	65
6-18	65	58
6-19	65	50

Shaded area indicates a noise level which approaches or exceeds the FHWA Design Noise Level of 67 dBA.

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Table IV-16: Summary of Noise Levels, continued

Receptor Number	Ambient Noise Level (dBA)	Design Year 2020 Noise Levels (dBA) (No-Build)
7-1	73	72
7-2	55	54
7-3	59	50
7-4	60	61
7-5	68	68
7-6	56	54
7-7	53	50
7-9	61	62
7-10	69	67
7-11	70	67
7-12	69	64
7-13	70	66
7-14	72	68
7-15	62	60
7-16	65	62

Shaded area indicates a noise level which approaches or exceeds the FHWA Design Noise Level of 67 dBA.

The noise sensitive receptors analyzed for the study area are adjacent to US 113, or lie adjacent to the sections of Alternatives 4N Modified -34' Median on new alignment. US 113 is a two-lane undivided highway which has not been modified from its original condition within the study area.

Therefore, the baseline condition assessed for the study area is the ambient noise level. Noise levels predicted for design year 2020 under the No-Build and TSM alternatives were used as the basis for determining the impact of each of the dualize alternatives. The detailed analysis of noise quality in the study areas is available in the Noise Quality Study Report published as a technical memorandum to this DEIS.

Thirty of the receptor locations analyzed are in the southern study area. Two of the 30 sites have ambient noise levels in excess of 67 dBA, four sites would approach or exceed 67 dBA for the No-Build condition in the design year (2020) and five sites would be impacted by noise levels which approach or exceed 67 dBA for the 3N alternatives.

Thirty-four of the receptor locations analyzed are in the northern study area. Eleven of the 34 sites have ambient noise levels which approach or exceed 67 dBA and 12 sites would approach or exceed 67 dBA for the No-Build alternative in the Design Year (2020). Fifteen sites have projected (2020) noise levels which approach or exceed 67 dBA for Alternative 3N, six sites have projected noise levels which approach or exceed the design noise level criteria for Alternative 4N Modified -34' Median, and ten sites would be considered impacted by the Combination Alternative.

Tables IV-17 and IV-18 present a summary of the noise levels under No-Build conditions compared to noise levels under the dualize alternatives, and Tables IV-19 and IV-20 presents a summary of noise levels for the dualize alternatives compared to the baseline ambient noise level.

Table IV-17: Summary of Noise Levels No-Build Versus Dualization Alternatives - Southern Study Area

Receptor	Ambient Noise Level (dBA)	Future Year 2020 Noise Levels (dBA)		
		No-Build Alt. 1S	3S-34' Median	Difference (1S vs 3S-34'Median)
1-1	65	53	52	-1
1-2	56	52	53	+1
1-3	59	58	59	+1
2-1	58	58	59	+1
2-2	60	63	64	+1
2-3	58	60	64	+4
2-4	63	64	64	0
2-5	64	64	65	+1
2-6	**67**	**67**	**67**	0
3-1	63	61	65	+4
3-2	66	62	63	+1
3-3	65	**69**	**70**	+1
3-4	**71**	**67**	**67**	0
3-5	62	61	65	+4
3-6	58	63	65	+2
3-7	57	58	60	+2
3-8	61	58	61	+2
3-9	63	59	62	+3
4-1	58	57	60	+3
4-2	64	63	65	+2
4-3	64	55	56	+1
4-4	60	61	64	+3
4-5	61	61	61	0
4-6	58	60	61	+1
4-7	60	63	**67**	+4
4-8	63	63	64	+1
4-9	64	**66**	**66**	0
4-10	58	56	58	+2
4-11	63	61	65	+4
4-12	65	61	65	+4

Shaded area indicates a receptor meets SHA impact criteria.
Bold indicates a receptor approached or exceeds the FHWA design noise level.

Table IV-18: Summary of Noise Levels No-Build Versus Dualization Alternatives - Northern Study Area

Receptor	Ambient Noise Level (dBA)	Future Year 2020 Noise Levels (dBA)						
		No-Build Alt. 1N	Alt. 3N	Difference (No-Build vs 3N)	Alt. 4N Mod.	Difference (No-Build vs 4N)	Combination Alternative	Difference (No-Build vs C. A.)
6-1	63	61	64	+3	-	-	-	-
6-2	**69**	**68**	**69**	+1	-	-	-	-
6-3	**69**	**70**	**71**	+1	-	-	-	-
6-4	64	63	**68**	+5	-	-	-	-
6-5	63	**69**	**71**	+2	-	-	-	-
6-6	**72**	**70**	**71**	+1	-	-	-	-
6-7	60	53	56	+3	-	-	-	-
6-8	58	44	-	-	56	+12	56	+12
6-9	**67**	60	60	0	-	-	-	-
6-10	60	56	58	+2	-	-	-	-
6-11	52	59	59	0	-	-	-	-
6-12	**67**	62	62	0	-	-	-	-
6-13	54	54	56	+2	-	-	-	-
6-14	65	62	62	0	59	-3	59	-3
6-15	**66**	65	61	-4	**67**	+2	**67**	+2
6-16	65	**70**	65	-5	64	-6	64	-6

Shaded area indicates a receptor which meets SHA impact criteria.
Bold indicates a receptor which approached or exceeds the FHWA design noise level.

Table IV-18: Summary of Noise Levels No-Build Versus Dualization Alternatives - Northern Study Area (continued)

Receptor	Ambient Noise Level (dBA)	Future Year 2020 Noise Levels (dBA)						
		No-Build Alt. 1N	Alt. 3N	Difference (No-Build vs 3N)	Alt. 4N Mod.	Difference (No-Build vs 4N)	Combination Alternative	Difference (No-Build vs C.A.)
6-17	65	**66**	64	-2	54	-12	54	-12
6-18	65	58	**66**	+8	50	-8	50	-8
6-19	65	50	56	+6	48	-2	48	-2
7-1	**73**	**72**	65	-7	64	-8	64	-8
7-2	55	54	57	+3	61	+7	61	+7
7-3	59	50	54	+4	57	+7	57	+7
7-4	60	61	**66**	+5	**67**	+6	**67**	+6
7-5	**68**	**68**	**71**	+3	**72**	+4	**71**	+3
7-6	56	54	59	+5	60	+6	59	+5
7-7	53	50	55	+5	56	+6	55	+5
7-9	61	62	65	+3	56	+4	65	+3
7-10	**69**	**67**	**71**	+4	54	-13	**71**	+4
7-11	**70**	**67**	**69**	+2	54	-13	**69**	+2
7-12	**69**	64	**72**	+8	58	-6	**72**	+8
7-13	**70**	**66**	**70**	+4	64	-2	**70**	+4
7-14	**72**	**68**	**70**	+2	**71**	+3	**70**	+2
7-15	62	60	**66**	+6	**67**	+7	**66**	+6
7-16	65	62	**66**	+4	**67**	+5	**66**	+4

Shaded area indicates a receptor meets SHA impact criteria.

Bold indicates a receptor approached or exceeds the FHWA design noise level.

Table IV-19: Summary of Noise Levels Ambient Versus Dualization Alternatives - Southern Study Area

Receptor	Ambient Noise Level (dBA)	Future Year 2020 Noise Levels (dBA)		
		No-Build Alt. 1S	Alternative 3S	Difference (Ambient vs 3S
1-1	65	53	52	-13
1-2	56	52	53	-3
1-3	59	58	59	0
2-1	58	58	59	+1
2-2	60	63	64	+4
2-3	58	60	64	+6
2-4	63	64	64	+1
2-5	64	64	65	+1
2-6	**67**	**67**	**67**	0
3-1	63	61	65	+2
3-2	66	62	63	-3
3-3	65	**69**	**70**	+5
3-4	**71**	**67**	**67**	-4
3-5	62	61	65	+3
3-6	58	63	65	+7
3-7	57	58	60	+3
3-8	61	58	61	0
3-9	63	59	62	-1
4-1	58	57	60	+2
4-2	64	63	65	+1
4-3	64	55	56	-8
4-4	60	61	64	+4
4-5	61	61	61	0
4-6	58	60	61	+3
4-7	60	63	**67**	+7
4-8	63	63	64	+1
4-9	64	**66**	**66**	+2
4-10	58	56	58	0
4-11	63	61	65	+2
4-12	65	61	65	0

Shaded area indicates a receptor meets SHA impact criteria.
Bold indicates a receptor approached or exceeds the FHWA design noise level.

Table IV-20: Summary of Noise Levels Ambient Versus Dualization Alternatives - Northern Study Area

Receptor	Ambient Noise Level (dBA)	Future Year 2020 Noise Levels (dBA)						
		No-Build Alt. 1N	3N-34' Median	Difference (Ambient vs 3N-34' Median)	4N Mod.-34' Median	Difference (Ambient vs 4N Mod.-34' Median)	3N/4N Mod.-34' Median	Difference (Ambient vs 3N/4N Mod.-34' Median)
6-1	63	61	64	+1	-	-	-	-
6-2	**69**	**68**	**69**	0	-	-	-	-
6-3	**69**	**70**	**71**	+2	-	-	-	-
6-4	64	63	**68**	+4	-	-	-	-
6-5	63	**69**	**71**	+8	-	-	-	-
6-6	**72**	**70**	**71**	-1	-	-	-	-
6-7	60	53	56	-4	-	-	-	-
6-8	58	44	-	-	56	-2	56	-2
6-9	**67**	60	60	-7	-	-	-	-
6-10	60	56	58	-2	-	-	-	-
6-11	52	59	59	+7	-	-	-	-
6-12	**67**	62	62	-5	-	-	-	-
6-13	54	54	56	+2	-	-	-	-
6-14	65	62	62	-3	59	-6	59	-6
6-15	**66**	65	61	-5	**67**	+1	**67**	+1
6-16	65	**70**	65	0	64	0	64	-1

Shaded area indicates a receptor which meets SHA impact criteria.
Bold indicates a receptor which approached or exceeds the FHWA design noise level.

Table IV-20: Summary of Noise Levels Ambient Versus Dualization Alternatives - Northern Study Area (continued)

Receptor	Ambient Noise Level (dBA)	Future Year 2020 Noise Levels (dBA)						
		No-Build Alt. 1N	3N-34' Median	Difference (Ambient vs 3N)	4N Mod.-34' Median	Difference (Ambient vs 4N)	3N/4N Mod.-34'Median	Difference (Ambient vs 3N/4N Mod.-34' Median
6-17	65	**66**	64	-1	54	-11	54	-11
6-18	65	58	**66**	+1	50	-15	50	-15
6-19	65	50	56	-9	48	-17	48	-17
7-1	**73**	**72**	65	-8	64	-9	64	-9
7-2	55	54	57	+3	61	+6	61	+6
7-3	59	50	54	-5	57	-2	57	-2
7-4	60	61	**66**	+6	**67**	+7	**67**	+7
7-5	**68**	**68**	**71**	+3	**72**	+4	**71**	+3
7-6	56	54	59	+3	60	+4	59	+3
7-7	53	50	55	+2	56	+3	55	+2
7-9	61	62	65	+4	56	-5	65	+4
7-10	**69**	**67**	**71**	+2	54	-15	**71**	+2
7-11	**70**	**67**	**69**	-1	54	-16	**69**	-1
7-12	**69**	64	**72**	+3	58	-11	**72**	+3
7-13	**70**	**66**	**70**	0	64	-6	**70**	0
7-14	**72**	**68**	**70**	-2	**71**	-1	**70**	-2
7-15	62	60	**66**	+4	**67**	+5	**66**	+4
7-16	65	62	**66**	+1	**67**	+2	**66**	+1

Shaded area indicates a receptor meets SHA impact criteria.

Impact Assessment and Feasibility of Noise Control

- **Receptor 2-6** represents three homes on the east side of US 113 near the residence of 6224 Worcester Highway across from Potters Crossing Road. Projected (2020) noise levels of 67 dBA for Alternative 3S-34' Median meet the design noise level criteria, however, the receptor does not meet the reasonableness criteria of 3 dBA for the Build versus No-Build condition to warrant consideration of noise abatement. In addition, construction of a barrier is not feasible because driveway openings are required to provide access to the residences, resulting in a potentially unsafe condition, as well as, a degradation in the barrier effectiveness. To achieve a noticeable reduction in noise levels, 5 dBA or more, a noise barrier system must be continuous. A break in the barrier system to allow access to the property would degrade the barrier's effectiveness (see Table IV-21A).

- **Receptor 3-3**, representing one home on the east side of US 113 south of Basket Switch Road, receives projected (2020) noise levels for Alternative 3S-34' Median of 70 dBA which exceeds the design noise level of 67 dBA for the build alternative. The receptor site does not meet the reasonableness criteria, as the increase in Build noise level is less than 3 dBA over the No-Build condition to warrant consideration of noise abatement. Additionally, mitigation is not feasible because driveway openings are required to provide access to the residence. To achieve a noticeable reduction in noise levels, 5 dBA or more, a noise barrier system must be continuous. A break in the barrier system to allow access to the property would degrade the barrier's effectiveness, thereby eliminating the barrier as a feasible mitigating device (see Table IV-21B).

- **Receptor 3-4** represents five homes on the west side of US 113 south of Basket Switch Road. Projected (2020 noise levels are 67 dBA for Alternative 3S-34' Median, however, the receptor does not meet the reasonable criteria of 3 dBA for the Build versus No-Build condition to warrant consideration of noise abatement. In addition, construction of a barrier is not feasible because driveway openings are required to provide access to the residences, resulting in a potentially unsafe condition, as well as, a degradation in the barrier effectiveness. To achieve a noticeable reduction in noise levels, 5 dBA or more, a noise barrier system must be continuous. A break in the barrier system to allow access to the property would degrade the barrier's effectiveness (see Table IV-21C).

- **Receptor 4-7,** representing one home at 7809 Worcester Highway north of Goody Hill Road, is predicted (2020) to receive noise levels of 67 dBA for Alternative 3S-34' Median. The noise sensitive area does meet the reasonableness criteria for a 3 dBA increase in Build versus No-Build, however, construction of a barrier is not feasible because a driveway opening is required to provide access to the residence, resulting in a potentially unsafe condition, as well as, a degradation in the barrier effectiveness. To achieve a noticeable reduction in noise levels, 5 dBA or more, a noise barrier system must be continuous. A break in the barrier system to allow access to the property would degrade the barrier's effectiveness (see Table IV-21D).

- **Receptor 4-9**, representing one home at 8029 Worcester Highway north of Bays End Lane, has projected (2020) noise levels for Alternative 3S-34' Median of 66 dBA which approaches the design noise level of 67 dBA. however, the receptor does not meet the reasonableness criteria of 3 dBA for the Build versus No-Build condition to warrant consideration of noise abatement. In addition, construction of a barrier is not feasible because the driveway opening required to provide access to the residence results in an unsafe condition, as well as, a degradation in the barrier effectiveness. To achieve a noticeable reduction in noise levels, 5 dBA or more, a noise barrier system must be continuous. A break in the barrier system to allow access to the property would degrade the barrier's effectiveness (see Table IV-21E).

- **Receptors 6-2 and 6-3** represent eight residences on the west side of US 113 south of Friendship Road near 10421 and 10485 Worcester Highway. Projected (2020) noise levels for Alternative 3N-34' Median are 69 and 71 dBA which is in excess of the noise abatement criteria of 67 dBA. However, the receptor does not meet the reasonableness criteria of 3 dBA for the Build versus No-Build condition to warrant consideration of noise mitigation. In addition, construction of a barrier is not feasible because the driveway openings required to provide access to the residences results in a potentially unsafe condition, as well as, a degradation in the barrier effectiveness. To achieve a noticeable reduction in noise levels, 5 dBA or more, a noise barrier system must be continuous. A break in the barrier system to allow access to the property would degrade the barrier's effectiveness (see Table IV-21F).

- **Receptor 6-4**, representing four residences on the east side of US 113 south of Friendship Road near 10494 Worcester Highway, is predicted (2020) to receive noise levels for Alternative 3N-34' Median of 68 dBA which is in excess of the design noise level of 67 dBA. The noise sensitive area does meet the reasonableness criteria for a 3 dBA increase in Build versus No-Build, however, construction of a barrier is not feasible because driveway openings are required to provide access to the residences, resulting in a potentially unsafe condition, as well as, a degradation in the barrier effectiveness. To achieve a noticeable reduction in noise levels, 5 dBA or more, a noise barrier system must be continuous. A break in the barrier system to allow access to the property would degrade the barrier's effectiveness (see Table IV-21G).

- **Receptor 6-5** represents one residence on the west side of US 113 approximately 450 feet south of Carey Road. Projected (2020) noise levels for Alternative 3N-34' Median of 71 dBA are in excess of the 67 dBA design noise level, however, the receptor does not meet the reasonable criteria of 3 dBA for the Build versus No-Build condition to warrant consideration of noise mitigation. In addition, construction of a barrier is not feasible because a driveway opening is required to provide access to the residence, resulting in a potentially unsafe condition, as well as a degradation in the barrier effectiveness. To achieve a significant reduction in noise levels, 5 dBA or more, a noise barrier system must be continuous. A break in the barrier system to allow access to the property would degrade the barrier's effectiveness (see Table IV-21H).

- **Receptor 6-6** represents two residences and Vic's Country Store which is eligible for the National Register of Historic Places in this vicinity. Projected noise levels of 71 are in excess of the noise abatement criteria of 67 dBA for the Alternative 3N-34' Median build condition, however, the receptor does not meet the reasonable criteria of 3 dBA for the Build versus No-Build condition to warrant consideration of noise mitigation. Additionally, the location of existing driveways as well as the MD 452 and Jones Road intersections prevents a feasible method of mitigation at this location (see Table IV-21I).

- **Receptor 6-15** represents one residence on the west side of US 113 south of Racetrack Road at 11241 Worcester Highway. Projected noise levels for Alternative 4N Modified-34' Median and the 3N/4N Modified-34' Median Alternative are 67 dBA which meets the design noise level, however, the receptor does not meet the reasonable criteria of 3 dBA for the Build versus No-Build condition to warrant consideration of noise mitigation. In addition, construction of a barrier is not feasible because a driveway opening is required to provide access to the residence (see Table IV-21J).

- **Receptor 6-18** represents one residence on the west side of US 113 at 10129 Pitts Road. Projected (2020) noise levels for Alternative 3N-34' Median of 66 dBA approaches the design noise level of 67 dBA, and the Build condition increases noise levels over the No-Build condition by more than 3 dBA. However construction of a barrier is not feasible because of the intersection of Pitts Road with U.S. 113 and private access driveways would result in a potentially unsafe condition, as well as, a degradation in the barrier effectiveness. To achieve a noticeable reduction in noise levels, 5 dBA or more, a noise barrier system must be continuous. A break in the barrier system to allow access to the property would degrade the barrier's effectiveness (see Table IV-21K).

- **Receptor 7-4,** representing one residence on the west side of US 113 south of Jarvis Road at 10045 Worcester Highway, is predicted (2020) to receive noise levels of 66 dBA for Alternative 3N-34' Median and 67 dBA for Alternative 4N Modified-34' Median and the 3N/4N Modified-34' Median Alternative which meets the design noise level criteria. The noise sensitive area does meet the reasonableness criteria for a 3 dBA increase in Build versus No-Build, however, construction of a barrier is not feasible because a driveway opening is required to provide access to the residence, resulting in an unsafe condition, as well as, a degradation in the barrier effectiveness. To achieve a noticeable reduction in noise levels, 5 dBA or more, a noise barrier system must be continuous. A break in the barrier system to allow access to the property would degrade the barrier's effectiveness (see Table IV-21L).

- **Receptor 7-5,** representing one residence on the west side of US 113 north of Jarvis Road at 12235 Worcester Highway, is predicted to receive noise levels of 71 dBA for Alternative 3N-34' Median and the 3N/4N Modified-34' Median Alternative, and 72 dBA for Alternative 4N Modified-34' Median which is in excess of the design noise level of 67 dBA criteria. The noise sensitive area does meet the reasonableness criteria for a 3 dBA increase in Build versus No-Build, however, construction of a barrier is not feasible because a driveway

opening is required to provide access to the residence, resulting in an unsafe condition, as well as, a degradation in the barrier effectiveness. To achieve a noticeable reduction in noise levels, 5 dBA or more, a noise barrier system must be continuous. A break in the barrier system to allow access to the property would degrade the barrier's effectiveness (see Table IV-21M).

- **Receptor 7-10**, representing one residence on the east side of US 113 north of Bishopville Road at 12914 Worcester Highway, is predicted to receive noise levels for Alternative 3N-34' Median and the 3N/4N Modified-34' Median Alternative of 71 dBA which is in excess of the design noise level of 67 dBA for the build alternative. The noise sensitive area does meet the reasonableness criteria for a 3 dBA increase in Build versus No-Build, however, construction of a barrier is not feasible because a driveway opening is required to provide access to the residence, resulting in an unsafe condition, as well as, a degradation in the barrier effectiveness. To achieve a noticeable reduction in noise levels, 5 dBA or more, a noise barrier system must be continuous. A break in the barrier system to allow access to the property would degrade the barrier's effectiveness (see Table IV-21N).

- **Receptor 7-11** represents four residences on the east side of US 113 north of Whaleyville Road near 13102 Worcester Highway. Projected noise levels of 69 dBA are in excess of 67 dBA criteria for Alternative 3N-34' Median and the 3N/4N Modified-34' Median Alternative, however, the receptor does not meet the reasonableness criteria of 3 dBA for the Build versus No-Build condition to warrant consideration of noise mitigation. Additionally, construction of a barrier is not feasible because driveway openings are required to provide access to the residences (see Table IV-21O).

- **Receptor 7-12**, representing two residences on the west side of US 113, 400 feet north of Whaleyville Road, is predicted (2020) to receive noise levels for Alternative 3N-34' Median and the 3N/4N Modified-34' Median Alternative of 72 dBA which is in excess of the design noise level of 67 dBA for the build alternative. The noise sensitive area does meet the reasonableness criteria for a 3 dBA increase in Build versus No-Build, however, a barrier is not feasible because of the location of driveways and the intersection of Whaleyville/ Hammonds Road with U.S. 113 (see Table IV-21P).

- **Receptor 7-13,** representing one home, has projected (2020) noise levels for Alternative 3N-34' Median and the 3N/4N Modified-34' Median Alternative of 70 dBA which is in excess of the design noise level criteria. The noise sensitive area does meet the reasonableness criteria for a 3 dBA increase in Build versus No-Build, however, construction of a barrier is not feasible because driveway openings are required to provide access to the residence, resulting in a potentially unsafe condition, as well as, a degradation in the barrier effectiveness. To achieve a noticeable reduction in noise levels, 5 dBA or more, a noise barrier system must be continuous. A break in the barrier system to allow access to the property would degrade the barrier effectiveness (see Table IV-21Q).

- **Receptor 7-14**, representing the Elk's Lodge, has projected (2020) noise levels in excess of the design noise level of 67 dBA for all alternatives, however, the receptor does not meet the reasonable criteria of 3 dBA for the Build versus No-Build condition to warrant consideration of noise mitigation. Additionally, mitigation measures are not feasible at this location because of the location of the entrance/exit to the lodge (see Table IV-21R).

- **Receptor 7-15** representing three residences on the west side of US 113 near 13419 Morris Road and **Receptor 7-16** representing the Tans Peninsula Line Marker which is eligible for the National Register for Historic Places has projected (2020) noise levels in excess of 67 dBA for all alternatives. The noise sensitive area does meet the reasonableness criteria for a 3 dBA increase in the Build versus No-Build, however, mitigation measures are not feasible at this location because of the openings for driveways and the intersection of Hotel Road/Morris Road (see Tables IV-21S and IV-21T).

The spacing of residential driveways and intersecting roadways prevents the construction of feasible noise mitigation for impacted receptor sites along any of the proposed Dualize Alternatives. To achieve a significant reduction in noise levels, 5 dBA or more, a noise barrier system must be continuous. A break in the barrier system for intersections and property access would degrade the barrier's effectiveness, thereby eliminating the barrier as a feasible mitigating device.

3. Construction Impacts

As with any major construction project, areas around the construction zone will experience varied periods and degrees of noise which differ significantly from that generated by traffic. The noise produced by construction can vary greatly based upon the type of construction, the mix of equipment, and the construction procedures being employed. A project such as the dualization of U.S. 113 would probably require the following types of equipment to be utilized during construction:

Bulldozers and Earthmovers
Graders
Front End Loaders
Dump and other Diesel Trucks
Compressors
Jackhammers

The noise generated by these types of equipment will tend to increase the ambient noise levels in the vicinity of the work areas. However, a number of measure can be considered in order to minimize noise emanating from these activities. Such measures include but may not be limited to:

- Conduct all construction activities during normal working hours on weekdays, when noise intrusion would probably not occur during sleep or outdoor recreation periods.

- Any internal combustion engine used for any purpose on or related to the job should be equipped with a proper operating muffler.

- Maintenance of construction equipment should be regular and thorough to minimize noise emission because of inefficiently tuned engines, poorly lubricated moving parts, etc.

- When appropriate, locate continuously operated diesel-powered equipment, such as compressors or generators, in areas significantly distant or shielded from noise sensitive area.

Table IV-21A:

Criteria for Determining Feasibility and Reasonableness of Noise Abatement

NOISE RECEPTOR 2-6

	Feasibility Criteria	Yes	No
1.	Noise Levels can be reduced by 7 dBA or more at impacted receptors.	-	-
2.	Placement of barrier will restrict pedestrian or vehicular access.	X	
3.	Construction of a barrier will cause a safety or maintenance problem.	X	
4	Noise Barrier can be constructed given topography, drainage, utilities, etc.	X	
5.	Noise Barrier will adversely impact on Section 4(f) resource.		X
6.	There are non-highway noise sources that would reduce barrier effectiveness.		X
	Reasonableness Criteria	**Yes**	**No**
1.	The majority of impacted residences will receive at least a 7 dBA noise reduction.	-	-
2.	75% or more of impacted and benefited residents approve of proposed noise abatement.	-	-
3.	A 3 dBA or greater change in design year build noise levels over design year no-build noise levels is expected to result from the proposed action, or the cumulative effect of highway improvements on the design year noise levels at receptors that existed when prior improvements were made is equal to or greater than 3 dBA.		X
3a.	Noise Levels equal or exceed 72 dBA at impacted receptors.		X
4.	Noise Barriers will have significant negative visual impact at impacted receptors.		X
5.	The cost of the noise abatement is equal to or less than $50,000 per residence, impacted and benefited.	-	-
6.	There is special circumstances, i.e. historical/cultural significance at this receptor.		X

Table IV-21B:

Criteria for Determining Feasibility and Reasonableness of Noise Abatement

NOISE RECEPTOR 3-3

Feasibility Criteria		Yes	No
1.	Noise Levels can be reduced by 7 dBA or more at impacted receptors.	-	-
2.	Placement of barrier will restrict pedestrian or vehicular access.	X	
3.	Construction of a barrier will cause a safety or maintenance problem.	X	
4	Noise Barrier can be constructed given topography, drainage, utilities, etc.	X	
5.	Noise Barrier will adversely impact on Section 4(f) resource.		X
6.	There are non-highway noise sources that would reduce barrier effectiveness.		X
Reasonableness Criteria		**Yes**	**No**
1.	The majority of impacted residences will receive at least a 7 dBA noise reduction.	-	-
2.	75% or more of impacted and benefited residents approve of proposed noise abatement.	-	-
3.	A 3 dBA or greater change in design year build noise levels over design year no-build noise levels is expected to result from the proposed action, or the cumulative effect of highway improvements on the design year noise levels at receptors that existed when prior improvements were made is equal to or greater than 3 dBA.		X
3a.	Noise Levels equal or exceed 72 dBA at impacted receptors.		X
4.	Noise Barriers will have significant negative visual impact at impacted receptors.		X
5.	The cost of the noise abatement is equal to or less than $50,000 per residence, impacted and benefited.	-	-
6.	There is special circumstances, i.e. historical/cultural significance at this receptor.		X

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Table IV-21C:

Criteria for Determining Feasibility and Reasonableness of Noise Abatement

NOISE RECEPTOR 3-4

Feasibility Criteria		Yes	No
1.	Noise Levels can be reduced by 7 dBA or more at impacted receptors.	-	-
2.	Placement of barrier will restrict pedestrian or vehicular access.	X	
3.	Construction of a barrier will cause a safety or maintenance problem.	X	
4	Noise Barrier can be constructed given topography, drainage, utilities, etc.	X	
5.	Noise Barrier will adversely impact on Section 4(f) resource.		X
6.	There are non-highway noise sources that would reduce barrier effectiveness.		X
Reasonableness Criteria		**Yes**	**No**
1.	The majority of impacted residences will receive at least a 7 dBA noise reduction.	-	-
2.	75% or more of impacted and benefited residents approve of proposed noise abatement.	-	-
3.	A 3 dBA or greater change in design year build noise levels over design year no-build noise levels is expected to result from the proposed action, or the cumulative effect of highway improvements on the design year noise levels at receptors that existed when prior improvements were made is equal to or greater than 3 dBA.		X
3a.	Noise Levels equal or exceed 72 dBA at impacted receptors.		X
4.	Noise Barriers will have significant negative visual impact at impacted receptors.		X
5.	The cost of the noise abatement is equal to or less than $50,000 per residence, impacted and benefited.	-	-
6.	There is special circumstances, i.e. historical/cultural significance at this receptor.		X

Table IV-21D:

Criteria for Determining Feasibility and Reasonableness of Noise Abatement

NOISE RECEPTOR 4-7

	Feasibility Criteria	Yes	No
1.	Noise Levels can be reduced by 7 dBA or more at impacted receptors.	-	-
2.	Placement of barrier will restrict pedestrian or vehicular access.	X	
3.	Construction of a barrier will cause a safety or maintenance problem.	X	
4	Noise Barrier can be constructed given topography, drainage, utilities, etc.	X	
5.	Noise Barrier will adversely impact on Section 4(f) resource.		X
6.	There are non-highway noise sources that would reduce barrier effectiveness.		X
	Reasonableness Criteria	**Yes**	**No**
1.	The majority of impacted residences will receive at least a 7 dBA noise reduction.	-	-
2.	75% or more of impacted and benefited residents approve of proposed noise abatement.	-	-
3.	A 3 dBA or greater change in design year build noise levels over design year no-build noise levels is expected to result from the proposed action, or the cumulative effect of highway improvements on the design year noise levels at receptors that existed when prior improvements were made is equal to or greater than 3 dBA.	X	
3a.	Noise Levels equal or exceed 72 dBA at impacted receptors.		X
4.	Noise Barriers will have significant negative visual impact at impacted receptors.		X
5.	The cost of the noise abatement is equal to or less than $50,000 per residence, impacted and benefited.		X
6.	There is special circumstances, i.e. historical/cultural significance at this receptor.		X

Table IV-21E:

Criteria for Determining Feasibility and Reasonableness of Noise Abatement

NOISE RECEPTOR 4-9

	Feasibility Criteria	Yes	No
1.	Noise Levels can be reduced by 7 dBA or more at impacted receptors.	-	-
2.	Placement of barrier will restrict pedestrian or vehicular access.	X	
3.	Construction of a barrier will cause a safety or maintenance problem.	X	
4	Noise Barrier can be constructed given topography, drainage, utilities, etc.	X	
5.	Noise Barrier will adversely impact on Section 4(f) resource.		X
6.	There are non-highway noise sources that would reduce barrier effectiveness.		X
	Reasonableness Criteria	**Yes**	**No**
1.	The majority of impacted residences will receive at least a 7 dBA noise reduction.	-	-
2.	75% or more of impacted and benefited residents approve of proposed noise abatement.	-	-
3.	A 3 dBA or greater change in design year build noise levels over design year no-build noise levels is expected to result from the proposed action, or the cumulative effect of highway improvements on the design year noise levels at receptors that existed when prior improvements were made is equal to or greater than 3 dBA.		X
3a.	Noise Levels equal or exceed 72 dBA at impacted receptors.		X
4.	Noise Barriers will have significant negative visual impact at impacted receptors.		X
5.	The cost of the noise abatement is equal to or less than $50,000 per residence, impacted and benefited.	-	-
6.	There is special circumstances, i.e. historical/cultural significance at this receptor.		X

Table IV-21F:

Criteria for Determining Feasibility and Reasonableness of Noise Abatement

NOISE RECEPTOR 6-2 / 6-3

	Feasibility Criteria	Yes	No
1.	Noise Levels can be reduced by 7 dBA or more at impacted receptors.	-	-
2.	Placement of barrier will restrict pedestrian or vehicular access.	X	
3.	Construction of a barrier will cause a safety or maintenance problem.	X	
4	Noise Barrier can be constructed given topography, drainage, utilities, etc.	X	
5.	Noise Barrier will adversely impact on Section 4(f) resource.		X
6.	There are non-highway noise sources that would reduce barrier effectiveness.		X
	Reasonableness Criteria	**Yes**	**No**
1.	The majority of impacted residences will receive at least a 7 dBA noise reduction.	-	-
2.	75% or more of impacted and benefited residents approve of proposed noise abatement.	-	-
3.	A 3 dBA or greater change in design year build noise levels over design year no-build noise levels is expected to result from the proposed action, or the cumulative effect of highway improvements on the design year noise levels at receptors that existed when prior improvements were made is equal to or greater than 3 dBA.		X
3a.	Noise Levels equal or exceed 72 dBA at impacted receptors.		X
4.	Noise Barriers will have significant negative visual impact at impacted receptors.		X
5.	The cost of the noise abatement is equal to or less than $50,000 per residence, impacted and benefited.	-	-
6.	There is special circumstances, i.e. historical/cultural significance at this receptor.		X

Table IV-21G:

Criteria for Determining Feasibility and Reasonableness of Noise Abatement

NOISE RECEPTOR 6-4

	Feasibility Criteria	Yes	No
1.	Noise Levels can be reduced by 7 dBA or more at impacted receptors.	-	-
2.	Placement of barrier will restrict pedestrian or vehicular access.	X	
3.	Construction of a barrier will cause a safety or maintenance problem.	X	
4	Noise Barrier can be constructed given topography, drainage, utilities, etc.	X	
5.	Noise Barrier will adversely impact on Section 4(f) resource.		X
6.	There are non-highway noise sources that would reduce barrier effectiveness.		X
	Reasonableness Criteria	**Yes**	**No**
1.	The majority of impacted residences will receive at least a 7 dBA noise reduction.	-	-
2.	75% or more of impacted and benefited residents approve of proposed noise abatement.	-	-
3.	A 3 dBA or greater change in design year build noise levels over design year no-build noise levels is expected to result from the proposed action, or the cumulative effect of highway improvements on the design year noise levels at receptors that existed when prior improvements were made is equal to or greater than 3 dBA.	X	
3a.	Noise Levels equal or exceed 72 dBA at impacted receptors.		X
4.	Noise Barriers will have significant negative visual impact at impacted receptors.		X
5.	The cost of the noise abatement is equal to or less than $50,000 per residence, impacted and benefited.	-	-
6.	There is special circumstances, i.e. historical/cultural significance at this receptor.		X

Table IV-21H:

Criteria for Determining Feasibility and Reasonableness of Noise Abatement

NOISE RECEPTOR 6-5

Feasibility Criteria		Yes	No
1.	Noise Levels can be reduced by 7 dBA or more at impacted receptors.	-	-
2.	Placement of barrier will restrict pedestrian or vehicular access.	X	
3.	Construction of a barrier will cause a safety or maintenance problem.	X	
4	Noise Barrier can be constructed given topography, drainage, utilities, etc.	X	
5.	Noise Barrier will adversely impact on Section 4(f) resource.		X
6.	There are non-highway noise sources that would reduce barrier effectiveness.		X
Reasonableness Criteria		**Yes**	**No**
1.	The majority of impacted residences will receive at least a 7 dBA noise reduction.	-	-
2.	75% or more of impacted and benefited residents approve of proposed noise abatement.	-	-
3.	A 3 dBA or greater change in design year build noise levels over design year no-build noise levels is expected to result from the proposed action, or the cumulative effect of highway improvements on the design year noise levels at receptors that existed when prior improvements were made is equal to or greater than 3 dBA.		X
3a.	Noise Levels equal or exceed 72 dBA at impacted receptors.		X
4.	Noise Barriers will have significant negative visual impact at impacted receptors.		X
5.	The cost of the noise abatement is equal to or less than $50,000 per residence, impacted and benefited.	-	-
6.	There is special circumstances, i.e. historical/cultural significance at this receptor.		X

Table IV-21I:

Criteria for Determining Feasibility and Reasonableness of Noise Abatement

NOISE RECEPTOR 6-6

	Feasibility Criteria	Yes	No
1.	Noise Levels can be reduced by 7 dBA or more at impacted receptors.	-	-
2.	Placement of barrier will restrict pedestrian or vehicular access.	X	
3.	Construction of a barrier will cause a safety or maintenance problem.	X	
4	Noise Barrier can be constructed given topography, drainage, utilities, etc.	X	
5.	Noise Barrier will adversely impact on Section 4(f) resource.		X
6.	There are non-highway noise sources that would reduce barrier effectiveness.		X
	Reasonableness Criteria	**Yes**	**No**
1.	The majority of impacted residences will receive at least a 7 dBA noise reduction.	-	-
2.	75% or more of impacted and benefited residents approve of proposed noise abatement.	-	-
3.	A 3 dBA or greater change in design year build noise levels over design year no-build noise levels is expected to result from the proposed action, or the cumulative effect of highway improvements on the design year noise levels at receptors that existed when prior improvements were made is equal to or greater than 3 dBA.		X
3a.	Noise Levels equal or exceed 72 dBA at impacted receptors.		X
4.	Noise Barriers will have significant negative visual impact at impacted receptors.		X
5.	The cost of the noise abatement is equal to or less than $50,000 per residence, impacted and benefited.	-	-
6.	There is special circumstances, i.e. historical/cultural significance at this receptor.		X

Table IV- 21J:

Criteria for Determining Feasibility and Reasonableness of Noise Abatement

NOISE RECEPTOR 6-15

Feasibility Criteria		Yes	No
1.	Noise Levels can be reduced by 7 dBA or more at impacted receptors.	-	-
2.	Placement of barrier will restrict pedestrian or vehicular access.	X	
3.	Construction of a barrier will cause a safety or maintenance problem.	X	
4	Noise Barrier can be constructed given topography, drainage, utilities, etc.	X	
5.	Noise Barrier will adversely impact on Section 4(f) resource.		X
6.	There are non-highway noise sources that would reduce barrier effectiveness.		X
Reasonableness Criteria		**Yes**	**No**
1.	The majority of impacted residences will receive at least a 7 dBA noise reduction.	-	-
2.	75% or more of impacted and benefited residents approve of proposed noise abatement.	-	-
3.	A 3 dBA or greater change in design year build noise levels over design year no-build noise levels is expected to result from the proposed action, or the cumulative effect of highway improvements on the design year noise levels at receptors that existed when prior improvements were made is equal to or greater than 3 dBA.		X
3a.	Noise Levels equal or exceed 72 dBA at impacted receptors.		X
4.	Noise Barriers will have significant negative visual impact at impacted receptors.		X
5.	The cost of the noise abatement is equal to or less than $50,000 per residence, impacted and benefited.	-	-
6.	There is special circumstances, i.e. historical/cultural significance at this receptor.		X

Table IV-21K:

Criteria for Determining Feasibility and Reasonableness of Noise Abatement

NOISE RECEPTOR 6-18

	Feasibility Criteria	Yes	No
1.	Noise Levels can be reduced by 7 dBA or more at impacted receptors.	-	-
2.	Placement of barrier will restrict pedestrian or vehicular access.	X	
3.	Construction of a barrier will cause a safety or maintenance problem.	X	
4	Noise Barrier can be constructed given topography, drainage, utilities, etc.	X	
5.	Noise Barrier will adversely impact on Section 4(f) resource.		X
6.	There are non-highway noise sources that would reduce barrier effectiveness.		X
	Reasonableness Criteria	**Yes**	**No**
1.	The majority of impacted residences will receive at least a 7 dBA noise reduction.	-	-
2.	75% or more of impacted and benefited residents approve of proposed noise abatement.	-	-
3.	A 3 dBA or greater change in design year build noise levels over design year no-build noise levels is expected to result from the proposed action, or the cumulative effect of highway improvements on the design year noise levels at receptors that existed when prior improvements were made is equal to or greater than 3 dBA.	X	
3a.	Noise Levels equal or exceed 72 dBA at impacted receptors.		X
4.	Noise Barriers will have significant negative visual impact at impacted receptors.		X
5.	The cost of the noise abatement is equal to or less than $50,000 per residence, impacted and benefited.	-	-
6.	There is special circumstances, i.e. historical/cultural significance at this receptor.		X

Table IV-21L:

Criteria for Determining Feasibility and Reasonableness of Noise Abatement

NOISE RECEPTOR 7-4

	Feasibility Criteria	Yes	No
1.	Noise Levels can be reduced by 7 dBA or more at impacted receptors.	-	-
2.	Placement of barrier will restrict pedestrian or vehicular access.	X	
3.	Construction of a barrier will cause a safety or maintenance problem.	X	
4	Noise Barrier can be constructed given topography, drainage, utilities, etc.	X	
5.	Noise Barrier will adversely impact on Section 4(f) resource.		X
6.	There are non-highway noise sources that would reduce barrier effectiveness.		X
	Reasonableness Criteria	**Yes**	**No**
1.	The majority of impacted residences will receive at least a 7 dBA noise reduction.	-	-
2.	75% or more of impacted and benefited residents approve of proposed noise abatement.	-	-
3.	A 3 dBA or greater change in design year build noise levels over design year no-build noise levels is expected to result from the proposed action, or the cumulative effect of highway improvements on the design year noise levels at receptors that existed when prior improvements were made is equal to or greater than 3 dBA.	X	
3a.	Noise Levels equal or exceed 72 dBA at impacted receptors.		X
4.	Noise Barriers will have significant negative visual impact at impacted receptors.		X
5.	The cost of the noise abatement is equal to or less than $50,000 per residence, impacted and benefited.	-	-
6.	There is special circumstances, i.e. historical/cultural significance at this receptor.		X

Table IV-21M:

Criteria for Determining Feasibility and Reasonableness of Noise Abatement

NOISE RECEPTOR 7-5

	Feasibility Criteria	Yes	No
1.	Noise Levels can be reduced by 7 dBA or more at impacted receptors.	-	-
2.	Placement of barrier will restrict pedestrian or vehicular access.	X	
3.	Construction of a barrier will cause a safety or maintenance problem.	X	
4	Noise Barrier can be constructed given topography, drainage, utilities, etc.	X	
5.	Noise Barrier will adversely impact on Section 4(f) resource.		X
6.	There are non-highway noise sources that would reduce barrier effectiveness.		X
	Reasonableness Criteria	**Yes**	**No**
1.	The majority of impacted residences will receive at least a 7 dBA noise reduction.	-	-
2.	75% or more of impacted and benefited residents approve of proposed noise abatement.	-	-
3.	A 3 dBA or greater change in design year build noise levels over design year no-build noise levels is expected to result from the proposed action, or the cumulative effect of highway improvements on the design year noise levels at receptors that existed when prior improvements were made is equal to or greater than 3 dBA.	X	
3a.	Noise Levels equal or exceed 72 dBA at impacted receptors.		X
4.	Noise Barriers will have significant negative visual impact at impacted receptors.		X
5.	The cost of the noise abatement is equal to or less than $50,000 per residence, impacted and benefited.	-	-
6.	There is special circumstances, i.e. historical/cultural significance at this receptor.		X

Table IV-21N:

Criteria for Determining Feasibility and Reasonableness of Noise Abatement

NOISE RECEPTOR 7-10

	Feasibility Criteria	Yes	No
1.	Noise Levels can be reduced by 7 dBA or more at impacted receptors.	-	-
2.	Placement of barrier will restrict pedestrian or vehicular access.	X	
3.	Construction of a barrier will cause a safety or maintenance problem.	X	
4	Noise Barrier can be constructed given topography, drainage, utilities, etc.	X	
5.	Noise Barrier will adversely impact on Section 4(f) resource.		X
6.	There are non-highway noise sources that would reduce barrier effectiveness.		X
	Reasonableness Criteria	**Yes**	**No**
1.	The majority of impacted residences will receive at least a 7 dBA noise reduction.	-	-
2.	75% or more of impacted and benefited residents approve of proposed noise abatement.	-	-
3.	A 3 dBA or greater change in design year build noise levels over design year no-build noise levels is expected to result from the proposed action, or the cumulative effect of highway improvements on the design year noise levels at receptors that existed when prior improvements were made is equal to or greater than 3 dBA.	X	
3a.	Noise Levels equal or exceed 72 dBA at impacted receptors.		X
4.	Noise Barriers will have significant negative visual impact at impacted receptors.		X
5.	The cost of the noise abatement is equal to or less than $50,000 per residence, impacted and benefited.	-	-
6.	There is special circumstances, i.e. historical/cultural significance at this receptor.		X

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Table IV-21O:

Criteria for Determining Feasibility and Reasonableness of Noise Abatement

NOISE RECEPTOR 7-11

Feasibility Criteria		Yes	No
1.	Noise Levels can be reduced by 7 dBA or more at impacted receptors.	-	-
2.	Placement of barrier will restrict pedestrian or vehicular access.	X	
3.	Construction of a barrier will cause a safety or maintenance problem.	X	
4	Noise Barrier can be constructed given topography, drainage, utilities, etc.	X	
5.	Noise Barrier will adversely impact on Section 4(f) resource.		X
6.	There are non-highway noise sources that would reduce barrier effectiveness.		X
Reasonableness Criteria		**Yes**	**No**
1.	The majority of impacted residences will receive at least a 7 dBA noise reduction.	-	-
2.	75% or more of impacted and benefited residents approve of proposed noise abatement.	-	-
3.	A 3 dBA or greater change in design year build noise levels over design year no-build noise levels is expected to result from the proposed action, or the cumulative effect of highway improvements on the design year noise levels at receptors that existed when prior improvements were made is equal to or greater than 3 dBA.		X
3a.	Noise Levels equal or exceed 72 dBA at impacted receptors.		X
4.	Noise Barriers will have significant negative visual impact at impacted receptors.		X
5.	The cost of the noise abatement is equal to or less than $50,000 per residence, impacted and benefited.	-	-
6.	There is special circumstances, i.e. historical/cultural significance at this receptor.		X

Table IV-21P:

Criteria for Determining Feasibility and Reasonableness of Noise Abatement

NOISE RECEPTOR 7-12

	Feasibility Criteria	Yes	No
1.	Noise Levels can be reduced by 7 dBA or more at impacted receptors.	-	-
2.	Placement of barrier will restrict pedestrian or vehicular access.	X	
3.	Construction of a barrier will cause a safety or maintenance problem.	X	
4	Noise Barrier can be constructed given topography, drainage, utilities, etc.	X	
5.	Noise Barrier will adversely impact on Section 4(f) resource.		X
6.	There are non-highway noise sources that would reduce barrier effectiveness.		X
	Reasonableness Criteria	**Yes**	**No**
1.	The majority of impacted residences will receive at least a 7 dBA noise reduction.	-	-
2.	75% or more of impacted and benefited residents approve of proposed noise abatement.	-	-
3.	A 3 dBA or greater change in design year build noise levels over design year no-build noise levels is expected to result from the proposed action, or the cumulative effect of highway improvements on the design year noise levels at receptors that existed when prior improvements were made is equal to or greater than 3 dBA.	X	
3a.	Noise Levels equal or exceed 72 dBA at impacted receptors.	X	
4.	Noise Barriers will have significant negative visual impact at impacted receptors.		X
5.	The cost of the noise abatement is equal to or less than $50,000 per residence, impacted and benefited.	-	-
6.	There is special circumstances, i.e. historical/cultural significance at this receptor.		X

Table IV-21Q:

Criteria for Determining Feasibility and Reasonableness of Noise Abatement

NOISE RECEPTOR 7-13

	Feasibility Criteria	Yes	No
1.	Noise Levels can be reduced by 7 dBA or more at impacted receptors.	-	-
2.	Placement of barrier will restrict pedestrian or vehicular access.	X	
3.	Construction of a barrier will cause a safety or maintenance problem.	X	
4	Noise Barrier can be constructed given topography, drainage, utilities, etc.	X	
5.	Noise Barrier will adversely impact on Section 4(f) resource.		X
6.	There are non-highway noise sources that would reduce barrier effectiveness.		X
	Reasonableness Criteria	**Yes**	**No**
1.	The majority of impacted residences will receive at least a 7 dBA noise reduction.	-	-
2.	75% or more of impacted and benefited residents approve of proposed noise abatement.	-	-
3.	A 3 dBA or greater change in design year build noise levels over design year no-build noise levels is expected to result from the proposed action, or the cumulative effect of highway improvements on the design year noise levels at receptors that existed when prior improvements were made is equal to or greater than 3 dBA.	X	
3a.	Noise Levels equal or exceed 72 dBA at impacted receptors.		X
4.	Noise Barriers will have significant negative visual impact at impacted receptors.		X
5.	The cost of the noise abatement is equal to or less than $50,000 per residence, impacted and benefited.	-	-
6.	There is special circumstances, i.e. historical/cultural significance at this receptor.		X

Table IV-21R:

Criteria for Determining Feasibility and Reasonableness of Noise Abatement

NOISE RECEPTOR 7-14

Feasibility Criteria		Yes	No
1.	Noise Levels can be reduced by 7 dBA or more at impacted receptors.	-	-
2.	Placement of barrier will restrict pedestrian or vehicular access.	X	
3.	Construction of a barrier will cause a safety or maintenance problem.	X	
4	Noise Barrier can be constructed given topography, drainage, utilities, etc.	X	
5.	Noise Barrier will adversely impact on Section 4(f) resource.		X
6.	There are non-highway noise sources that would reduce barrier effectiveness.		X
Reasonableness Criteria		**Yes**	**No**
1.	The majority of impacted residences will receive at least a 7 dBA noise reduction.	-	-
2.	75% or more of impacted and benefited residents approve of proposed noise abatement.	-	-
3.	A 3 dBA or greater change in design year build noise levels over design year no-build noise levels is expected to result from the proposed action, or the cumulative effect of highway improvements on the design year noise levels at receptors that existed when prior improvements were made is equal to or greater than 3 dBA.		X
3a.	Noise Levels equal or exceed 72 dBA at impacted receptors.	X	
4.	Noise Barriers will have significant negative visual impact at impacted receptors.		X
5.	The cost of the noise abatement is equal to or less than $50,000 per residence, impacted and benefited.	-	-
6.	There is special circumstances, i.e. historical/cultural significance at this receptor.		X

Table IV-21S:

Criteria for Determining Feasibility and Reasonableness of Noise Abatement

NOISE RECEPTOR 7-15

	Feasibility Criteria	Yes	No
1.	Noise Levels can be reduced by 7 dBA or more at impacted receptors.	-	-
2.	Placement of barrier will restrict pedestrian or vehicular access.	X	
3.	Construction of a barrier will cause a safety or maintenance problem.	X	
4	Noise Barrier can be constructed given topography, drainage, utilities, etc.	X	
5.	Noise Barrier will adversely impact on Section 4(f) resource.		X
6.	There are non-highway noise sources that would reduce barrier effectiveness.		X
	Reasonableness Criteria	**Yes**	**No**
1.	The majority of impacted residences will receive at least a 7 dBA noise reduction.	-	-
2.	75% or more of impacted and benefited residents approve of proposed noise abatement.	-	-
3.	A 3 dBA or greater change in design year build noise levels over design year no-build noise levels is expected to result from the proposed action, or the cumulative effect of highway improvements on the design year noise levels at receptors that existed when prior improvements were made is equal to or greater than 3 dBA.	X	
3a.	Noise Levels equal or exceed 72 dBA at impacted receptors.	X	
4.	Noise Barriers will have significant negative visual impact at impacted receptors.		X
5.	The cost of the noise abatement is equal to or less than $50,000 per residence, impacted and benefited.	-	-
6.	There is special circumstances, i.e. historical/cultural significance at this receptor.		X

Table IV-21T:

Criteria for Determining Feasibility and Reasonableness of Noise Abatement

NOISE RECEPTOR 7-16

Feasibility Criteria		Yes	No
1.	Noise Levels can be reduced by 7 dBA or more at impacted receptors.	-	-
2.	Placement of barrier will restrict pedestrian or vehicular access.	X	
3.	Construction of a barrier will cause a safety or maintenance problem.	X	
4	Noise Barrier can be constructed given topography, drainage, utilities, etc.	X	
5.	Noise Barrier will adversely impact on Section 4(f) resource.		X
6.	There are non-highway noise sources that would reduce barrier effectiveness.		X
Reasonableness Criteria		**Yes**	**No**
1.	The majority of impacted residences will receive at least a 7 dBA noise reduction.	-	-
2.	75% or more of impacted and benefited residents approve of proposed noise abatement.	-	-
3.	A 3 dBA or greater change in design year build noise levels over design year no-build noise levels is expected to result from the proposed action, or the cumulative effect of highway improvements on the design year noise levels at receptors that existed when prior improvements were made is equal to or greater than 3 dBA.	X	
3a.	Noise Levels equal or exceed 72 dBA at impacted receptors.		X
4.	Noise Barriers will have significant negative visual impact at impacted receptors.		X
5.	The cost of the noise abatement is equal to or less than $50,000 per residence, impacted and benefited.	-	-
6.	There is special circumstances, i.e. historical/cultural significance at this receptor.	X	

M. Visual Quality

The No-Build and TSM alternatives would not directly alter any visual resources. The quality of travelers' and residents' views would be worsened to the extent that traffic congestion will increase.

Dualization along the existing alignment (the Alternatives 3S and 3N) would more than double the pavement width, increasing the scale of the roadway. Viewsheds along the alignment would include the expanded roadway. Alignments which involve the taking of strips of vegetated areas do not eliminate the full depth of vegetation and therefore will not impact the visual character of these areas. Alternatives 3N would be within the viewsheds of five historic properties. Visual impact on historic properties is presented in Section IV-C of this DEIS.

Dualization on new alignment (Alternatives 4N Modified) would involve the construction of a new four-lane divided roadway away from the existing facility. The roadway would be constructed on new location to minimize impacts to residential and commercial properties. The new alignment is primarily through vegetated areas creating a viewshed similar to much of the existing alignment. Alternatives 4N Modified would be within the viewshed of one historic property; the Transpeninsular Line Marker located near the Delaware state line. This property is located along the existing roadway. The proposed alignments would maintain the existing distance from the historic property. Visual impact to this property may be minimized through landscaping designs at this location to be determined during later phases of this project.

Alternatives 3N/4N Modified combine sections of the 3N and 4N Modified alternatives to avoid impacts to areas of environmental concern. These alternatives follow the Alternative 4N alignment from the southern limit of the northern study area, north to Jarvis Road where it follows the Alternative 3N alignment north to the Maryland/Delaware state line. The impact of these alternatives on visual quality is as described for the sections of Alternatives 3N and 4N Modified that it utilizes.

N. Municipal, Industrial and Residual Waste Sites

As noted in Chapter III, Section M, a preliminary field reconnaissance revealed 23 potentially contaminated sites in the vicinity of either the southern and northern study areas. Three of these sites have a high potential for liability and if impacted warrant formal Phase I study and will probably require Phase II investigation. Sixteen sites possess a moderate potential for liability and if impacted will need formal Phase I study. These sites will probably not require a Phase II investigation. Four additional sites have a low liability potential and should not require any additional investigation after the formal Phase I studies (see Table III-19). A definition of high, moderate, and low potential for liability is provided in Chapter III, Section M of this DEIS.

Neither the No-Build, the TSM nor Alternative 2S-20' Median would impact any of the potential waste sites identified.

None of the nine potential sites in the vicinity of the Alternatives 3S alignments will be impacted by that alternative. Of the fourteen sites in the vicinity of the Alternatives 3N alignments, eight may be impacted by the proposed alignment. Two of these sites have low potential for liability, five have a moderate potential for liability, and one site has a high potential for liability. The alignment of Alternatives 4N Modified may involve four sites. Of these sites, one has a low potential for liability, two sites have a moderate potential for liability and one site has a high potential for liability. The Alternatives 3N/4N Modified may impact five sites. Two of these sites have a low potential for liability, two sites have a moderate potential for liability and one site has a high potential for liability. Table III-19 lists the identified potential waste sites along with the potential for liability. The locations of these sites are shown on Figures III-14A through 14D. Table IV-22, identifies the sites potentially affected by each of the dualize alternatives.

It is recommended that subsurface soil and groundwater samples be collected and analyzed as a part of a Phase II-Preliminary Site Investigation (PSI) prior to acquisition of property involving any of these sites. The purpose of the PSI will be to chemically characterize the sites in question and determine if hazardous materials will be encountered during construction of the roadway. As part of final design, the area of contact with each of these sites will be thoroughly investigated and necessary site specific measure to minimize impacts will be identified. This will most likely involve the removal and disposal of the waste at an authorized and permitted disposal facility.

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Table IV-22: Potential Waste Sites Affected by Each Build Alternative

Alternative	Site ID	Potential Site	Potential Liability
3N-20' Median (50 MPH) 3N 34' Median (50 MPH) 3N-20' Median (60 MPH) 3N-34' Median (60 MPH) 4N Modified-20' Median 4N Modified-34' Median 3N/4N Modified-20' Median 3N/4N Modified-34' Median	1	Ocean Designs Fiberglass and Boat Works	Moderate
3N-20' Median (50 MPH) 3N 34' Median (50 MPH) 3N-20' Median (60 MPH) 3N-34' Median (60 MPH) 3N/4N Modified-20' Median 3N/4N Modified-34' Median	2	Cross Roads Carry Out	Low
3N-20' Median (50 MPH) 3N 34' Median (50 MPH) 3N-20' Median (60 MPH) 3N-34' Median (60 MPH) 4N Modified-20' Median 4N Modified-34' Median 3N/4N Modified-20' Median 3N/4N Modified-34' Median	4	12829 Worcester Highway	Low
4N Modified-20' Median 4N Modified-34' Median	5	Sharpgas Propane Tank Enclosure	Low
3N-20' Median (50 MPH) 3N 34' Median (50 MPH) 3N-20' Median (60 MPH) 3N-34' Median (60 MPH)	8	Perdue Farms Hatchery #7	High
3N 34' Median (50 MPH) 4N Modified-20' Median 4N Modified-34' Median 3N/4N Modified-20' Median 3N/4N Modified-34' Median	9	Hammonds Store	Moderate
3N-20' Median (50 MPH) 3N 34' Median (50 MPH) 3N-20' Median (60 MPH) 3N 34' Median (60 MPH)	12	Vic's Country Store	Moderate
3N-20' Median (50 MPH) 3N 34' Median (50 MPH) 3N-20' Median (60 MPH) 3N 34' Median (60 MPH)	13	Sandbar Marine	Moderate

O. Energy

A comparison of the energy usage requirements for the operation, maintenance and construction of the alternatives was completed for the DEIS. This comparison found that the long term energy requirements of the No-Build, TSM, and 2S-20' Median alternatives will be similar. Although the energy requirements for construction are not applicable for the No-Build Alternative, this savings will be off-set by the increased energy consumption due to projected traffic congestion in the design year. The TSM Alternative and the 2S-20' Median alternative will require a relatively low amount of energy for construction but some long term savings will be realized through the reduction of traffic congestion.

It has been determined that each of the dualize alternatives will have similar energy requirements. Each dualize alternative will require the expenditure of energy for the manufacture of construction materials, the transportation of the materials to the site, and the construction of the roadway. Maintenance energy requirements for the dualize alternatives will be similar to those of the No-Build, TSM alternatives, and Alternative 2S-20' Median. Operational energy expenditures for the dualize alternatives will be lower than those for the other alternatives because the traffic congestion will be reduced and safety will be greatly improved reducing the need for emergency services.

The No-Build Alternative will require the least amount of expended energy over the design life of this project. The TSM Alternative will require slightly more energy than the No-Build for the construction of the additional intersection improvements. The Dualize Alternatives will require the greatest amount of energy, with Alternatives 4N Modified needing more energy than Alternative 2S-20' Median or Alternatives 3N because less of the existing road will be retained. The 3N/4N Modified-34' Median alternatives will have energy requirements intermediate to those of Alternatives 3N and 4N Modified.

P. Construction Impacts

Construction activities for any of the proposed dualize alternatives and the 2S-20' Median alternative will have temporary impacts to resources, residences, and travelers within the immediate vicinity of the project. These impacts will include traffic detours, potential air and fugitive dust emissions, increased noise levels, natural resources, and visual quality.

1. Traffic Detours

Detours and road closures during construction will create temporary inconveniences for residents, business owners and travelers. Maintenance and protection of traffic plans will be developed during final design to mitigate access impacts and to minimize delays throughout the project. These plans will include appropriate signs, pavement markings, and media announcements. Access to all businesses and residences will be maintained through construction scheduling.

2. Air Emissions

The operation of heavy equipment would have minor, temporary impacts on air quality during construction of the alternatives. The primary source of impact would be windblown soil and dust in active construction zones, and secondarily from increased levels of exhaust pollutants.

Measures will be taken to reduce fugitive dust and other emissions generated during construction by wetting disturbed soils, staging soil-disturbing activities, and prompt revegetation of disturbed areas. Emissions from construction equipment will be controlled by the contractors in accordance with state and federal regulations.

3. Construction Noise Impacts

Temporary noise impacts will occur in the study area during the construction of any of the build alternatives. Sources of this noise would include earth moving equipment, vibratory rollers, pavers, trucks, jackhammers, and compressors. In most cases, the effects of increased noise levels associated with construction equipment are limited to within 300 feet of the source. These effects would typically be limited to weekday, daylight hours in accordance with local ordinances.

Several mitigation procedures can be followed to assist in minimizing the temporary impacts of construction noise. Adjustments to the equipment, the provision of temporary noise barriers, varying the construction activity areas to redistribute noise events, good communication with the public, and monetary incentives to the contractor could be considered to lessen the temporary noise impacts. These mitigation measures will be examined during final design to minimize public impacts and annoyances during construction.

Construction noise impacts are discussed fully in Section IV-L.

4. Natural Resources

Temporary construction-related impacts to soils, surface waters, and wetlands are anticipated to occur as the result of this project. Temporary and permanent impacts to these resources have been addressed in throughout Chapter IV.

Temporary impacts to soils include increased erosion potential from areas cleared of vegetation for construction activities. Standard sediment and erosion control measures will be implemented in accordance with state and local regulations to minimize adverse impacts.

Temporary construction-related impacts to wetlands include increased sedimentation, in-stream and in-wetland work for the construction of abutments and other structures, and temporary construction crossings. The use of surface mats, clean rock fills, and other measures to be determined at final design, will be used to minimize temporary impacts to wetlands. Original grades will be restored as needed in temporary wetland impact areas and native vegetation will be re-established.

Temporary impacts to surface water resources are also anticipated from construction-related activities. Temporary impacts would result from temporary stream crossings, dikes and coffer dams, temporary channel relocations, and suspended solids from increased erosion and sedimentation. Runoff from disturbed areas may contain high sediment loads, which can reduce both the diversity and numbers of organisms in the aquatic environment. Physical impacts such as temporary stream crossings and coffer dams, disrupt the stream substrate and could affect fish migrations through these areas. This will eliminate benthic macroinvertebrate populations in this portion of the stream during the construction period, and for a short period after construction until migration and drift allow for the re-colonization of the area. Changes to the channel widths resulting from coffer dam construction may generate excessive scouring of the substrate and generate sediment impacts immediately downstream of the construction area.

5. Visual Quality

Construction activity and some of the materials stored for the project may be displeasing to residents in the immediate vicinity of the project. This visual impact will be temporary and should pose no substantial problem in the long-term.

Q. Relationship Between Local Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity

The long-term benefits of the dualize alternatives would occur at the expense of short-term construction impacts in the immediate vicinity of project area. These short-term effects would include localized noise and air pollution, and minor traffic delays. With proper controls, they would not have a lasting effect on the environment.

The local short-term impacts by the construction of the dualize alternatives are consistent with the maintenance and enhancement of long-term productivity for the local area, state, and region. The Comprehensive Development Plan for Worcester County identifies US 113 as a key element of the county's regional arterial highway system. The Plan calls for US 113 to be upgraded to four lanes throughout its length. This project has been included in the Highway Needs Inventory (HNI) since the early 1960's and is consistent, therefore, with the Comprehensive Plan that encompasses the study area. The transportation improvements addressed in this document have been considered and proposed in accordance with the Comprehensive Plan.

R. Irreversible and Irretrievable Commitments of Resources Which Would be Involved in the Proposed Action

The construction of any of the dualize alternatives and the 2S-20' Median alternatives involve the irreversible and irretrievable commitment of various natural, human, and fiscal resources. The dualize alternatives and Alternative 2S-20' Median would require the commitment of land to new highway construction, which is considered an irreversible commitment during the time period that the land is used for a highway facility. If a greater need for the land be proven, or the highway proven to be no longer necessary, it is possible to re-convert the property to another use. It is not anticipated, however, that either of these two situations will occur.

Fossil fuels, labor, and construction materials will be used in considerable quantities for the Alternatives. In addition, labor and natural resources are also used in the quarrying, manufacturing, mixing, and transporting of construction materials. The materials used in the highway construction process are irretrievable, however, they are not in short supply and their use should not have an adverse effect on continued availability of these resources.

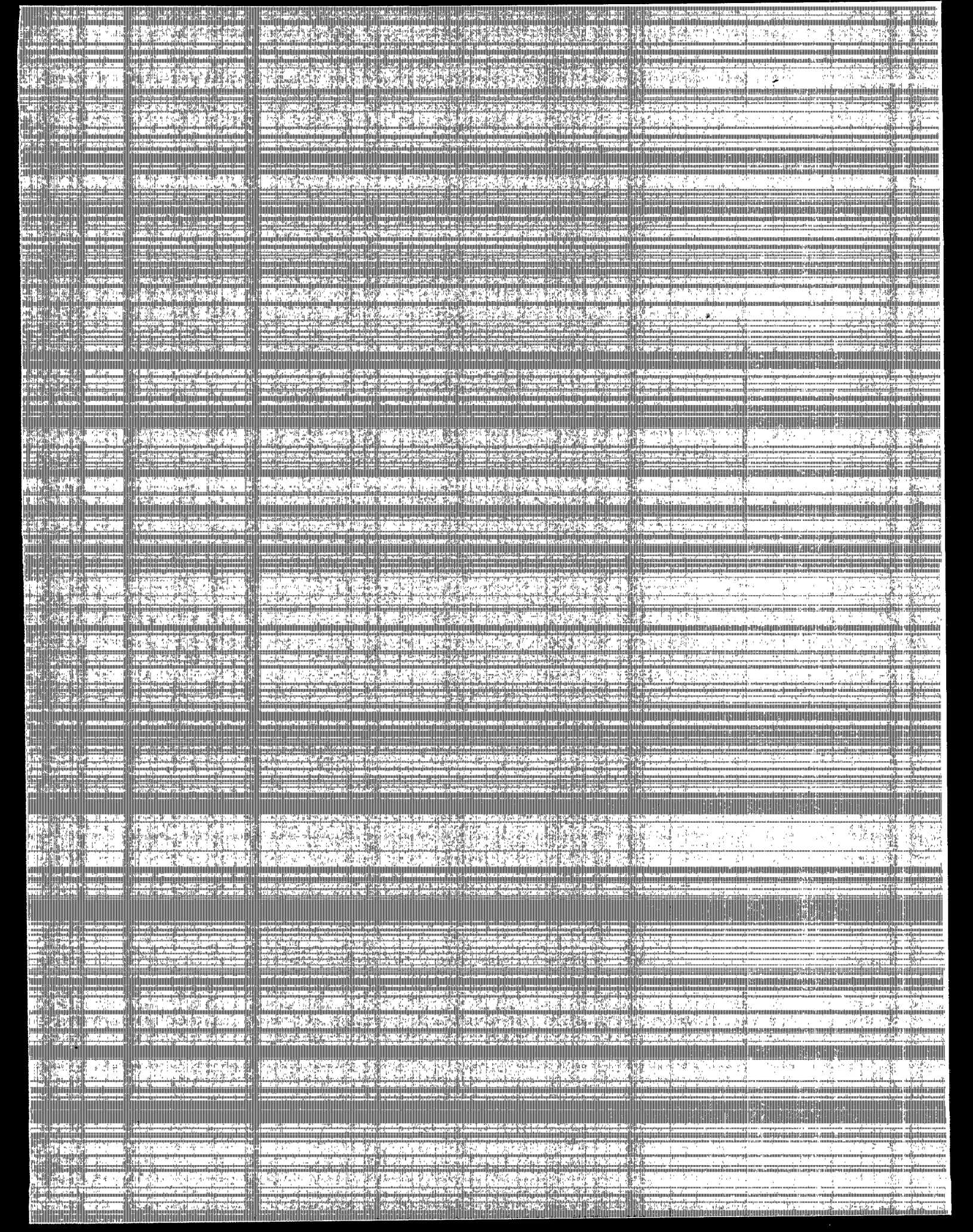
Selection of a dualize alternative or Alternative 2S-20' Median would require an irretrievable commitment of state and federal funds for right-of-way acquisition, materials, and construction. Funds for annual maintenance would also be required. The loss of tax revenues from private land taken for highway use would be an irretrievable revenue loss for Worcester County.

The commitment of these resources is established on the premise that the local and regional residents, commuters, and business communities will benefit from the proposed highway improvements. Benefits which are anticipated to outweigh the loss of these resources would include increased safety, accident reduction, improvements to traffic flow, and reduction in travel time.

V.
SECTION 4(f) EVALUATION

US 113 Planning Study
Snow Hill, Maryland to Delaware State Line

Office of Planning and Preliminary Engineering
Maryland State Highway Administration



V. SECTION 4(F) EVALUATION

A. Introduction

Section 4(f) of the Department of Transportation Act of 1966 (49 U.S.C. 303(c)) permits the use of land from a publicly owned public park or recreation area, wildlife or waterfowl refuge, or land from any significant historic site (as determined by the officials having jurisdiction over the park, recreation area, refuge or historic site) only if there is no feasible and prudent alternative to the use of land from the property and that the action includes all possible planning to minimize harm to the property resulting from such use. This chapter contains the documentation to comply with Section 4(f) of the Department of Transportation Act of 1966.

B. Project Description

The project study area for US 113 (Worcester Highway) encompasses the remaining 23.8 miles of two-lane US 113 in Maryland, extending from south of Snow Hill, Maryland north to the Delaware state line. The 4.4 miles of presently dualized US 113 highway around Berlin, Maryland are not included in this study. The proposed action would improve the remaining two-lane sections of US 113, thereby improving safety conditions and traffic operations along this critical transportation link on the Delmarva peninsula. The project area as shown in Figures S-1 and S-2A through 2D, consists of two areas. The **southern study area** extends along US 113 from south of Snow Hill, Maryland to south of Berlin, Maryland (approximately 16.3 miles). The **northern study area** extends from north of Berlin to the Delaware state line (approximately 7.5 miles).

The purpose of this study is to improve vehicular safety conditions and traffic operations along the two-lane portions of US 113 from south of Snow Hill to the Delaware state line. Need for this project is demonstrated by the fatal accident rate in the northern study area, which is significantly higher than the statewide average for similar two-lane rural highways in Maryland. Figures I-1A through 1D identify the locations and provides a description of the 40 fatal accidents for the period January 1980 through April 1997. A total of 46 people have died as a result of vehicular accidents along the two-lane portions of US 113 during this period. In addition, the Level of Service (LOS) for the northern study area is predicted to decline from its current LOS D rating during the summer months, to a projected LOS F by the design year 2020.

The Purpose and Need for improvements along the two-lane portions of US 113 are fully described in Chapter I of this document. Existing roadway conditions along US 113, traffic operations and levels of service, accident statistics, and details on fatal accidents along US 113 are also presented in Chapter I.

C. Alternatives Considered

Following a Public Alternates Meeting held in November 1995 and based on citizen and environmental agency comments, the following alternatives were retained for detailed study (see Chapter II and Appendix A of this DEIS for details and maps on these alternatives).

Table S-1 presents a summary of the environmental impacts for each alternative.

◆ No-Build Alternatives (Alternatives 1S and 1N) - Baseline

The No-Build Alternatives would not provide major improvements to the existing US 113 roadways. Minor improvements would occur as part of normal maintenance and safety operations. These improvements, however, do not provide features that would prevent further opposite direction collisions where the probable cause is identified as the failure to drive in the designated lane or failure to keep right of the centerline. Specific improvements recently implemented or programmed for implementation are listed in Tables II-1A through 1D, locations of these improvements are shown on Figures II-2A through II-2D. Typical sections are shown on Figure II-3. The routine maintenance operations would not measurably affect roadway capacity or reduce the accident rate. Spot improvements by SHA would continue as funding becomes available. Although the No-Build Alternatives will not meet the project need, they are being used as a basis for comparison for the analysis of the other alternatives.

◆ Transportation Systems Management Alternatives (Alternatives 2S and 2N)

The Transportation Systems Management (TSM) Alternatives would provide improvements along the existing roadway to enhance safety and reduce traffic congestion without major alteration to the existing two-lane highway. The proposed TSM improvements include intersection improvements, full length pavement overlays and additional measures to improve the safety of the existing two-lane roadway. While these improvements are not presently programmed for implementation, they would be part of an integrated plan of phased safety and capacity improvements. The TSM Alternatives include the continued short-term spot improvements such as signing and marking, street lighting, warning flashers, and addresses longer-term improvements with additional turning, acceleration/ deceleration, and bypass lanes; skid resistant pavement overlays; rumble slots along the center line and along the outside edges of pavement; and, the limiting of passing through some areas. The improvements would be prioritized by SHA during the final design phase. Specific TSM improvements are listed in Table II-1, locations of these improvements are shown on Figures II-2A through II-2D. Typical sections are shown on Figure II-3.

◆ Alternative 2S - 20' Median

(see Appendix A, Figures 1 through 8)

Alternative 2S-20' Median typically follows along the centerline of the existing US 113 alignment, provides a 20' median with a traffic barrier, but retains the one-lane per direction configuration. This alternative also provides four passing lanes, 10-foot shoulders, and intersection improvements. This

alternative does not address all of the safety issues along US 113, would introduce some new safety concerns, and does not fully address capacity/operational problems. It would, however, provide low-cost options to improve safety at intersection along US 113 and improve safety along the roadway. Typical sections for Alternative 2S-20' Median are shown on Figure II-4. Detailed plans for the Alternative 2S-20'-Median, at a scale of 1" = 400', are presented in Appendix A, Figures 1 though 7.

◆ Dualization Alternatives

The dualization alternatives under consideration for US 113 propose a four-lane divided roadway with a median. Access would be partially controlled where possible and median and roadside landscaping would be provided. The dualization alternatives in the southern study area have been developed for a design speed of 60 MPH with both 20-foot wide and 34-foot wide medians evaluated. The dualization alternatives in the northern study area have been developed for design speeds of both 50 MPH and 60 MPH along the existing US 113 alignment, and 60 MPH along the new location alignment. Median widths of 20-feet and 34-feet have been evaluated for all dualization alternatives in the northern study area. In addition, these dualization alternatives in the northern study area have been developed in segments with common end points so that they can be used in various combinations.

The dualization alternatives retained for detailed study are graphically presented on Figures II-5A through II-5D. Typical sections for the dualization alignment with a 20-foot median with traffic barrier (Alternatives 3S-20' Median and 3N-20' Median) are shown on Figure II-6; the typical sections for the dualization alignment with a 34-foot median (Alternatives 3S-34' Median and 3N-34' Median) are shown on Figure II-7; the typical sections for the new location alignments (Alternatives 4N-20' Median and 4N-34' Median) are presented on Figure II-8. Detailed plans of the dualization alternatives, at a scale of 1" = 400', are presented in Appendix A, Figures 8 though 17.

◆ Dualization Alternatives Along the Existing Alignment in the Southern Study Area

Alternative 3S-20' Median and 3S-34' Median (see Appendix A, Figures 8 through 14)

Alternatives 3S-20' Median and 3S-34' Median would involve the construction of a new two-lane roadway adjacent to the existing facility and the retention of the existing roadway as the northbound or southbound roadway to the extent possible. These alternatives would use existing right-of-way where possible. The typical roadway section would consist of two 12-foot travel lanes in each direction, a median, 10-foot outside shoulders, and 20-feet of safety grading on both sides of the roadway where appropriate. This alternative is being designed for a 60 MPH design speed with two alternative median widths and treatments. The proposed typical sections for Alternative 3S are shown on Figure II-6 for 3S-20' Median and Figure II-7 for 3S-34' Median.

- **Dualization Alternatives Along the Existing Alignment in the Northern Study Area**
  Alternative 3N-20' Median (50 MPH), Alternative 3N-34' Median (50 MPH)
  Alternative 3N-20' Median (60 MPH), Alternative 3N-34' Median (60 MPH)
  (see Appendix A, Figures 15 through 17)

The typical roadway section would consist of two 12-foot travel lanes in each direction, a median, 10-foot outside shoulders, and safety grading on both sides of the roadway where appropriate. This alternative is being evaluated for both a 50 MPH and a 60 MPH design speed with two alternative median widths and safety grading treatments. The proposed typical sections for Alternative 3N are shown on Figure II-6 for 3N-20' Median and on Figure II-7 for 3N-34' Median.

- **Dualization Alternatives on New Alignment in the Northern Study Area**
  Alternative 4N-20' Median, Alternative 4N-34' Median
  (see Appendix A, Figures 15 through 17)

The dualization on new alignments would involve the construction of a new four-lane divided roadway away from the existing facility. The roadway would be constructed on new location to minimize impacts to residential and commercial properties.

The typical roadway section would consist of two 12-foot travel lanes in each direction, a median, 10-foot outside shoulders, and 20-feet of safety grading on both sides of the roadway where appropriate. This alternative is being designed for a 60 MPH design speed with two alternative median widths and treatments. The proposed typical sections for Alternative 4N Modified (for both the 20' Median and for the 34' Median designs) are shown on Figure II-8.

- **Dualization Alternatives Along a Combination of Existing and New Alignments in the Northern Study Area**
  Alternative 3N/4N Modified-20' Median, Alternative 3N/4N Modified-34' Median
  (see Appendix A, Figures 15 through 17)

A Combination Alternative which uses portions of Alternative 3N and Alternative 4N Modified is also being considered. The typical sections for the Combination Alternative would be the same as those used for Alternatives 3N and 4N Modified respectively. This alternative is being designed for a 60 MPH design speed with two alternative median widths and treatments. The Combination Alternative follows the Alternative 4N Modified alignment from US 50 through the previously graded interchange area, across existing US 113 at MD 589 and bypasses the Town of Showell to the east. Like Alternative 4N Modified, the Combination Alternative ties back into existing US 113 just north of Showell, but then follows Alternative 3N along the existing alignment of US 113 to the northern project terminus at the Delaware state line.

D. Description of Section 4(f) Resources

The area of potential effect (APE), concurred with by the Maryland Historical Trust (MHT) on August 30, 1995, was defined to include the area 500-feet east and west of the existing US 113 roadway in most of the project corridor, and, in the northern portion of the study area, from north of the town of Berlin to the Delaware state line , where relocation alternatives are also being studied, the APE width expanded to approximately 500-feet beyond the limits of the furthermost eastern and western alternatives and included the area between potential alignments. The west boundary of the northern study area extended to the Maryland and Delaware Railroad Corridor.

The National Register's standards for evaluating the significance of properties were developed to recognize the accomplishments of all peoples who have made a contribution to our country's history and heritage.

The quality of *significance* in American history, architecture, archeology, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

(A) that are associated with events that have made a significant contribution to the broad patterns of our history; or
(B) that are associated with the lives of persons significant in our past; or
(C) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
(D) that have yielded, or may be likely to yield, information important in prehistory or history.

The Maryland Historical Trust (MHT), which is the State Historic Preservation Officer (SHPO) for the state of Maryland, has concurred that six (6) historic structures identified in the project's Area of Potential Effects (APE) are either listed on or are eligible for listing on the National Register of Historic Places (NRHP) (see Chapter VI, Comments and Coordination).

Of the six sites identified as National Register or National Register eligible, three sites are not Section 4(f) resources as they are not directly impacted by the project alternatives. These three historic structures were identified as listed or eligible for listing on the National Register and are described in Chapter III, Section B. Review of the alternative alignments showed that the use of three of these properties; St. Martin's Church, the Transpeninsular Line Marker (WO-479), and the Lemuel Showell House (WO-284), would not be required by the proposed transportation project. None of the alternative alignments would require acquisition of property from these sites. Although adverse effect determination were determined for two of these sites (St, Martin's Church and Lemuel Showell House) under various alternatives, neither the changes in visual or noise environment would effect the properties under which these sites were determined to be eligible for the National Register, and do not substantially impair the historic integrity of these sites. And thus, these alternatives do not constitute a constructive use of these properties.

The 3N alternatives require right-of-way acquisition from within the historic boundaries of the following three historic resources. This action constitutes a use of these properties and therefore qualifies them for protection under Section 4(f).

- **Vic's Country Store** (WO-472). Vic's Country Store, determined eligible for the National Register in March 1996 under criterion C (as a representative of a type), is located on the east side of US 113 at the intersection of Carey Road, Jones Road, and Friendship Road. The building is a good, intact example of early 20th century roadside architecture, and as a store/gas station in a small crossroads community -- once quite common, but now a dying form.

  Vic's Country Store is determined to be a Section 4(f) resource as it would be impacted by the 3N Alternatives. These alternatives would each require acreage from the historic boundary of this resource and would impact the structure as well. Details of the impacts of each alternative are presented in Section E of this Chapter.

- **Hale Farm/Mariner Farm** (WO-283). The Hale Farm/Mariner Farm, determined eligible in April 1996, is located on the east side of US 113 between MD 90 and MD 589, south of Showell. The property, including a mid-19th century farmhouse, a log corncrib, and a smokehouse, provides an excellent representative example of an intact, mid-19th century farmhouse and a cohesive grouping of domestic outbuildings, and is eligible for the National Register under criterion C (as representative of a type).

  The Hale Farm/Mariner Farm is determined to be a Section 4(f) resource as it would be impacted by any of the 3N Alternatives. These alternatives would each require acreage from the historic boundary of this resource. Details of the impacts of each alternative are present in Section E of this Chapter.

- **Showell Store** (WO-289). The Showell Store, determined eligible for the National Register in January 1997, is located at the northwest corner of US 113 and Pitts Road in Showell. Significant as a village store and commercial center for the surrounding area from the mid-19th century to the present, the Showell Store is considered eligible for the National Register under criterion A, as it reflects the broad patterns of local history.

  Archeological 18WO209, considered potentially eligible for the National Register on the basis of its information potential, is within the boundary of the Showell Store. This multicomponent prehistoric and historic period site was identified by Phase I Survey. Should this site be impacted by the selected alternative, Phase II archeological evaluation will be undertaken to conclusively determine the site's National Register eligibility.

  The Showell Store is determined to be a Section 4(f) resource as it would be impacted by any of the 3N Alternatives. These alternatives would each require taking the entire resource. Details of the impacts of each alternative are present in Section E of this Chapter.

E. Impacts and Measures to Minimize Harm

The historic properties impacted by the 3N Alternatives include Vic's Country Store, the Hale Farm/Mariner Farm, and the Showell Store. Figure V-1 shows the locations of the historic sites in relation to the proposed dualization alternatives. The impacts of the alternatives to each Section 4(f) property are summarized in Table V-1. Descriptions of impacts and measures to avoid and minimize harm follow Table V-1. Alternatives 1N, 2N, 4N Modified and Combination Alternatives 3N/4N Modified do not impact these Section 4(f) resources.

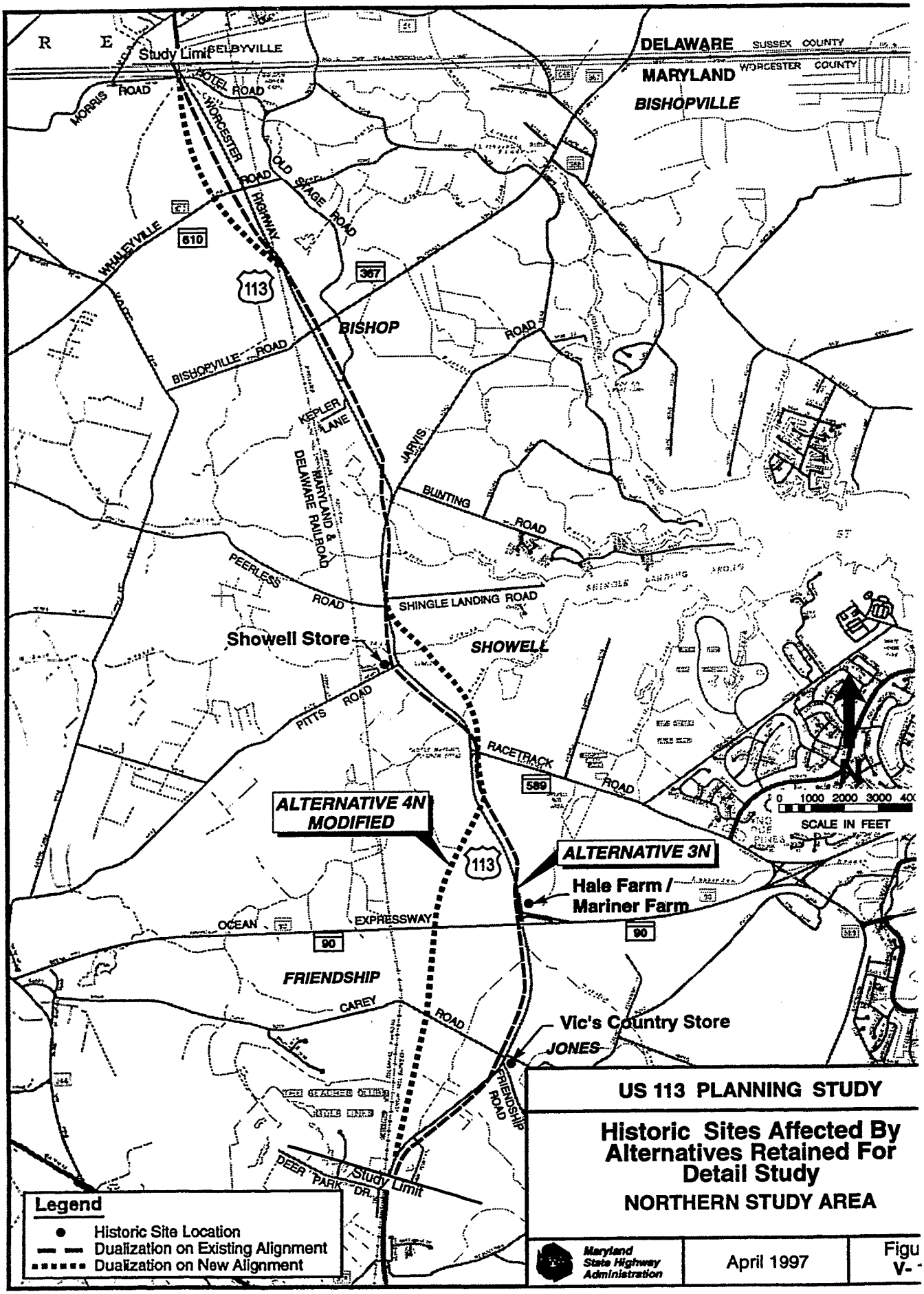
Table V-1: Historic and Archaeological Resources

Northern Study Area Alternatives [1]	Historic Resources Effected		
	Vic's Country Store	Hale Farm/Mariner Farm	Showell Store
1N/2N	No impact to historic properties		
3N-20' Median (50 MPH)	Requires 0.13 acres from historic boundary.	Requires 0.42 acres from historic boundary.	Requires taking of the entire property (0.44 acres and the building).
3N-34' Median (50 MPH)	Requires 0.15 acres from historic boundary. Impacts the structure.	Requires 0.54 acres from historic boundary.	Requires taking of the entire property (0.44 acres and the building).
3N-20' Median (60 MPH)	Requires 0.18 acres from historic boundary. Impacts the structure.	Requires 0.49 acres from historic boundary.	Requires taking of the entire property (0.44 acres and the building).
3N-34' Median (60 MPH)	Requires 0.30 acres from historic boundary. Impacts the structure.	Requires 0.62 acres from historic boundary.	Requires taking of the entire property (0.44 acres and the building).
4N Mod.-20' Median 4N Mod.-34' Median	No impact to historic properties.		
3N/4N Mod.-20' Median 3N/4N Mod.-34' Median	No impact to historic properties.		

1. No historic resources in the southern study area would be impacted by alternatives currently under consideration.

◆ Vic's Country Store

Vic's Country Store, located on the east side of US 113, is approximately 63-feet from the existing edge of pavement of US 113 between MD 452 (Friendship Road) and Jones Road. The historic boundary of this resource encompasses approximately 1.19 acres. The frontal boundary matches the existing right-of-way of US 113 and is approximately 18-feet from the edge of pavement. Photographs of the site, its setting, and its relationship to existing US 113 are included on Figure V-2. Impacts, avoidance and minimization effects are presented in Table V-2 and are discussed below.



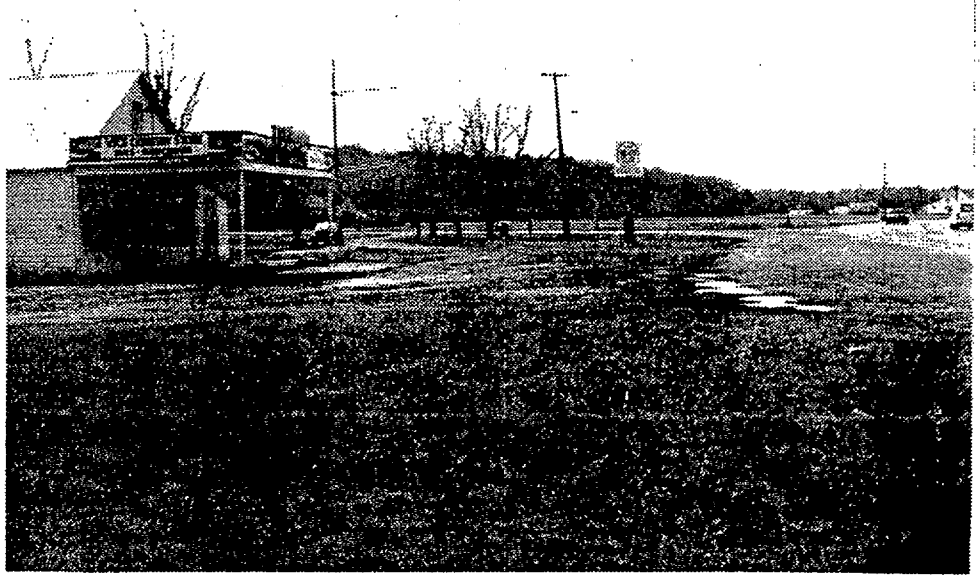
US 113 PLANNING STUDY

Historic Sites Affected By Alternatives Retained For Detail Study

NORTHERN STUDY AREA

Maryland State Highway Administration | April 1997 | Figu V-

Vic's Country Store (Looking east across US 113)



Vic's Country Store (Looking south along US 113)

US 113 PLANNING STUDY

Photographs of Vic's Country Store

Maryland State Highway Administration	April 1997	Figure V- 2

** See Figure V-3 for plan*

Impacts

As a part of the No-Build improvement (Alternative 1N), the construction of a northbound acceleration/deceleration lane and a southbound bypass lane are proposed at the US 113/MD 452 intersection. These improvements would not require any right-of-way from this resource.

Under the TSM Alternative (Alternative 2N-Basic), stop lines will be painted at the Carey Road and Jones Road intersections. These improvements would not require right-of-way from this resource.

Near the store, the 3N alternatives transition from widening on the east of existing US 113 to the west. The proposed edge of pavement would be approximately 48 to 50-feet from the front of the store (depending on the median width and design speed). No changes in the roadway profile are anticipated. Each of these alternatives would require the taking of right-of-way from the site. Alternatives 3N-34' Median (50 MPH), 3N-20' Median (60 MPH), and 3N-34' Median (60 MPH) would have an impact to the structure itself. This impact to the structure would involve the taking of the existing porch.

The 4N Modified alternatives and the 3N/4N Modified alternatives are more than 2,600-feet (0.5 miles) to the west of Vic's Country Store and would have no Section 4(f) impact on this resource.

Avoidance and Minimization

To avoid impacts to this property, the degree of curvature could be altered to create a flatter curve at this location under each of the 3N alternatives (see Figure V-3). This would move the alignment west, away from and off of the historic property.

This avoidance alternative would require the taking of additional right-of-way of between 0.60 and 0.83 acres (depending on the median width and design speed), from the west side of US 113. The avoidance alternative would also require relocation of one business, one residence and one four unit apartment building under each of the 3N alternatives.

A modification of the proposed typical cross section with the construction of a curb and gutter section with guardrail along the northbound roadway between Friendship and Jones Roads, would minimize impacts to this historic site under each of the 3N alternatives. Under this option, the structure on this property would not be affected, however, 0.04 acres of right-of-way would still be required from within the historic boundary. This minimization alignment would bring the proposed edge of pavement to within 28 to 35-feet (depending on the median width and the design speed) of the porch.

Table V-2: Vic's Country Store Impacts, Avoidance, and Minimization

Alternatives	Vic's Country Store		
	Impacts	**Avoidance**	**Minimization**
3N-20' Median (50 MPH)	Requires 0.13 acres from historic boundary. Proposed edge of pavement would be 50-feet from structure.	Requires 0.83 acres of additional right-of-way. Requires relocation of: 1 residence, 1 business, and 1 four unit apt. building. One residential relocation required under the original alignments would be avoided.	Requires 0.04 acres (1,545 SF) from historic boundary.
3N-34' Median (50 MPH)	Requires 0.15 acres from historic boundary. Impacts the structure Proposed edge of pavement would be 48-feet from structure.	Requires 0.78 acres of additional right-of-way. Requires relocation of: 1 residence 1 business 1 four unit apt. building. One residential relocation required under the original alignments would be avoided.	Requires 0.04 acres (1,545 SF) from historic boundary.
3N-20' Median (60 MPH)	Requires 0.18 acres from historic boundary. Impacts the structure. Proposed edge of pavement would be 50-feet from structure.	Requires 0.60 acres of additional right-of-way. Requires relocation of: 1 residence 1 business 1 four unit apt. building One residential relocation required under the original alignments would be avoided.	Requires 0.04 acres (1,775 SF) from historic boundary.
3N-34' Median (60 MPH)	Requires 0.30 acres from historic boundary. Impacts the structure. Proposed edge of pavement would be 48-feet from structure.	Requires 0.65 acres of additional right-of-way. Requires relocation of: 1 residence 1 business 1 four unit apt. building One residential relocation required under the original alignments would be avoided.	Requires 0.04 acres (1,775 SF) from historic boundary.

370 X (13)

F. Mitigation Measures

◆ Vic's Country Store

The minimization of impacts to Vic's Country Store, as described in Section E, proposes a modification of the proposed typical cross section for Alternative 3N; constructing a curb and gutter section with guardrail on the northbound roadway between Friendship and Jones roads. This modification would minimize impacts to this historic site. The structure on this property would not be affected, however 0.04 acres of right-of-way would be required from the historic boundary.

Mitigation of this impact could involve landscaping to shield the historic resource from the structure as well as preparation of a Historic American Building Survey (HABS) and a Historic Engineering and Architectural Record (HEAR). Sometime around 1954, Vic's Country Store was relocated on its existing site for the widening of US 113 and relocation of MD 452. The structure may be able to be relocated on site once again to avoid impact to the structure as would occur under each 3N alternative.

◆ Hale Farm/Mariner Farm

The minimization of impacts to the Hale Farm/Mariner Farm, as described in Section E, proposes a modification of the proposed typical cross section for Alternative 3N; constructing a curb and gutter section with guardrail on the northbound roadway between Friendship and Jones roads. This modification would minimize impacts to this historic site. The structure on this property would not be affected, however 0.34 acres of right-of-way would be required from the historic boundary. Mitigation of this impact could involve landscaping to shield the historic resource from the structure as well as preparation of a Historic American Building Survey (HABS) and a Historic Engineering and Architectural Record (HEAR). Additionally, the brick entrance to the front of this property could be rebuilt.

◆ Showell Store

Minimization efforts at the Showell Store were not feasible. Mitigation measures could include preparation of a Historic American Building Survey (HABS) and a Historic Engineering and Architectural Record (HEAR).

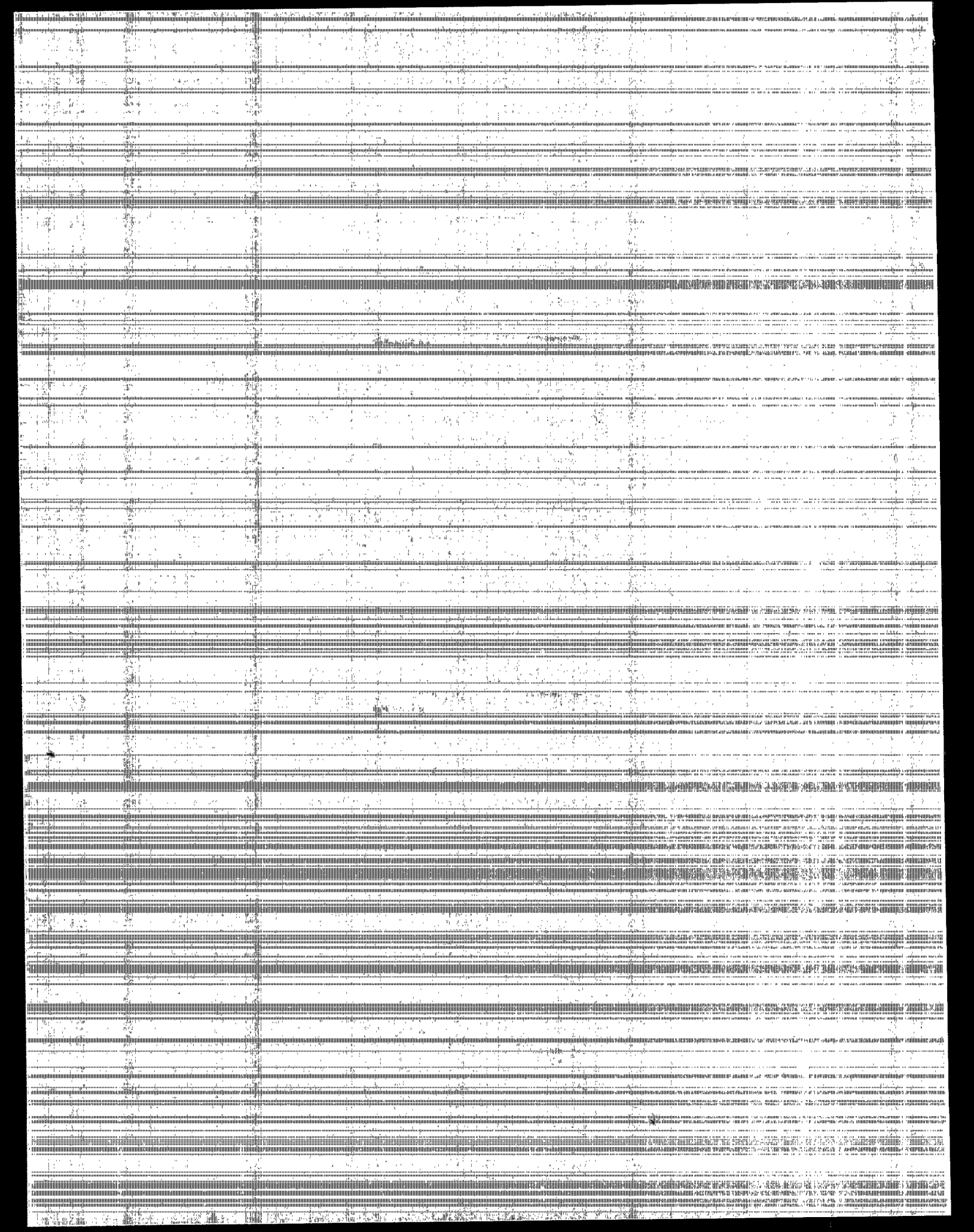
G. Correspondence and Coordination

Public involvement and agency coordination have been integral parts of the project development process as presented in Chapter I, Section D.

Coordination with the Maryland Historical Trust (MHT) has been ongoing, in accordance with Section 106 of the National Historic Preservation Act of 1966, to address the adverse effects of some of the alternatives (see Chapter VI, Comments and Coordination). MHT has reviewed preliminary alternative alignments and has offered comments on SHA's assessment of impacts for architectural resources, as well as comments on a draft Phase 1 archeological report. MHT has urged careful examination and consideration of the options which would avoid and minimize the project's adverse effects on historic and archeological properties. Coordination will continue with MHT, the Advisory Council on Historic Preservation, and other interested parties regarding proposed mitigation measures and development of a Memorandum of Agreement (MOA) for this project. An MOA would include stipulations addressing the specific treatment of affected historic standing structures and the procedures for completing evaluation and treatment of archeological resources affected by the selected alternative.

Public Involvement Correspondence

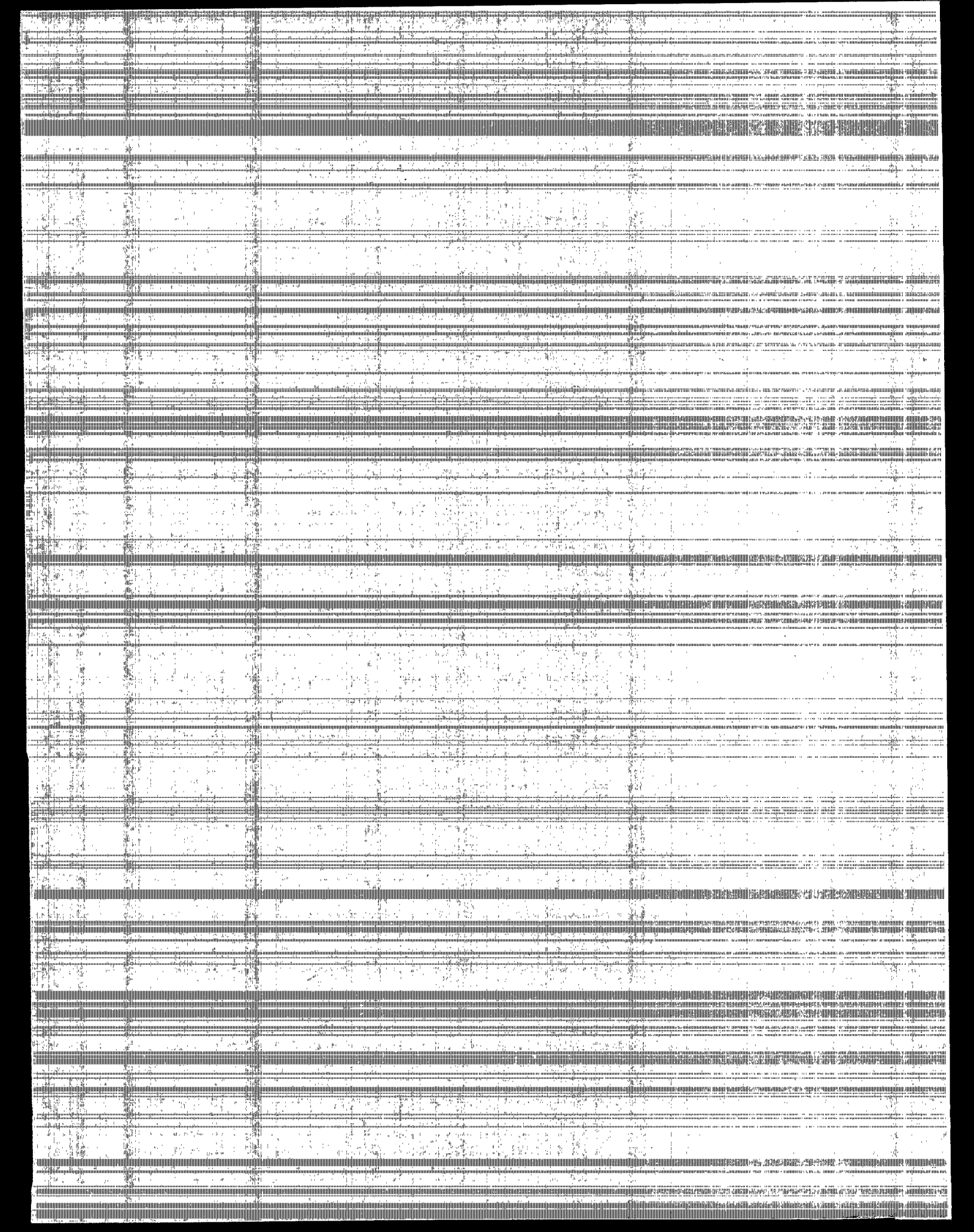
US 113 Planning Study



VI.
COMMENTS AND COORDINATION

US 113 Planning Study
Snow Hill, Maryland to Delaware State Line

Office of Planning and Preliminary Engineering
Maryland State Highway Administration



VI. COMMENTS AND COORDINATION

Agency coordination for the Draft Environmental Impact Statement (DEIS) document was conducted throughout the study. Chapters of the DEIS were submitted to the environmental resource agencies for review and comments prior to finalizing the document. This section includes a compilation of correspondence with agencies, public groups, and elected officials.

Elected Officials Correspondence

VI-1	Wayne T. Gilchrest, United States House of Representatives (from SHA)	November 1, 1994
VI-2	Barbara A. Mikulski, United States Senator (to SHA)	August 27, 1996
VI-4	James G. Barrett, Worcester County Commissioner (from SHA)	November 20, 1996
VI-6	Bennett Bozman, Worcester County House Delegation (from SHA)	November 20, 1996
VI-8	J. Lowell Stoltzfus, Worcester County Senate Delegation (from SHA)	November 20, 1996
VI-10	J. Lowell Stoltzfus, Worcester County Senate Delegation (to SHA)	November 27, 1996
VI-11	James G. Barrett, Worcester County Commissioner (to SHA)	December 9, 1996
VI-12	J. Lowell Stoltzfus, Worcester County Senate Delegation (from SHA)	December 26, 1996
VI-13	James G. Barrett, Worcester County Commissioner (from SHA)	December 31, 1996
VI-14	Barbara A. Mikulski, United States Senator (from SHA)	January 21, 1996
VI-15	Wayne T. Gilchrest, United States House of Representatives (from SHA)	February 21, 1997
VI-17	James G. Barrett, Worcester County Commissioner (to SHA)	March 25, 1997
VI-18	James G. Barrett, Worcester County Commissioner (from SHA)	April 4, 1997

Public Involvement

VI-19	Summary of comments from the Alternates Public Workshop	November 30, 1995
VI-20	Meeting with CRASH Citizens Group; Minutes (from SHA)	March 8, 1995
VI-28	Friendship Community Association (to SHA)	February 2, 1997
VI-35	Friendship Community Association (from SHA)	February 28, 1997
VI-38	Letter to area churches; Environmental Justice Coordination (from SHA)	February 12, 1997
VI-48	Letter to Robert Hulburd, CRASH Citizens Group (from SHA)	February 24, 1997
VI-49	Letter to Worcester County Office of Emergency Services	April 10, 1997
VI-50	Meeting with the Friendship Community Association	April 15, 1997
VI-51a	Ocean Pines Association, Inc.	April 2, 1997
VI-51c	Worcester County Commission for Women	April 3, 1997

NEPA/404 Coordination

Comments and Concurrence on Purpose and Need

VI-52	Fish and Wildlife Service *concurrence* (from SHA)	February 4, 1997
VI-53	Environmental Protection Agency *comments* (to SHA)	December 14, 1995
VI-55	Environmental Protection Agency *response to comments* (from SHA)	March 5, 1996
VI-61	Environmental Protection Agency *comments* (to SHA)	May 2, 1996
VI-63	Environmental Protection Agency *response to comments* (from SHA)	June 17, 1996
VI-68	Environmental Protection Agency *comments* (to SHA)	August 26, 1996
VI-69	Environmental Protection Agency *Concurrence* (to SHA)	September 5, 1996
VI-71	Corps of Engineers *comments* (to SHA)	December 15, 1997
VI-73	Corps of Engineers *response to comments* (from SHA)	March 5, 1996
VI-78	Corps of Engineers *comments* (to SHA)	April 22, 1996
VI-80	Corps of Engineers *response to comments* (from SHA)	June 17, 1996
VI-84	Corps of Engineers *Concurrence* (to SHA)	July 9, 1996

VI-87	Maryland Department of Natural Resources *comments* (to SHA)	December 11, 1995
VI-89	Maryland Office of Planning *comments* (to SHA)	December 7, 1995
VI-91	National Park Service *comments* (to SHA)	June 2, 1995
VI-93	Maryland Historical Trust *comments* (to SHA)	November 30, 1995
VI-94	Department of Natural Resources *natural habitats* (to SHA)	February 12, 1996

Comments and Concurrence on Alternatives Retained for Detailed Study

VI-96	Fish and Wildlife Service *comments* (to SHA)	January 28, 1997
VI-98	Fish and Wildlife Service *concurrence* (to SHA)	February 4, 1997
VI-99	Fish and Wildlife Service *response to comments* (from SHA)	February 27, 1997
VI-101	Environmental Protection Agency *comments* (to SHA)	January 31, 1997
VI-103	Environmental Protection Agency *response to comments* (from SHA)	February 24, 1997
VI-105a	Environmental Protection Agency *concurrence* (to SHA)	March 31, 1997
VI-106	Corps of Engineers *comments* (to SHA)	January 23, 1997
VI-108	Corps of Engineers *response to comments* (from SHA)	February 25, 1997
VI-111	Corps of Engineers *concurrence* (to SHA)	April 11, 1997
VI-113	Maryland Department of Natural Resources *concurrence* (to SHA)	November 21, 1996
VI-115	Maryland Office of Planning *comments* (to SHA)	November 20, 1996
VI-117	Maryland Office of Planning *response to comments* (from SHA)	February 20, 1997
VI-131	Maryland Department of the Environment *concurrence* (to SHA)	March 14, 1997
VI-132	Maryland Department of the Environment *concurrence update* (to SHA)	March 27, 1997
VI-135	National Marine Fisheries Service *comments* (to SHA)	November 25, 1996
VI-136	National Marine Fisheries Service *response to comments* (from SHA)	December 23, 1996
VI-141	National Marine Fisheries Service *concurrence* (to SHA)	March 31, 1997
VI-144	Maryland Historical Trust *comments* (to SHA)	November 15, 1996

Other NEPA/404 Coordination

VI-146	Minutes from Agency Field Review	August 3 & 4, 1995
VI-158	Invitations to Agency Field Review	July 24, 1995
VI-170	February 27, 1997 Wetland Jurisdictional Review Minutes	
VI-173	October 29 to 31, 1996 Wetland Jurisdictional Review Minutes	
VI-177	December 11, 1996 Wetland Jurisdictional Review Minutes	
VI-179	November 26 and 27, 1996 Wetland Jurisdictional Review Minutes	
VI-182	January 22 and 23, 1997 Wetland Jurisdictional Review Minutes	
VI-188a	March 20, 27, 28, 1997 Wetland Jurisdictional Review Minutes	
VI-189	Fish and Wildlife Service *natural habitats* (to SHA)	April 26, 1995
VI-190	Maryland Historical Trust (from SHA)	February 21, 1997
VI-191	Maryland Department of the Environment (from SHA)	February 21, 1997
VI-192	Maryland Department of Natural Resources (from SHA)	February 21, 1997
VI-193	Maryland Office of Planning (from SHA)	February 21, 1997
VI-194	May 17, 1995 Interagency Review Meeting Minutes	
VI-211	September 18, 1996 Interagency Review Meeting Minutes	
VI-228	February 19, 1997 Interagency Review Meeting Minutes	
VI-251	March 19, 1997 Interagency Review Meeting Minutes	
VI-256	March 25, 1997 Interagency Review Meeting Minutes	

VI-259 Corps of Engineers (Cooperating Agency) April 10, 1997

Other Agency Correspondence

VI-260 Maryland Historical Trust *concurrence* (to SHA) June 14, 1990
VI-261 Maryland Historical Trust *concurrence* (to SHA) November 5, 1990
VI-262 Maryland Historical Trust *comments* (to SHA) December 5, 1990
VI-264 Maryland Historical Trust *report transmittal* (from SHA) July 26, 1995
VI-266 Maryland Historical Trust *comments* (to SHA) March 12, 1996
VI-269 Maryland Historical Trust *comments* (to SHA) April 10, 1996
VI-277 Maryland Historical Trust *report transmittal* (from SHA) July 8, 1996
VI-278 Maryland Historical Trust *comments* (to SHA) July 18, 1996
VI-280 Maryland Historical Trust *comments* (to SHA) January 7, 1997
VI-282 Maryland Historical Trust *comments* (to SHA) March 6, 1997
VI-284 Maryland Historical Trust *comments & concurrence* (to SHA) March 18, 1997
VI-292a Maryland Historical Trust *comments & concurrence* (to SHA) April 23, 1997

VI-293 Department of Natural Resources *natural habitats* (to SHA) July 6, 1989
VI-295 Department of Natural Resources *natural habitats* (to SHA) January 17, 1990
VI-296 Department of Natural Resources *natural habitats* (to SHA) April 25, 1995
VI-297 Department of Natural Resources *natural habitats* (to SHA) May 9, 1995
VI-300 Department of Natural Resources *natural habitats* (to SHA) June 3, 1996
VI-302 Department of Natural Resources *natural habitats* (to SHA) July 8, 1996

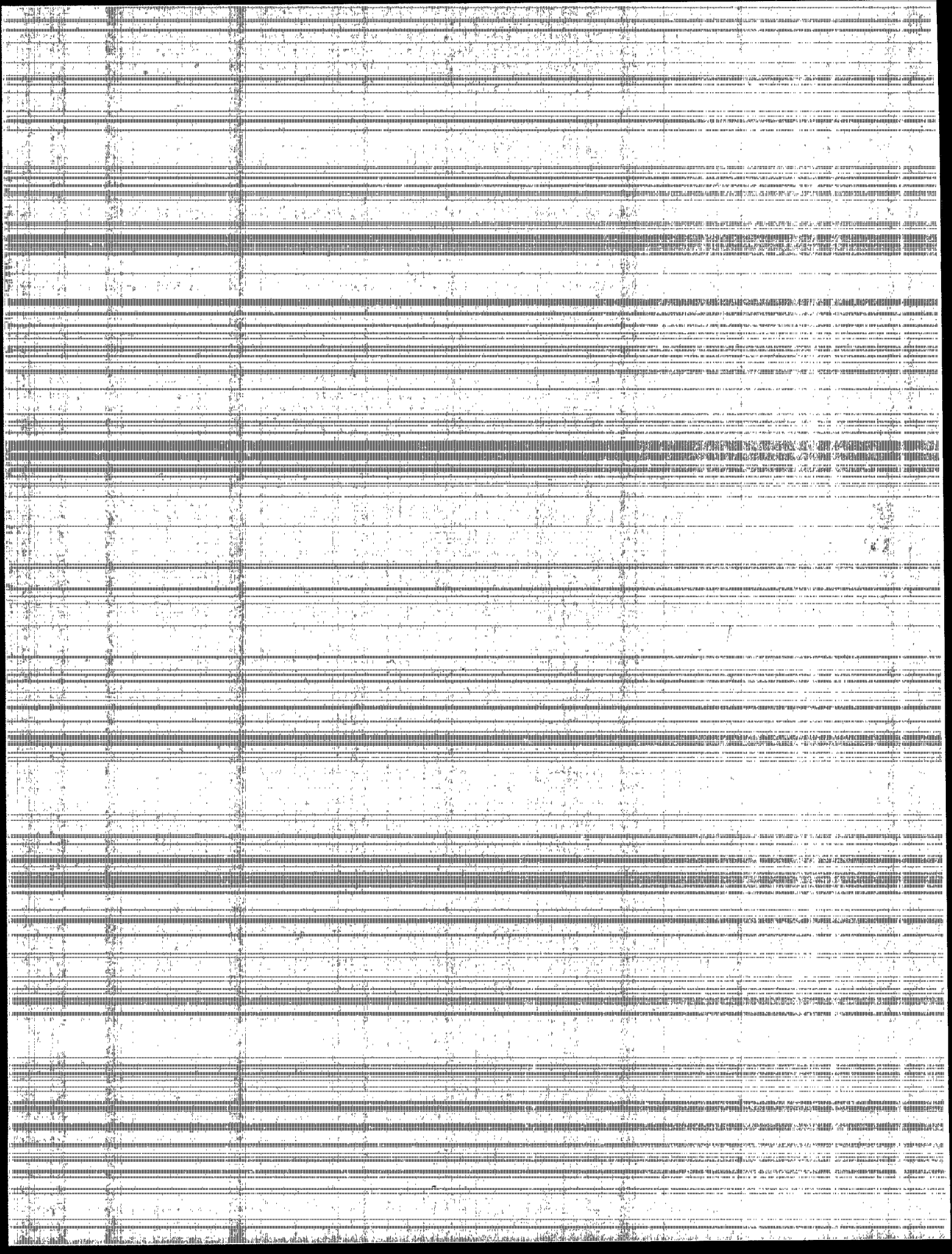
VI-304 Maryland Department of the Environment (to SHA) March 21, 1997

VI-305 US Department of Agriculture - Farmland Conversion Impacts April 16, 1997

376X (37)

Elected Officials Correspondence

US 113 Planning Study



Maryland Department of Transportation
The Secretary's Office

William Donald Schaefer
Governor
O. James Lighthizer
Secretary
Thomas L. Osborne
Deputy Secretary

November 1, 1994

The Honorable Wayne T. Gilchrest
United States House of Representatives
412 Cannon House Office Building
Washington DC 20515-2001

Dear Congressman Gilchrest:

Thank you for your recent letter concerning the safety issues on US 113 in Worcester County. We appreciate your constituents' concerns on this issue as well as your own commitment to highway safety.

I am pleased to inform you that the State Highway Administration (SHA) will be working closely with a community task force to evaluate short-term safety improvements that could be quickly implemented on US 113, from Snow Hill to the Delaware state line.

We will also reactivate planning studies for improving US 113. The study will be added to the Development and Evaluation portion of the Draft 1995-2000 Consolidated Transportation Program. The study will examine engineering feasibility, community impacts and environmental issues for long-term options, especially widening along the existing alignment.

State Highway Administrator Hal Kassoff and his staff are planning to meet with representatives of the task force to discuss these proposals further on November 9, 1994. While we can implement low-cost interim safety improvements that come out of our studies, we will not be able to proceed beyond studies for the dualization of US 113 without new transportation revenues. I would greatly appreciate any assistance you can provide in securing additional funds, beyond our normal formula allocations, to fund improvements in the US 113 corridor.

Again, thank you for sharing your concerns with me. If you have any questions, please feel free to call me or Mr. Kassoff, who can be reached at (410) 333-1111.

Sincerely,

O. James Lighthizer
Secretary

cc: Mr. Hal Kassoff

VI- 1 859-7600
My telephone number is (410)- _____
TTY For the Deaf: (410) 684-6919
Post Office Box 8755, Baltimore/Washington International Airport, Maryland 21240-0755

STATE OF MARYLAND
OFFICE OF THE GOVERNOR

PARRIS N. GL
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ANNAPC
ST
100 ST
ANNAPOLIS, MARY
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444 NORTH CAPITOL S
WASHINGTON
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TDD (4

August 27, 1996

The Honorable Barbara A. Mikulski
United States Senate
Suite 1E, Building B
1201 Pemberton Drive
Salisbury MD 21801-2403

Dear Barbara:

Thank you for your recent letter expressing concerns about US 113. I would like to take this opportunity to respond to the three questions you raised. Let me begin with what has been accomplished in the past and a status of our current activities.

The State Highway Administration (SHA) has made a number of improvements to US 113 between US 13 and the Delaware state line over the last 10 years. It has completed major intersection improvements along US 113 at US 13, MD 610, MD 589, Pitts Road, and the Delaware state line. The SHA has also installed 15 street lights and five flasher signals, and has made numerous spot safety improvements, including widening the painted lines which separate northbound from southbound traffic, installing raised pavement markers, adding pavement marking arrows, and adding "no passing" signs. In addition, SHA also resurfaced approximately 80 percent of US 113 in this area. These improvements (most of which were made during the last five years) cost approximately $12 million.

The US 113 project is included in the Department's Consolidated Transportation Program for project development. We are evaluating a variety of alternatives including the construction of an additional two-lane roadway adjacent to the existing facility and a new four-lane road on new location for the section between Berlin and the Delaware state line. The cost of dualizing the entire length of US 113 would likely exceed $100 million. We anticipate holding a public hearing in the Spring of 1997 and expect completion of the analysis later in the year.

Traffic and accident studies were done in the late 1980's when a project planning study was initiated for US 113 from US 50 to the Delaware state line. The traffic and accident data was updated last year when we began the project development effort mentioned above. The entire section of US 113 has experienced 893 accidents in the past 15 years. On average this rate is lower than other similar roadways. The northern section has experienced 20 fatalities over that period of time which is cause for concern and is the primary focus of our present project development efforts.

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We would certainly prefer to be able to make an early commitment to the construction of a project such as the dualization of US 113, but given the limits on both federal as well as state transportation funding, we have not been able to do so at this time. As you are well aware, Congress has not readily agreed to federal funding for highway projects in addition to that provided through normal federal funding apportionments. In the coming year, as we approach the re-authorization of the federal surface transportation programs, we will want to work closely with you and other members of the Maryland Congressional delegation. We hope to obtain the highest possible funding formula for Maryland, enabling us to undertake projects such as US 113 as well as special categories of projects such as federally owned highways like the Woodrow Wilson Bridge and the Baltimore Washington Parkway.

Thank you for your interest in the US 113 project. If you have any other questions or comments, please feel free to call me or State Highway Administrator Parker Williams at (410) 545-0400.

Sincerely,

Parris

Parris N. Glendening
Governor

Enclosure

cc: The Honorable David L. Winstead, Secretary, Department of Transportation
The Honorable James G. Barrett
The Honorable Bennett Bozman
Mr. Parker Williams

Maryland Department of Transportation
State Highway Administration

David L. Win
Secretary
Parker F. Wil
Administrator

November 20, 1996

The Honorable James Barrett
President
Worcester County Commissioners
Courthouse
Snow Hill MD 21863

Dear Commissioner Barrett:

The State Highway Administration (SHA) has completed initial project planning studies for the proposed dualization of US 113 from Snow Hill to the Delaware State line. Proposed alternatives include dualizing US 113 along the existing roadway and the construction of US 113 on a new location.

During the initial planning stage, alternative proposals were developed and an environmental inventory of the area was completed to identify social, economic, natural and cultural resources. These resources were considered during the development of the alternatives.

On November 30, 1995, an Alternates Public Workshop was held at Berlin Middle School to present the findings of the conceptual engineering and of the preliminary natural and cultural environmental and socio-economic studies. A copy of the brochure distributed for the meeting is enclosed.

An environmental document will be prepared describing each alternative and its potential impacts. The document will be circulated and made available to the public. A public hearing will be held following the publication of the environmental document. We request the Worcester County Commissioners' concurrence to proceed to final project planning for the US 113 study.

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

380

If you have any questions or comments, please feel free to contact me or Mr. Neil Pedersen, our Director of Planning and Preliminary Engineering, who can be reached at (410) 545-0411.

Sincerely,

Parker F. Williams
Administrator

Enclosure
cc: Mr. Neil J. Pedersen, Director, State Highway Administration
The Honorable David L. Winstead, Secretary, Maryland Department of Transportation

Maryland Department of Transportation
State Highway Administration

David L. Wir
Secretary
Parker F. Wi
Administrator

November 20, 1996

The Honorable Bennett Bozman
Chairperson
Worcester County House Delegation
413 Lowe House Office Building
6 Governor Bladen Boulevard
Annapolis MD 21401-1991

Dear Delegate Bozman:

The State Highway Administration (SHA) has completed initial project planning studies for the proposed dualization of US 113 from Snow Hill to the Delaware State line. Proposed alternatives include dualizing US 113 along the existing roadway and the construction of US 113 on a new location.

During the initial planning stage, alternative proposals were developed and an environmental inventory of the area was completed to identify social, economic, natural and cultural resources. These resources were considered during the development of the alternatives.

On November 30, 1995, an Alternates Public Workshop was held at Berlin Middle School to present the findings of the conceptual engineering and of the preliminary natural and cultural environmental and socio-economic studies. A copy of the brochure distributed for the meeting is enclosed.

An environmental document will be prepared describing each alternative and its potential impacts. The document will be circulated and made available to the public. A public hearing will be held following the publication of the environmental document. We request your concurrence to proceed to final project planning for the US 113 study.

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

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If you have any questions or comments, please feel free to contact me or Mr. Neil Pedersen, our Director of Planning and Preliminary Engineering, who can be reached at (410) 545-0411.

Sincerely,

Parker F. Williams
Administrator

Enclosure
cc: Mr. Neil J. Pedersen, Director, State Highway Administration
The Honorable David L. Winstead, Secretary, Maryland Department of Transportation

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Maryland Department of Transportation
State Highway Administration

David L. Wi
Secretary
Parker F. W
Administrator

November 20, 1996

The Honorable J. Lowell Stoltzfus
Chairperson
Worcester County Senate Delegation
30487 Broad Street
Princess Anne MD 21853-1211

Dear Senator Stoltzfus:

The State Highway Administration (SHA) has completed initial project planning studies for the proposed dualization of US 113 from Snow Hill to the Delaware State line. Proposed alternatives include dualizing US 113 along the existing roadway and the construction of US 113 on a new location.

During the initial planning stage, alternative proposals were developed and an environmental inventory of the area was completed to identify social, economic, natural and cultural resources. These resources were considered during the development of the alternatives.

On November 30, 1995, an Alternates Public Workshop was held at Berlin Middle School to present the findings of the conceptual engineering and of the preliminary natural and cultural environmental and socio-economic studies. A copy of the brochure distributed for the meeting is enclosed.

An environmental document will be prepared describing each alternative and its potential impacts. The document will be circulated and made available to the public. A public hearing will be held following the publication of the environmental document. We request your concurrence to proceed to final project planning for the US 113 study.

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Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

384

If you have any questions or comments, please feel free to contact me or Mr. Neil Pedersen, our Director of Planning and Preliminary Engineering, who can be reached at (410) 545-0411.

Sincerely,

Parker F. Williams
Administrator

Enclosure
cc: Mr. Neil J. Pedersen, Director, State Highway Administration
The Honorable David L. Winstead, Secretary, Maryland Department of Transportation

J. LOWELL STOLTZFUS
DISTRICT 38
SOMERSET, WICOMICO & WORCESTER

MEMBER:
ECONOMIC & ENVIRONMENTAL AFFAIRS COMMITTEE

CHESAPEAKE BAY CRITICAL AREAS OVERSIGHT COMMITTEE

JOINT COMMITTEE ON FEDERAL RELATIONS

COMMISSION TO SAVE THE LIGHTHOUSES

GOVERNOR'S PESTICIDE COUNCIL

SENATE OF MARYLAND
ANNAPOLIS, MARYLAND 21401-1991

LEGISLATIVE OFFICE
ROOM 409 SENATE OFFICE BU
ANNAPOLIS, MARYLAND 2140
(410) 841-3645

DISTRICT OFFICE:
30487 BROAD STREET
PRINCESS ANNE, MARYLAND 2
(410) 742-3999
(410) 651-3886

November 27, 1996

Parker F. Williams, Administrator
Maryland Department of Transportation
State Highway Administration
P. O. Box 717
Baltimore, MD 21203-0717

Dear Parker:

It is with great enthusiasm that I support your efforts to proceed to final project planning for the proposed dualization of Route 113. This project is greatly needed since, as you know, the accident fatality rate is nearly four times the national average. We've had more than our share of tragedies on this highway.

With Delaware having completed dualization on the important highway in their state, it is quite necessary for Maryland to proceed. In Virginia, Route 13, which feeds into Route 113, is also dualized. Thus Maryland's portion is the bottleneck.

If I can be of further assistance in this fine project, please feel free to contact me.

Sincerely,

Lowell

J. Lowell Stoltzfus

JLS:ro

cc: Worcester County Commissioners
Mr. Neil J. Pedersen
Secretary David L. Winstead

'96

410-632-1194
410-632-3131

COMMISSIONERS
JAMES G. BARRETT, PRESIDENT
ANVILLE D. TRIMPER, VICE PRESIDENT
ROBERT L. COWGER, JR.
JEANNE LYNCH
JAMES L. PURNELL

OFFICE OF THE
COUNTY COMMISSIONERS
Worcester County
ROOM 112 COURT HOUSE
ONE WEST MARKET STREET
SNOW HILL, MARYLAND
21863-1072

GERALD T. MASON
CHIEF ADMINISTRATIVE OFFICER
EDWARD H. HAMMOND, JR.
COUNTY ATTORNEY

December 9, 1996

Parker F. Williams, Administrator
Maryland Department of Transportation
State Highway Administration
Post Office Box 717
Baltimore, Maryland 21203-0717

RE: Concurrence to Proceed to Final Project Planning - U.S. 113 Study

Dear Mr. Williams:

Please be advised that at our meeting of December 3, 1996, the Worcester County Commissioners reviewed your letter of November 20, 1996 regarding the status of the proposed dualization of U.S. Route 113 from Snow Hill to the Delaware State Line. As you are aware, we have identified this project as a priority and are therefore encouraged by the progress in accomplishing these much needed improvements to insure the safety and to protect the lives of the residents and visitors of Worcester County. We therefore offer our concurrence to proceed to final project planning for the U.S. 113 study.

We would appreciate your continued efforts in expediting this project and hope that you will strive to begin construction of these critically necessary improvements as quickly as possible. Please do not hesitate to contact us if we can be of any assistance in this matter.

If you should have any other questions or concerns, please feel free to contact either me or Gerald T. Mason, Chief Administrative Officer, at this office.

Sincerely,

James G. Barrett
President

JGB/KS:ddc
cc: Secretary David L. Winstead, MDOT
Neil Pedersen, Director, SHA
Donnie Drewer, District Engineer, SHA
Bob Hulburd, CRASH
CC125/Parker

Maryland Department of Transportation
State Highway Administration

David L. W
Secretary
Parker F. \
Administrato

December 26, 1996

The Honorable J. Lowell Stoltzfus
Senate of Maryland
30487 Broad Street
Princess Anne MD 21853-1211

Dear Senator Stoltzfus:

Thank you for your recent letter supporting our efforts to proceed with final project planning for the US 113 project. We are also concerned about the accident fatality rate along this route. Since our transportation tour meeting, I met with the County Residents Action for Safer Highways (CRASH) on December 16 to discuss the project. I am pleased to tell you that we are planning to go to a Location/Design Public Hearing by Spring 1997.

Your interest in this project is appreciated. If you have any questions, please feel free to call me or Mr. Neil Pedersen, our Director of Planning and Preliminary Engineering, who can be reached at (410) 545-0411.

Sincerely,

Parker F. Williams
Administrator

cc: The Honorable James Barrett, President, Worcester County Commissioners
The Honorable Robert Cowger, Jr., Commissioner, Worcester County
The Honorable Jeanne Lynch, Commissioner, Worcester County
The Honorable James Purnell, Commissioner, Worcester County
The Honorable Granville Trimper, Vice President, Worcester County Commissioners
Mr. Neil J. Pedersen, Director, State Highway Administration

My telephone number is _____

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1-800-735-2258 Statewide Toll Free

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Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

'88

Maryland Department of Transportation
State Highway Administration

David L. Winstead
Secretary
Parker F. Williams
Administrator

December 31, 1996

The Honorable James G. Barrett, President
Worcester County Commissioners
Room 112 Court House
One West Market Street
Snow Hill MD 21863-1072

Dear Commissioner Barrett:

Thank you for your recent letter providing concurrence to proceed to final project planning for US 113 from Snow Hill to the Delaware State line. Safety along this route is a major concern to us as well.

Since our transportation tour meeting, I met with the County Residents Action for Safer Highways (CRASH) on December 16 to discuss the project. I am pleased to tell you that we are expediting the planning studies and will proceed directly to engineering as soon as an alternative is selected.

Your continued support and interest in this project is appreciated. If you have any questions, please feel free to call me or Mr. Neil Pedersen, our Director of Planning and Preliminary Engineering, who may be reached at (410) 545-0411.

Sincerely,

Parker F. Williams
Administrator

cc: Mr. Robert Hulburd, CRASH
The Honorable Robert Cowger, Jr., Commissioner, Worcester County
The Honorable Jeanne Lynch, Commissioner, Worcester County
The Honorable James Purnell, Commissioner, Worcester County
The Honorable Granville Trimper, Vice President, Worcester County Commissioners
Mr. Donnie Drewer, District Engineer, State Highway Administration
Mr. Neil J. Pedersen, Director, State Highway Administration
The Honorable David L. Winstead, Secretary, Maryland Department of Transportation

My telephone number is _____

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Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Maryland Department of Transportation
State Highway Administration

David L. Wi
Secretary
Parker F. W
Administrator

January 21, 1997

The Honorable Barbara Mikulski
United States Senate
World Trade Center
Suite 253
401 East Pratt Street
Baltimore MD 21202

Dear Senator Mikulski:

Mrs. Sue Rajan of my staff informs me your office recently inquired about the US 113 dualization project in Worcester County. Apparently, at a recent meeting in Worcester County, Mr. Bob Hulburd of CRASH (County Residents Action for Safer Highways) expressed his concerns about the amount of time it is taking for the Federal agencies to complete the environmental review for the project.

Reviewing the routine, detailed, environmental analyses and documentation, and coordinating with the various State and Federal agencies, is a lengthy process. We are closely coordinating the project with the agencies and making them aware of the current safety problems along US 113, in order to avoid any delay during the course of planning an design. At this stage, none of the agencies is causing a delay in the issuance of environmental permits.

This project has been placed on an accelerated schedule through the project planning phase. We intend to hold a Location/Design Public Hearing this Spring. The next phase, project engineering or final design, is also funded in our program, and the project will proceed directly to engineering as soon as an alternative is selected. In order to save time, design preliminaries will begin sooner.

Your staff also asked us to notify you of any Federal agencies' delaying any permit approval for this project. We appreciate your concerns and support for the US 113 project. If you have any questions, please feel free to call me or Mr. Neil Pedersen, our Director of Planning and Preliminary Engineering, who can be reached at (410) 545-0411.

Sincerely,

Parker F. Williams
Administrator

cc: Mr. Neil J. Pedersen, Director, State Highway Administration
The Honorable David L. Winstead, Secretary, Maryland Department of Transportation

Maryland Relay Service for Impaired Hearing or Speech
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Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

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Maryland Department of Transportation
State Highway Administration

David L. Winstead
Secretary

Parker F. Williams
Administrator

February 21, 1997

The Honorable Wayne T. Gilchrest
United States House of Representatives
332 Cannon House Office Building
Washington DC 20515

Dear Congressman Gilchrest:

This is an update on our project planning activities on US 113 in Worcester County. The team is preparing the draft Environmental Impact Statement, which we expect will be circulated and available for public and agency inspection in late April. The Public Hearing is tentatively scheduled for May 29.

The US 113 schedule has been condensed and expedited in order to obtain the necessary federal approvals as quickly as possible. Maintaining that schedule will require the federal review agencies to assign a high priority to the project and review all submitted information rapidly.

You requested the names, addresses and phone numbers of key people at the federal agencies whom you may want to contact to let them know of your interest in the project and the priority you would like to see them place on it. These people are:

Mrs. Susan J. Binder
Division Administrator
Federal Highway Administration
The Rotunda, Suite 220
711 West 40th Street
Baltimore MD 21211
(410) 962-4440

Colonel Randall Inouye
Commander
U.S. Army Corps of Engineers
Baltimore District
Baltimore MD 21203-1715
(410) 962-6144

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Mr. Michael McCabe
Regional Administrator
Environmental Protection Agency
Region III
841 Chestnut Street
Philadelphia PA 19107
(215) 597-8255

Mr. John Wolflin
U.S. Department of the Interior
Fish and Wildlife Service
177 Admiral Cochrane Drive
Annapolis MD 21401
(410) 573-4534

Mr. Timothy E. Goodger
National Marine Fisheries Service
Habitat and Protection Resource Division
Oxford MD 21654
(410) 226-5771

Your interest in this project is greatly appreciated. If you need any additional information, please feel free to call me at (410) 545-0400.

Sincerely,

Parker F. Williams
Administrator

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-1194
3-3191

COMMISSIONERS
G. BARRETT, PRESIDENT
D. TRIMPER, VICE PRESIDENT
BERT L. COWGER, JR.
JEANNE LYNCH
JAMES L. PURNELL

OFFICE OF THE
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Worcester County
ROOM 113 COURT HOUSE
ONE WEST MARKET STREET
SNOW HILL, MARYLAND
21863-1072

GERALD T. MASON
CHIEF ADMINISTRATIVE OFFICER
EDWARD H. HAMMOND, JR.
COUNTY ATTORNEY

March 25, 1997

Parker Williams, Administrator
State Highway Administration
707 N. Calvert Street
Baltimore, Maryland 21202

RE: Relocation of U. S. Route 113

Dear Mr. Williams:

The Worcester County Commissioners recently received the status report dated February 25, 1997 regarding proposed improvements to U. S. Route 113 in Worcester County from south of Snow Hill to the Delaware State Line. We are encouraged by the recent activities to further this much needed project and are grateful for your efforts in this regard. We understand that you are currently in the process of evaluating several alternatives for the location of these improvements and are attempting to determine the alignment which will provide for the least possible disturbance to the environment. While we commend you for this effort, we ask that you also consider the impact of these various alignments on the built environment in order to provide for the least possible disturbance of the residents of Worcester County, as has recently come to light in the Friendship area.

Again, thank you for your efforts in moving this project forward on an accelerated schedule. We look forward to the upcoming Location/Design Public Hearing which is being scheduled for Spring 1997 regarding the selection of a final alternative for the location of these improvements on U. S. Route 113. If we can be of any assistance, please feel free to contact either me or Gerald T. Mason, Chief Administrative Officer, at this office.

Sincerely,

James G. Barrett
President

JGB/KS:cd
cc: David Winstead, Secretary of SHA
Donnie Drewer, District Engineer, SHA
Mrs. R. Suseela Rajan, Project Manager, SHA
CC125/Williams

Maryland Department of Transportation
State Highway Administration

David L. Wins
Secretary

Parker F. Will
Administrator

April 4, 1997

The Honorable James G. Barrett
President
Worcester County Commissioners Office
Room 112 Courthouse
One West Market Street
Snow Hill MD 21863-1072

Dear Commissioner Barrett:

Thank you for your recent letter regarding the US 113 project. I know this project is of great concern to the citizens of Worcester County and the State Highway Administration i actively working towards a construction start.

As part of our process, the effects to existing neighborhoods and residents is most definitely a consideration in our evaluation of alternatives. Last month the project team met with the citizens of the Friendship area to explain the process and gain a first-hand understanding of the community's concerns. Our understanding is that the community feels it is unreasonable to implement improvements along the existing road as it would result in displacement of a number of residences and disturb the character of the community.

Several alternatives are being considered in the area of the Friendship community. I can assure you that impacts to the community will be given serious consideration in the decision making process.

Again, thank you for your interest in our project. If you have any questions, please feel free to call me or Mr. Neil J. Pedersen, the Director of the Office of Planning and Preliminary Engineering, who can be reached at (410) 545-0411.

Sincerely,

Parker F. Williams
Administrator

cc: Mr. Neil J. Pedersen, Director, Office of Planning and Preliminary Engineering, State Highway Administration

My telephone number is _____

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Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

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US 113 ROADWAY IMPROVEMENTS
ALTERNATES PUBLIC WORKSHOP

SUMMARY OF COMMENTS

A total of 42 comments were received from mailers, letters, and citizens at wall displays.

In general, almost all comments agreed that further improvements are needed throughout, and almost half were in favor of a relocated US 113, in the northern study area.

Nine people were in favor of dualizing US 113, with no preferred alternative.

Two people were against dualizing US 113.

At the northern end of the project, 16 people were in favor of relocating US 113.

Two people were in favor of widening US 113, specifically on it's current location.

Several people would like to see the speed limit reduced on US 113.

Several people would like to see the project move along quickly.

Several people strongly agreed that further spot improvements are needed.

NOTE: Most are in regard to Jarvis Road's design, which has been identified as a problem and will be addressed at the district level, when funding is available.

SYNOPSIS OF MEETING

CONTRACT WO-719-201-177

A meeting was held on March 8, 1995 with the citizens group "County Residents Advocating Safer Highways" (CRASH). The following were in attendance:

Terry McGean	Ocean City Engineer	289-8221
Jeff Kelchner	Ocean City Police Dept.	723-6631
Dale Petty	Maryland State Police	641-2101
Frank Kellogg	CRASH	641-5248
Jim Barrett	CRASH	641-2798
Tony Kanz	CRASH	641-8071
Bob Hulburd	CRASH	641-5300
Louise Ash	CRASH	632-2600
Jack Lord	CRASH	352-9867
Sonny Bloxom	Wor. County Commissioner	957-0132
Sean O'Sullivan	The Daily Times	749-7171
Mike Rothenheber	J.M.T. Consultants	329-3100
Jim Renaud	J.M.T. Consultants	329-3100
Dan Uebersax	SHA Environmental Design	333-8080
Steve Udzinski	SHA Highway Design	333-1275
Lee Carrigan	SHA Planning	333-4582
Rudy A. Walbe	SHA Planning	333-4583
Raja Veeramachaneni	SHA Hydraulics	333-1274
Donnie L. Drewer	SHA District Engineer	543-6720
Glenn L. Evans	SHA ADE-Construction	543-6715
Ravi D. Ganvir	SHA Engineering Systems	543-6715
Gene Cofiell	SHA District 1 Traffic	543-6715

Donnie Drewer briefly expanded on the purpose of the meeting to keep CRASH Committee members updated on the results of our studies of MD 90 and US 113, what we can do right away, and what we plan to do in the future.

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Gene Cofiell reviewed immediate improvement plans to the MD 90 Corridor as follows:

- Install flex post delineators along the centerline of MD 90 from US 50 East for approximately 1/4 mile.

  To be completed in Spring of '95.

- Install Overhead sign just east of US 50 that warns motorists that there is a two-way traffic for the next 12 miles.

  To be completed by Memorial Day weekend.

- Install five signs at strategic locations for eastbound traffic with detectors and flashing lights for the purpose of warning motorists of backups ahead.

  To be completed by Memorial Day weekend.

- Place "No Passing" pennant signs independently along the entire corridor.

  Completed.

- Remove all unnecessary signs on MD 90 at MD 528.

  Completed.

- Modify the overhead sign approaching MD 528.

  To be completed by Memorial Day weekend.

Mike Rothenheber of Johnson, Mirmiran, and Thompson, consultants performing the study, gave a brief presentation of the results of their studies. Engineering, environmental, cost restraints, and accident data over the last 15 years were all, by necessity, considered in the final recommendations. They were as follows:

- Break MD 90 down into 6 segments:

  1. From MD 528 to beginning of Assawoman Bay Bridge (0.45 miles).

  2. From Assawoman Bay Bridge to end of St. Martins River Bridge. This segment is considered as two parts. The first part is the Isle of Wight (0.73) and the second part is the two bridges (2.22 miles).

  3. From end of St. Martins River Bridge up to and including the interchange with MD 528 (2.41 miles).

  4. From the interchange with MD 589 up to and including the interchange of US 113 (1.57 miles).

  5. From the interchange with US 113 up to the MD 346 Overpass (2.94 miles).

  6. From MD 346 Overpass to the US 50 interchange (1.03 miles).

Mike presented two typicals for the recommended proposed construction of a median down the middle of MD 90 in which guardrail would be installed (Segment 2):

Typical 4. Eleven foot wide lanes with six foot wide outside shoulders, two foot wide inside shoulders with a sixteen foot wide median with a guardrail.

Typical 2. Eleven foot wide lanes with six foot wide outside shoulders and an eight foot wide median with a guardrail.

Mike presented drawings of both of the typicals with a colored raised median, brown steel guardrail, and possibly some landscaping, both very aesthetic.

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Segment 2 is scheduled to begin in October, '95 with an anticipated completion date prior to the following tourist season, depending on available funding.

The remainder of MD 90 is anticipated to be completed one segment per year beginning with Segment 3 and proceeding west, providing funding is available.

SUMMATION:

Members very pleased with presentation. For Segment 2, they preferred Typical 4. They did, however, feel that 6 or 7 years was a long time to correct a problem 12 miles long, and suggested they may contact their elected officials and lobby for additional monies to accelerate completion.

US 113

Ravi Ganvir reviewed improvements SHA has made to US 113, improvements in process, and improvements to be made within the next 6 to 9 months (depending upon availability of funding) as follows:

IMPROVEMENTS COMPLETED

US 113 AT MD 610

- Widen existing pavement to provide left turn lanes at NBL and SBL of US 113.
- Construct right turn lanes at MD 610.
- Construct traffic signal.

US 113 AT PITTS ROAD

- Widen Pitts Road to provide right turn at US 113.

US 113 AT MD 589

- Widen US 113 to provide acceleration and deceleration lanes.
- Construct traffic signal at the intersection.

US 113

Install wide paint lines (12" center, 8" edge lines).

IMPROVEMENTS IN PROGRESS

- Install Raised Pavement Markers from Pocomoke to Delaware State Line.

  To be completed Spring, '95.

- Pavement Marking arrows and two-way traffic signs at every mile.

  To be completed Spring, '95.

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Improvements In Progress (Continued)

- No passing pennants mounted independently of other signs.

  To be completed Spring, '95.

- Delaware Line bridge end markers.

  To be completed Spring, '95.

- Install new flasher at US 113 and Pitts Road.

  Design in progress.

IMPROVEMENTS WITHIN 6 - 9 MONTHS
(Contingent upon Funding)

- Install flashers at the intersections of MD 365, Castle Hill Road, Washington Street, MD 394, Langmaid Road, and Germantown Road.

- Install street lights at the intersections of Cedartown Road, Porters Crossing Road, Five Mile Branch Road, Basket Switch Road, Newark Road, Cropper Island Road, Downs Road, Good Hill Road, Shire Drive, Mason Road, Ironshire Stations Road, Harrison Road, Hayes Landing Road, MD 394, Langmaid Road, and Germantown Road.

- Signing improvements are to be made at intersection with MD 394.

Ravi gave brief presentation of SHA future improvement plans (within two years) for intersections of US 113 and MD 367, MD 452, Jarvis Road, Deer Park Road, and Kary Asphalt entrance. He stressed that these improvements are contingent upon funding availability.

Lee Carrigan advised project planning studies to improve US 113 safety and serviceability were initiated in January of this year. Project limits are from the Delaware State line to south of Snow Hill. Only the planning phase has been funded. There are major wetland areas within the project limits. Preliminary cost for the ultimate dualization ranges from $120 to $150 million. It is anticipated a public hearing presenting the alternates will be held in the Fall, '95 with location/design approvals being given in the Spring of '97.

Again, members were pleased with presentation and expressed their appreciation for the work put into the presentation. The Committee commented that US 113 was being used as an alternate route for trucks to get around the scales on US 13, mostly Sunday afternoons and nights. Also questioned the possibility of the speed limit on the Snow Hill Bypass being reduced. They voiced concerns for the following:

- US 113 at intersection of MD 610 - vehicles passing on left southbound lane. New contract took out turning lanes. Southbound deceleration lane needed.

  Negotiating with contractor as of this writing.

- US 113 at intersection of MD 365, stop ahead sign needed.

  Erection of stop ahead sign completed March 10th.

- US 113 at Berlin Lions Club - one way signing needed.

  Do Not Enter sign erected March 10th.

The Committee again stressed their displeasure with the 6 to 7 year completion date. They also reiterated their intention to contact their elected officials and lobby for additional monies to accelerate completion.

:syr

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Distribution:

PROJECT
DEVELOPMENT
DIVISION
MAR 23 10 00 AM '95

Hal Kassoff
Tom Hicks
Kirk McClelland
Dan Uebersax
Steve Udzinski
Lee Carrigan
Rudy Malbe
Raja Veeramachaneni
Mike Rothenheber
Jim Renaud
Glenn Evans
Ravi Ganvir
Al Budnichuk
Gene Cofiell
Sonny Larson

Friendship Community Association

10143 Three Penny Lane, Berlin, Maryland 21811

February 2, 1997

Ms. Sue Rajan
Project Manager
State Highway Administration
707 N. Calvert St.
Mail Stop C-301
Baltimore, Maryland 21202

Dear Ms. Rajan:

We have two main goals for this correspondence; One is to introduce ourselves and share our concerns with your and other offices of the SHA. The second is to request that you or a representative from SHA meet locally with us to respond to our concerns.

We are a coalition of property owners who live adjacent to the current course of U.S. 113 "Worcester Highway". We represent more than thirty individual member households and three community churches. We represent the majority of the forty or so structures that will be negatively impacted by the dualization of U.S. 113 along its current course in our area. While we accept the need for the improvement of the existing highway we have a serious concern for the value of our properties and the quality of our lives.

We have a narrow focus of concern, that being, from end of the existing dual section just north of U.S. 50, northward, under Rt. 90 to a point about 1000 ft. south of the intersection with MD. Route 589 "Race Track Road", where the proposed alternates 3N and 4N coincide. It is our position that in this section the new highway should follow the more westerly route once labeled as Alt 4N. Most of us attended the meeting at the Berlin Middle School last year and left with overwhelming confidence that the SHA would indeed choose the route planned more than twenty years ago, and spare our community the destruction and discomfort that will be associated with expanding the highway in its current course. However, with the recent archeological survey it is clear that the State is actively considering the absurd. Our previous confidence shaken, we are organizing to support the State in a decision to go around our community rather than through it.

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Our first objection to the expansion of the highway in its current course is the issue of safety. The main reason for addressing the highway at all is because of the high loss of life that has been associated with it in the past thirty years. There is no comparison in terms of safety between the two alternates being considered for our area. Since the beginning we have been in contact with the C.R.A.S.H. coalition and we are assured with regard to safety and the westerly alternate their interests and ours are the same.

Access: If the highway is expanded in its current course it will remain lined with many points of access. While entering vehicles will not be allowed to cross the highway in most locations, we will have to enter a stream of traffic at increased speeds. With the highway's current condition, speeds in our area average 50 + mph. Speeds on an expanded section in our neighborhood would no doubt be much higher. On the westerly 4N there is but one access to address in the entire course, that of Carey road. On the existing course the same section will yield thirty plus access points and the complex intersection of Carey, Friendship, and Jones roads. Some of these could be grouped together but only at the human expense of ever widening easements.

Curvature: The curvature of the highway at two points in our neighborhood is legendary, both bends have confirmed kills assigned to them. Even with your best efforts to strike a balance between safety and property loss an expanded highway along the current course will still be much less straight than could be achieved with the westerly Alt 4N .

Our second objection to expanding the highway in its current location is the human and economic impact. As I stated earlier we feel that all of the 40 some habitable structures along the current highway will be negatively affected by expansion in place. It is obvious that many will actually have to be removed completely, but many others will remain, only with less of a buffer between them and a louder more invasive roadway. There are widespread concerns about the damage to the property values of those whose homes will remain. Most of these structures represent a life's investment to those who live there. Many of our members have lived in this community all their lives. Some have invested recently with assurance that the new highway would go around our village. After all, there is an overpass waiting to the west for the new road, and it has been there for twenty years as evidence of the future course of 113. Many of our members live comfortable lives here, but given only fair value for their holdings would be on assistance forevermore. Our community makes sense, the architecture of our village tells the story of a community that grew over time. Broadening the current road will reduce this sensible village to a row of houses on one side of a high-speed thoroughfare. Instead of an eclectic community, a new kind of rural ghetto will remain. We would welcome the opportunity to talk with the persons who are doing your human impact study before they submit their findings.

On the westerly 4N there are no homes to displace, no community to destroy. The vast majority of the yet to be purchased easement is open farmland, owned by many of the same people who would seek to preserve their homes by the old road. The State would likely have little trouble negotiating purchases for the western route's required easements. On the other hand I can assure the SHA that I have spoken to no one who welcomes an offer for their holdings along the current road. While I am sure some among us can be bought, none are planning to go cheaply, and few will sell without a fight. The westerly Alt 4N is going to be the least expensive route as well as the most humane.

Of course we are hoping that our efforts are unnecessary. When we look over the map with all of our homes labeled and compare it to the emptiness of the land proposed for Alt 4N it seems just a matter of common sense to go around us. Unfortunately, we are all too aware that common sense guides little of what we do today, it steers little of our values and less of our political world. We have decided to keep after this issue until we get clear confirmation that the westerly alternate 4N is the route that will be used for our area of concern.

As to our request for a meeting, a week night would be best, we have been offered one of the community's churches on any, Tuesday, Thursday or Friday. If necessary we could probably find a suitable location for a Monday or Wednesday as well. We would like to meet as soon as possible allowing for ten days notice to our membership. In addition to our primary concerns for the placement of the new road we would like to get from your offices and discuss at this meeting the latest plans for the intersections within the area we are concerned with. Principally, Carey Rd. & Alt 4N. Carey, Friendship and Jones roads with an Alt 3N expansion. Also the plans for dealing with the two ends of the old 113 when Alt 4N is employed.

Please feel free to copy and distribute this letter as you feel appropriate

Sincerely,

H. Clay Reister IV

Vice President

Enclosures, Photos from Jan. 25th Meeting.
Partial Member list

606
Trip 01
Ber

Friendship Community Association Member Roster

----------Household Memberships----------

NAME	ADDRESS	PHONE	# PERSONS
Babcock, Steve	11143 Worcester Hwy.	6410227	1
Bartz, Rose	10602 Friendship Rd.	629-1415	2
Bowen, Gail	100305 Huckelberry La.	641-0577	5
Bowen, Lorenzo	10445 Worcester Hwy.	641-1732	6
Bowen, Marcella	10027 Huckleberry La.	641-3941	2
Bowen, Shirley	10421 Worcester Hwy.	641-4472	2
Carey, Roland	10254 Carey Rd.	641-2538	2
Casteel, Alice	10424 Worcester Hwy.	641-2044	2
Cathell, Norman Sr.	10711 Worcester Hwy.	641-0778	3
Cathell, Norman Jr.	10701 Shadey Drive.	641-2371	4
Gumpper, William	10705 Worcester Hwy.	641- 2533	2
Hastings, Calvin	10688 Worcester Hwy.	641-2184	2
Malone, Ronald	10706 Worcester Hwy.	641 1217	2
Manry, Randy	11106 Worcester Hwy.	641-9849	4
Mason, Reggie	10512 Worcester Hwy.	641- 2019	2
Mitchell, Harry J.	10511 Worcester Hwy.	641-1530	2
Pennington, Michael	10143 Three Penny La.	641-3197	4
Pennington, Paul	10210 Three Penny La.	641-0886	2
Pennington, Richard	10124 Three Penny La.		2
Reister, H. Clay	10577 Worcester Hwy.	641-7446	5
Rickards, Ron	10413 Jones Rd.	641-2230	2

Friendship Community Association Member Roster

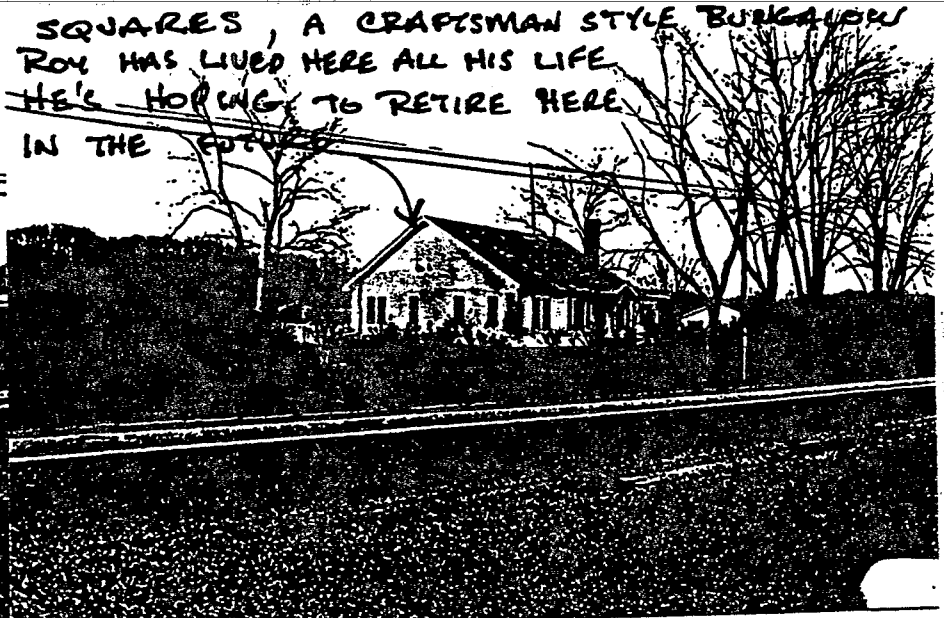
Ruth, Helen	10494 Worcester Hwy.	641- 2560	2
Smith, Marvin	10494 Worcester Hwy.	641-2560	
Squares, Roy	10498 Worcester Hwy.	641-2165	1
Wainwright, Madeline	10632 Worcester Hwy.	641- 2173	1
White, Bob	10358 Carey Rd.	641-0370	2
Widic, Frank	10478 Worcester Hwy.	641-0744	2
Vach, Richard	10746 Worcester Hwy.	213-0898	3

---------- Associated Member Churches ----------

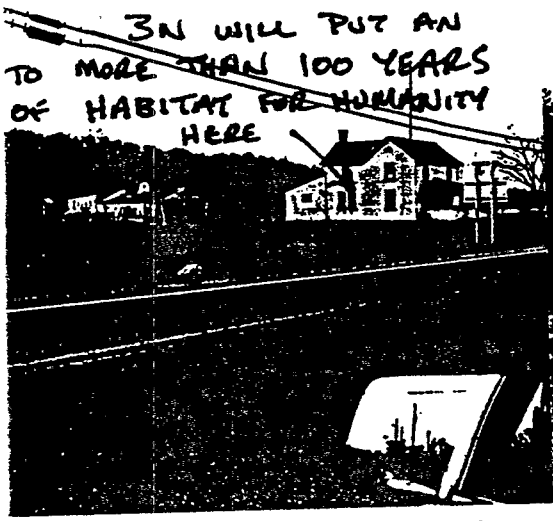
Temple Bat Yam	11021 Worcester Hwy.	213-2806 / 524-6900
Trinity Episcopal Church	6190 Ocean Pines	641-8708 / 208-6992
Calvary Christian Chapel	11020 Worcester Hwy.	835-2307

MARVIN'S PLACE IS
THAN THE ALT 4N
SS ON RT 90 ALT 3N
OME WITHIN 15 FT OF HIS

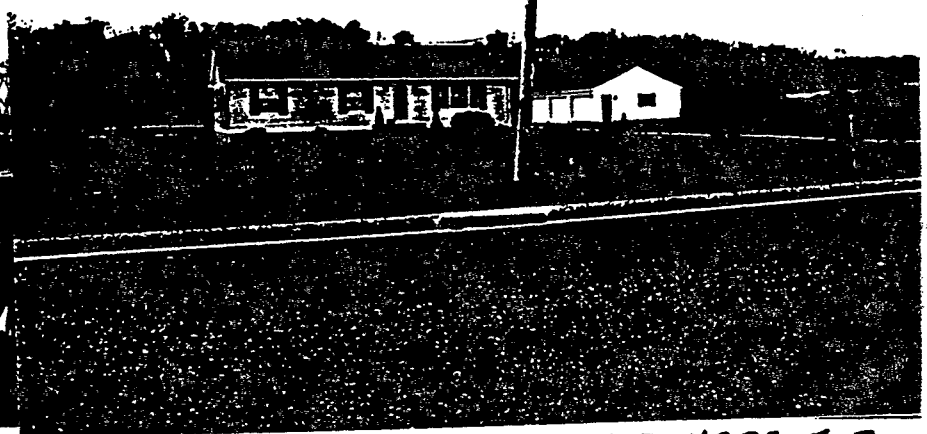
SQUARES, A CRAFTSMAN STYLE BUNGALOW
ROY HAS LIVED HERE ALL HIS LIFE
HE'S HOPING TO RETIRE HERE
IN THE FUTURE



ELL, THE OLD MITCHELL
TEAD STILL PROVIDES
TER FOR THE SHOCKLEY
3N WILL PUT AN
TO MORE THAN 100 YEARS
OF HABITAT FOR HUMANITY
HERE



MASON, REGGIE JUST BUILT THE
THREE CAR GARAGE WHICH IS ALL
THAT WILL REMAIN IF 3N COMES THROUGH
TOWN

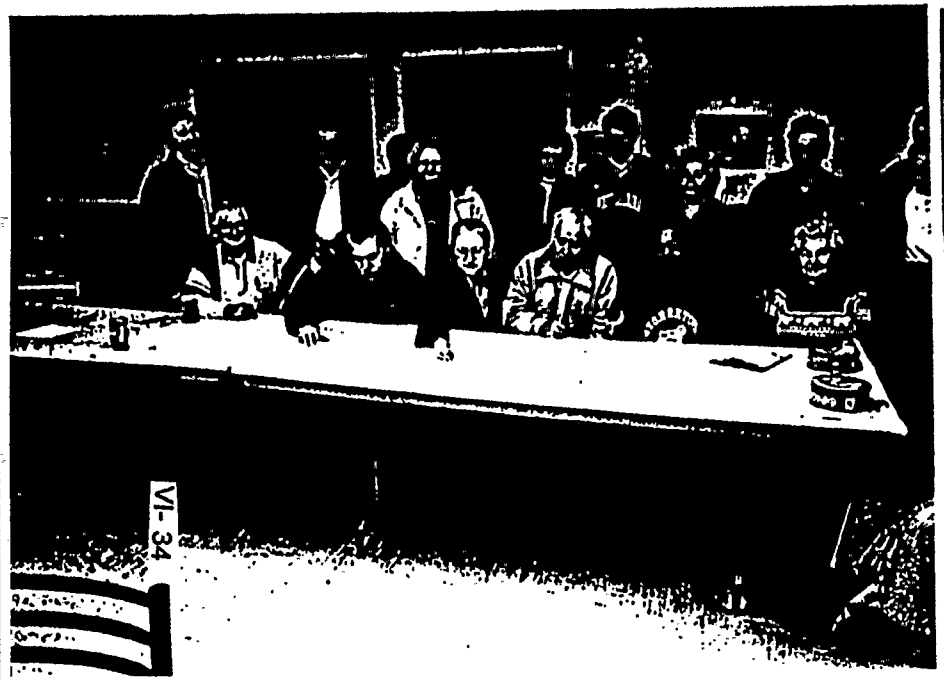


E BAT YAM, ABOUT 50%
ETE THE TEMPLE BAT YAM
HAVE TO GO IF ALT 3N
PLOYED

WIDIC, FRANK HAS LIVED HERE FOR
SIXTY-TWO YEARS. 3N WOULD
TAKE THE HOUSE

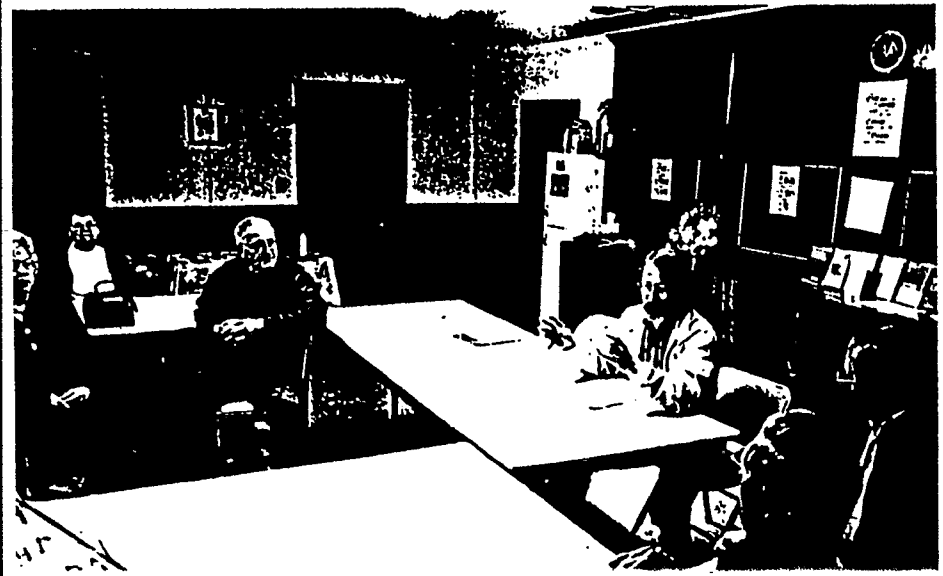
RE ARE MANY MORE WHO ARE TOTALLY DISPLACED BY AN
SION OF THE EXISTING EASEMENT, BUT THE REAL ISSUE IS
ALL 40 STRUCTURES WILL BE DAMAGED IN ONE WAY OR ANOTHER

LOOKING OVER THE MAP!



JAN 25TH MEETING FRIENDSHIP COMM. ASSN.

MR. MICHAEL PENNINGTON ADDRESSES THE GROUP



Maryland Department of Transportation
State Highway Administration

David L. Winstead
Secretary
Parker F. Williams
Administrator

February 28, 1997

Mr. H. Clay Reister, IV
Vice President
Friendship Community Association
10143 Three Penny Lane
Berlin MD 21811

Dear Mr. Reister:

Thank you for your letter on behalf of the Friendship Community Association regarding US 113 in Worcester County. We appreciate your concern and involvement in our study and we hope to work closely with the association throughout the development of this project.

As you requested, we have scheduled a meeting with your group on Thursday, March 13 at 5 p.m. The goals of this meeting will include developing a better understanding of the issues at a community level, to create a working relationship between SHA and the Friendship Community Association, and to develop the project in a way that best suits the community and addresses the issues at hand.

At last year's Alternates Public Workshop Meeting at Berlin Middle School, we presented four alternatives north of Berlin (see attached map): the No-Build Alternative, the Transportation Systems Management (TSM) Alternative, which includes improvements to the existing roadway without major alteration of the roadway cross-section, Alternative 3N, which proposes dualization of US 113 to a four-lane cross-section along the existing roadway and Alternative 4N, which provides for a four-lane section mostly on a new location. Also discussed at this meeting were Alternative 4N Options A and B which showed the possibility for other options on alignments under consideration.

Following the Alternates Public Workshop, more detailed studies of the alignments began. Our planning process mandates that we study all reasonable and applicable alternatives that satisfy the purpose and need of the project. Alternatives undergoing more detailed study included the TSM Alternative, Alternative 3N and Alternative 4N Modified. Alternative 4N Modified was developed by combining the Alternative 4N with the Option A and Option B alignments that were shown at the Public Workshop. In the Friendship area the dualization alternatives being considered include Alternate 3N along the existing roadway and Alternative 4N Modified. Alternative 4N Modified is being considered to the west of the existing road through the already graded interchange area at MD 90 and then follows the 4N Option A alignment to tie back into the existing roadway south of Racetrack Road (MD 589).

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Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

These alternatives were developed in detail. Information was gathered to analyze the impacts associated with each alternative. The impacts to residences, community facilities, and local businesses were assessed. An analysis of historic and archeological resources was conducted. The study also includes consideration of impacts to wetlands, farmland, floodplains, water resources, vegetation and wildlife. Study results are compiled in a Draft Environmental Impact Statement (DEIS) which will be made available for public review prior to the public hearing.

A Location/Design Public Hearing for this project is tentatively scheduled in the Spring. At this hearing we will present the results of our studies and will take public testimony. Subsequent to this hearing, we will select a preferred alternative and complete a Final Environmental Impact Statement (FEIS). The FEIS will include a conclusive reasoning for selecting the preferred alternative based on the studies.

Public involvement with groups such as yours encompasses a large portion of our study process. All letters and testimony at the public hearing will be included in the FEIS and do influence the conclusions of the study. All members of your association have been added to our mailing list so that everyone will receive updates and information on the project.

Again, thank you for your comments and involvement in the project. I look forward to meeting with on March 13. If you have any questions please call me at (410) 545-8514 or toll free at 1-800-548-5026.

Very truly yours,

Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

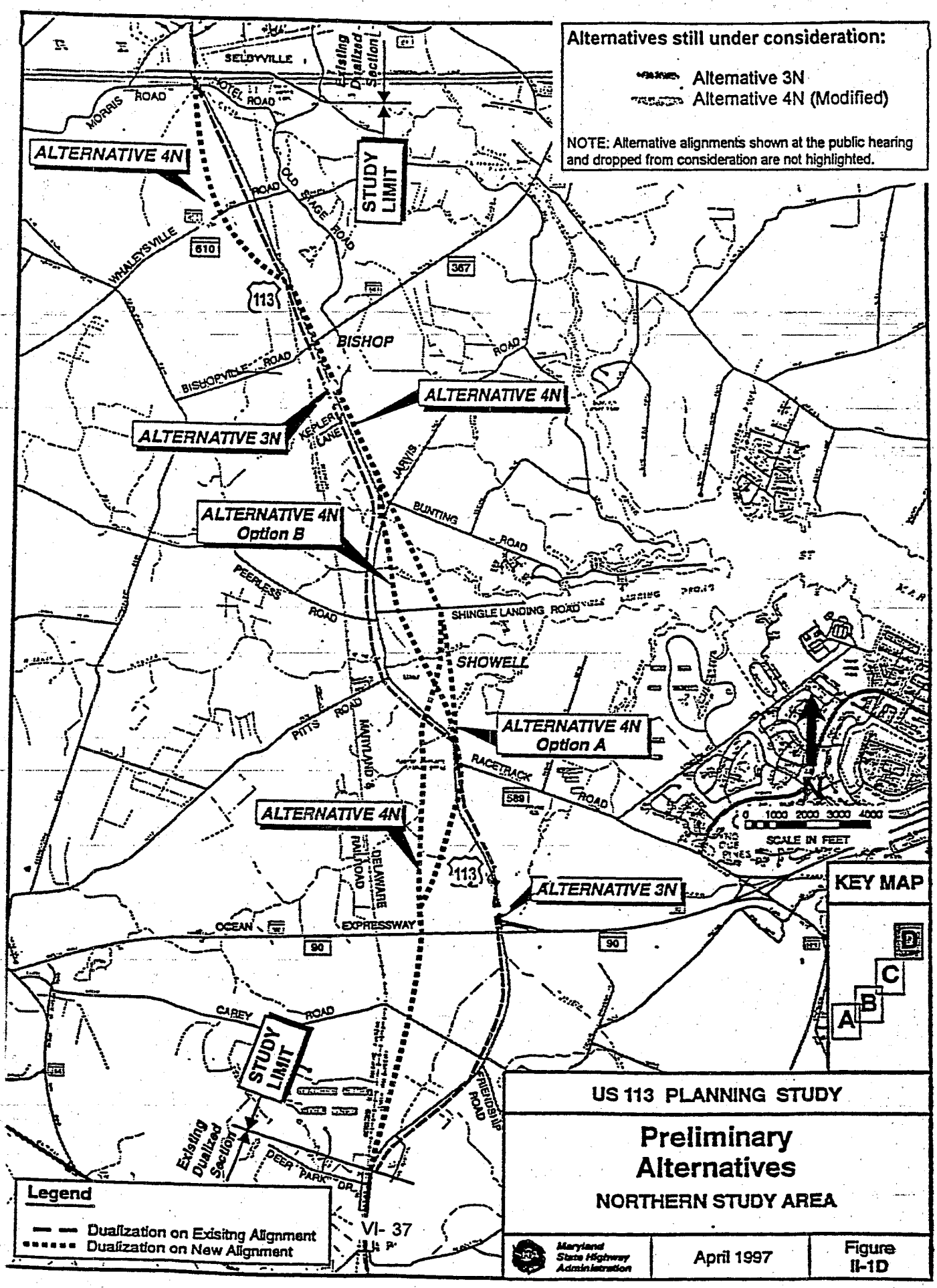
by: R. Suseela Rajan

R. Suseela Rajan
Project Manager
Project Planning Division

Attachment

cc: Mr. Donnie Drewer (w/incoming and attachment)

412


Alternatives still under consideration:
Alternative 3N
Alternative 4N (Modified)
NOTE: Alternative alignments shown at the public hearing and dropped from consideration are not highlighted.
SELBYVILLE
Existing Dualized Section
MORRIS ROAD
HOTEL ROAD
ALTERNATIVE 4N
STUDY LIMIT
OLD STAGE ROAD
WHALEYSVILLE ROAD
610
367
113
BISHOP ROAD
BISHOPVILLE ROAD
ALTERNATIVE 4N
ALTERNATIVE 3N
KEPLER LANE
JARVIS ROAD
BUNTING ROAD
ALTERNATIVE 4N Option B
PEERLESS ROAD
SHINGLE LANDING ROAD
SHOWELL
PITTS ROAD
MARYLAND
ALTERNATIVE 4N Option A
RACETRACK ROAD
589
ALTERNATIVE 4N
DELAWARE RAILROAD
113
ALTERNATIVE 3N
OCEAN EXPRESSWAY
90
90
CAREY ROAD
STUDY LIMIT
Existing Dualized Section
PEER PARK DR.
FRIENDSHIP ROAD
0 1000 2000 3000 4000
SCALE IN FEET
KEY MAP
A
B
C
D
Legend
Dualization on Exisitng Alignment
Dualization on New Alignment
VI- 37
US 113 PLANNING STUDY
Preliminary Alternatives
NORTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Figure II-1D

Maryland Department of Transportation
State Highway Administration

David L. Winst
Secretary

Parker F. Willia
Administrator

February 12, 1997

RE: Project No.: WO720B11
US 113 Improvements from Snow Hill
to the Delaware State Line
Public Involvement

Dear Sir/Madam:

The Maryland State Highway Administration (SHA) is currently conducting a study to improve US 113 from Snow Hill to the Delaware State Line. To comply with the President's Executive Order, 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations (EO), the SHA is attempting to locate minority and low income groups in the study area shown on the enclosed map. Under this EO, "minority" is defined as Black (non-Hispanic), Hispanic, Asian American, American Indian and Alaskan native. "Low income" is defined as those with income levels below the Department of Health and Human Services poverty guidelines.

By identifying their locations, the SHA can determine if any of our proposed alternates would have a disproportionately adverse impact on these groups. If such would be the case, the SHA would attempt to minimize or avoid potential impacts to these groups. Also, the EO mandates consultation with these groups in the development of projects with environmental impacts.

We would appreciate your assistance in informing your congregation about the project and our concern with this issue. We are asking for your help in identifying the locations of homes in which minority or low income people reside. There will be a Public Hearing in the spring of this year; however, the SHA wants to provide the opportunity for meetings with the minority or low income groups prior to this time to address any questions and concerns they may have regarding the project. Please contact me at 410-545-8514 or toll-free at 1-800-548-5026 with any information you may have regarding this matter. Thank you very much for your assistance.

Very truly yours,

Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

By: R Suseela Rajan

R. Suseela Rajan
Project Manager
Project Planning Division

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

DISTRIBUTION LIST FOR 3/12/97 LETTER

:ion Baptist Church
ton Avenue
v Hill MD 21863

Mt. Siani Baptist Church
Line Road
Pocomoke City MD 21851

ws Parish House
:st Market Street
v Hill MD 21863

an City Baptist Chapel
N. Division Street
an City MD 21842

Collins Temple Church
6009 Castle Mil Road
Snow Hill MD 21863

ch of the Holy Spirit
an City MD 21842

iohn African Methodist Episcopal
Cedar Street
omoke City MD 21851

St. John's AME Church
PO Box 357
Bishopville MD 21813

rch of Christ
Graham Avenue
n MD 21811

ams AME Church
6 Williams Church Road
vark MD 21841

Glorious Church of the Lord Jesus Christ
609 Young Street
Pocomoke City MD 21851

in Ocean City Church of God
2 Sinepuxent Road
lin MD 21811

th Fellowship of God
950 Plantation Road
oewell MD 21817

Glad Tidings Assembly of God
Pocomoke City MD 21851

Ocean City Worship Center
Assembly of God
41 Briarcrest Drive
Ocean City MD 21842

Faith Baptist Church
10514 Race Track Road
Berlin MD 21811

Calvary Chapel Christian Center
10959 Worcester Highway
Berlin MD 21811

First Baptist Church
204 Fourth Street
Pocomoke City MD 21851

First Baptist Church
613 Williams Street
Berlin MD 21811

Snow Hill Christian Church
Kay Street & Park Row
Snow Hill MD 21863

First Baptist Church Sunday School
202 Market Street
Pocomoke City MD 21851

Lynnhaven Baptist Church
1200 Lynnhaven Drive
Pocomoke City MD 21851

Church of God of Prophecy
Ocean City Blvd.
Berlin MD 21811

Pentacostal Baptist Church
519 S. Main Street
Berlin MD 21811

Pitts Creek Baptist Church
Cedar Hall Road Extended
Pocomoke City MD 21851

Whaleysville United Methodist Church
11716 Sheppard's Crossing
Whaleysville MD 21872

St. Matthew Baptist Church
Bishopville MD 21813

Spence Baptist Church
7603 Spence Church Road
Snow Hill MD 21863

ionia Church
Young Streets
oke City MD 21851

First Baptist Church of Girdletree
Taylor Landing Road
Girdletree MD 21829

nited Methodist Church
Creek Road
ville MD 21813

unity Church
Race Track Road
Pines MD 21842

Curtis United Methodist Church
Bishopville MD 21813

h of God
ngton Street
Hill MD 21863

n United Methodist Church
Street
oke City MD 21851

St. James United Methodist Church
St. James Road
Pocomoke City MD 21851

l United Methodist Church
ower Street
MD 21811

Stevenson United Methodist Church
123 N. Main Street
Berlin MD 21811

ville United Methodist Church
Road
MD 21811

Trinity United Methodist Church
1423 Unionville Road
Pocomoke City MD 21851

lary the Virgin
rd Street
ocomoke City MD 21851

Paul's By The Sea Episcopal Chuch
302 N. Baltimore Avenue
Ocean City MD 21842

aul's Parish House
erlin MD 21811

St. George Greek Orthodox Church
8805 Coastal Hwy.
Ocean City MD 21842

ghway Holiness Church
ppewell Road
pewell MD 21817

Miracle Deliverance Tabernacle
1443 Ocean Hwy.
Pocomoke City MD 21811

. James Holiness Church
ghton Avenue
now Hill MD 21863

Snow Hill Deliverance Center
108 Steven Street
Snow Hill MD 21863

hrist Church United
349 Snow Hill Road
now Hill MD 21863

New Testament Tabernacle
105 Front Street
Pocomoke City MD 21851

ah's Witnesses
Street
MD 21811

St. Peter's Lutheran Church
10301 Coastal Hwy.
Ocean City MD 21842

Grove Mennonite Church
onite Road
noke City MD 21851

Ocean City Mennonite Church
11811 Ocean Gateway
Ocean City MD 21842

s Methodist Church
J. Washington Street
/ Hill MD 21863

Cool Springs United Methodist Church
Onley Road
Girdletree MD 21829

ıezer United Methodist Church
ıs Street
v Hill MD 21863

Friendship United Methodist Church
Friendship Road
Friendship MD 21811

letree United Methodist Church
5 Snow Hill Road
letree MD 21829

Mt. Wesley Church
Scotland Road
Snow Hill MD 21863

lew Bethel United Methodist Church
Germantown & Trappe Road
erlin MD 21811

New Bethel United Methodist Church Par
Germantown & Trappe Road
Berlin MD 21811

t. John's Methodist Church
739 Lewis Road
erlin MD 21811

St. Matthew's Church
Cherrix Rod
Boxiron MD 21829

alem Bethany United Methodist Church
nd Street
ocomoke City MD 21851

Shiloh Methodist Church
2655 Worcester Hwy.
Pocomoke City MD 21851

hatcoat United Methodist Church
02 West Federal Street
now Hill MD 21863

Wilson United Methodist Church
Bishopville MD 21813

ocomoke Church of the Nazarene
JS 13 & Old Virginia Road
ocomoke City MD 21851

Arcadia Bible Church
403 Market Street
Pocomoke City MD 21851

-0

ot Ministries, Inc.
rcester Street
City MD 21842

Victory Worship Center
701 Ocean Hwy.
Pocomoke City MD 21851

erusalem Holy Church
Market Street
Hill MD 21863

Pentecostal Church of God Lincoln, Inc.
206 5th Street
Pocomoke City MD 21851

noke Worship Center
Willow Street
noke City MD 21851

Calvary Pentecostal Church
RT 113 N
Bishopville MD 21813

Corinthians Holiness Church
n Ay & Banks Street
noke City MD 21851

Refuge Temple Revival Center
RT 12
Stockton MD 21864

ingham Presbyterian Church
Main Street
n MD 21811

First Presbyterian Church
13th Street & Phila. Avenue
Ocean City MD 21842

kemie Memorial Presbyterian Church
5 Franklin Street
ow Hill MD 21863

Pitts Creek Presbyterian Church
210 Market Street
Pocomoke City MD 21851

hobeth Presbyterian Church
1 Box 184
hobeth MD 21857

. Luke's Catholic Church
0th Costal Hwy.
ean City MD 21842

St. Andrew's Catholic Church
14401 Sinepuxent Avenue
Berlin MD 21811

. Mary's Star of the Sea Catholic Church
)8 Baltimore Avenue
ean City MD 21842

Pocomoke City Seventh-Day Adventist C
US 13 & US 113
Pocomoke City MD 21851

tlantic United Methodist Church
altimore Ave & 4th Street
ean City MD 21842

Bethany United Methodist Church
8648 Stephen Decatur Hwy.
Berlin MD 21811

2

ny United Methodist Women
larket Street
noke City MD 21851

Bishopville Methodist Church
Main Street
Bishopville MD 21813

ry United Methodist Church
iire MD 21811

Maryland Department of Transportation
State Highway Administration

David L. Wir
Secretary

Parker F. Wi
Administrator

February 24, 1997

Mr. Robert Hulburd
Nationwide Insurance
Suite 4
10776 Gray's Corner Road
Berlin MD 21811

Dear Mr. Hulburd:

Thank you for your recent notes regarding the US 113 project in Worcester County. We certainly appreciate your efforts and support in working with the community and the elected officials.

The Location/Design Public Hearing for this project is tentatively scheduled for late May. As soon as the date is finalized we will let you know. Currently we are meeting with the State and Federal environmental agencies to address their concerns and issues in order to meet our compressed project schedule.

You inquired if you could do anything else to bring the importance of this project to the attention of the Federal legislators. It would be helpful to have other interested citizens write directly to the appropriate Federal officials expressing support for the project. In the future, we will carbon copy you when we write to the local elected officials regarding the US 113 project.

Again, thank you for your comments and support for the project. We will keep you abreast of our progress. If you have any questions or need any information on this project, please feel free to call me or Mr. Neil Pedersen, our Director of Planning and Preliminary Engineering, who may be reached at (410) 545-0411.

Sincerely,

Parker F. Williams
Administrator

cc: Mr. Neil J. Pedersen, Director, State Highway Administration

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
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Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

KCI TECHNOLOGIES

10 North Park Drive
Hunt Valley, MD 21030-1888
(410) 316-7800

Fax Number
(410) 316-7817

April 10, 1997

Mr. Wade Taylor, Assistant Director
Worcester County Office of Emergency Services
Courthouse, Room L-14
1 West Market Street
Snow Hill, MD 21863

Dear Mr. Taylor:

Subject: Emergency service accessibility concerns regarding proposed roadway improvements to US 113 between Snow Hill and the Delaware State Line
KCI Job Number: 01-96116D

As a consultant to the Maryland State Highway Administration, KCI Technologies, Inc. is currently assessing potential socioeconomic environmental impacts for a Draft Environmental Impact Statement for the above referenced project. Per our conversation yesterday, I am enclosing a description of the proposed alternatives for your review and am requesting your input to determine how emergency services and responses times to emergencies located in the project study area might be affected. Concern has been expressed by some of the regulatory agencies reviewing this project that response times would increase because of a median incorporated into most of the alternatives under consideration.

Thank you for your cooperation and assistance. Please respond to me in writing at the above address. If you have any questions or need additional information, please call me at (410) 316-7865.

Sincerely,

Steve Linhart

Steve Linhart
Environmental Planner

enclosure

Maryland Department of Transportation
State Highway Administration

David L. Winste
Secretary

Parker F. Willian
Administrator

MEMORANDUM

TO: Mr. Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

FROM: R. Suseela Rajan
Project Manager

DATE: April 15, 1997

SUBJECT: Meeting with Friendship Community Association for the US 113 Planning Study

On March 13 Sue Rajan, Donnie Drewer, Lorraine Strow, and Cathy Maher met with the Friendship Community Association to explain the project to them and develop an understanding of their concerns. The community of Friendship is located just north of Berlin in the vicinity of the US 113 interchange with MD 90. In addition to Mr. Michael Pennington, President, and Mr. H. Clay Reister, Vice-President of the association, approximately 40 citizens attended the meeting.

Sue Rajan began the meeting by going over the project development process. She explained the progress of this project and the schedule. Because the safety problems, particular emphasis is being placed on expediting the project schedule. SHA explained that as part of the project development process, the project schedule is dependent on a number of issues which must be reconciled, so some schedule changes can sometimes be expected. A location design hearing is tentatively scheduled for mid-June and at that time we will be taking comments for the public record. A Draft Environmental Impact Statement (DEIS) is being developed and will be available before the public hearing. The contents and purpose of the DEIS were explained.

The alternatives being considered in the Friendship area were explained. Alternative 3N proposes dualization along the existing roadway and displaces nine residences and one business in the 2.6 mile section between Berlin and MD 589. Alternative 4N follows a new alignment to the west of the existing US 113 and ties back in with the existing road near its intersection with MD 589. This alignment does not require any displacements, however it has a more significant impact on natural resources.

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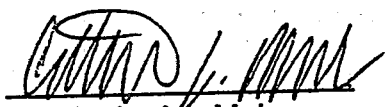
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

The citizens emphasized that the road is unsafe and improvements are extremely necessary. The study team explained the many impacts that the study is addressing and also explained that alternatives for implementing improvements along the existing road are always addressed by our planning studies. The citizens expressed a strong opposition to Alternative 3N since it displaces so many residences in their town. They were disappointed that SHA did not identify Alternative 4N Modified as our preferred alternative.

The residents also inquired about access controls that would be in place if Alternative 4N were implemented. Access to Alternative 4N would be controlled with access points only at major intersections. The existing US 113 would become a local service road with lower speeds. The service road design would prevent people from cutting-through the Friendship area instead of using the new US 113 alignment. Once the project progresses into design, SHA will work with the citizens to design the access controls in a way that is suitable to the town.

These minutes are based on the interpretation of the writer. If you have any additional questions or comments please call Mrs. Sue Rajan, Project Manager at (410) 545-8514 or Ms. Catherine Maher, Project Engineer at (410) 545-8544.

by: 

Ms. Catherine Maher
Project Engineer
Project Planning Division

cc: Mr. Donnie Drewer
Mr. Neil J. Pedersen
Ms. Lorraine Strow
Mr. John Zanetti

OCEAN PINES ASSOCIATION, INC.
239 Ocean Parkway • 2700 Ocean Pines • Berlin, Maryland 21811 • (410) 641-7717

RECEIVED
APR 9 1997
GOVERNOR'S O

April 2, 1997

The Honorable Parris Glendening
100 State Circle
Annapolis, MD 21401

Dear Governor Glendenning:

The Board of Directors of the Ocean Pines Association has asked that I write to express to you the Ocean Pines community's complete support of the urgent need to dualize Route 113 from the Maryland state line south of Selbyville, DE through to Berlin, MD, and to urge you to take action to make that work a high priority for the Highway Department.

Sincerely,

Richard P. Brady
OPA President

cc: Ocean Pines Board of Directors,

Maryland Department of Transportation
The Secretary's Office

Parris N. Glendening
Governor

David L. Winstead
Secretary

John D. Porcari
Deputy Secretary

April 25, 1997

Mr. Richard P. Brady
President
Ocean Pines Association, Inc.
239 Ocean Parkway
2700 Ocean Pines
Berlin MD 21811

Dear Mr. Brady:

Thank you for your recent letter to Governor Glendening regarding the support from the Ocean Pines community for the dualization of US 113 from Berlin to the Delaware State Line. The Governor asked me to respond on his behalf.

The US 113 project is one of the top priorities by the State Highway Administration (SHA) and has been placed on an expedited schedule. Coordination with the various Federal and State agencies is underway to meet the project schedule. A Location/Design Public Hearing, to identify a proposed and alternative for improvements, is scheduled for mid-June. In the meantime, SHA is also looking at interim improvements to address the safety problems along this road.

Again, thank you for your letter. The Governor appreciates hearing from you and on his behalf, I also thank you for the interest which prompted you to write. If you need additional information regarding this matter, please do not hesitate to call Mr. Neil Pedersen, SHA's Director of Planning and Preliminary Engineering, who may be reached at (410) 545-0411.

Sincerely,

David L. Winstead
Secretary

cc: Mr. Neil J. Pedersen, Director, State Highway Administration
Mr. Parker F. Williams, Administrator, State Highway Administration

My telephone number is (410) 865-1000
TTY For the Deaf: (410) 865-1342
Post Office Box 8755, Baltimore/Washington International Airport, Maryland 21240-0755

WORCESTER COUNTY
COMMISSION FOR WOMEN
POST OFFICE BOX 59
BISHOPVILLE, MD 21813

April 3, 1997

RECEIVED
APR 8 1997
SECRETARY DEPARTMENT OF TRANSPORTATION

Chairperson: Judy Boggs
Vice Chairperson:
Barbara Beaubien
Recording Secretary:
Marie Velong
Corresponding Secretary:
Diana Parnell
Treasurer:
Teresa Hammerbacher
Historian:
Betsy Fears

Committee Chairpersons
Legislation & Advocacy:
Teresa Hammerbacher
Economics:
Barbara Trader
Community Service:
Judy Boggs
Public Information:
Jo Campbell
Education:
Teresa Hammerbacher
Health:
Barbara Beaubien

Other Commissioners:
Helen Fisher
Bill Gray
Helena Henson
Karen Holck
Pamela McCabe
Ellen Pilchard
Sandy Wilkinson

The Hon. Parris Glendenning
Governor of Maryland
State House
Annapolis, MD 21401

Dear Governor Glendenning:

The Worcester County Commission for Women urges you to prioritize funding and expedite the dualization of Route 113 in Worcester County.

Seventy people have lost their lives in automobile accidents on this road since 1977, twenty-two of whom have been killed within the last six years.

We strongly support dualization to make this major highway safe for the citizens of Worcester County, and indeed for all those who travel to the Eastern Shore to enjoy the beach and our many recreational activities.

Sincerely,

Judith O. Boggs

Judith O. Boggs
Chairperson

RECEIVED
APR 9 1997
GOVERNOR'S OFFICE

VI-51c

Phone: (voice mail) 219-1895 Fax: (410) 250-4967 E-mail: jocee@ecotopics.com

Maryland Department of Transportation
The Secretary's Office

Parris N. Glendening
Governor
David L. Winstead
Secretary
John D. Porcari
Deputy Secretary

April 24, 1997

Ms. Judith O. Boggs
Chairperson
Worcester County Commission for Women
P.O. Box 59
Bishopville MD 21813

Dear Ms. Boggs:

Thank you for your letter to Governor Glendening regarding your request to prioritize funding and to expedite the dualization of US 113 in Worcester County. The Governor asked me to respond on his behalf.

The number of fatalities occurring along this stretch of US 113 is of great importance to us. The State Highway Administration (SHA) has identified the US 113 project as one of the top priorities and has placed it on an expedited schedule. Coordination with the various Federal and State agencies is underway in order to meet the project schedule. The Location/Design Public Hearing is scheduled for mid-June. The SHA is also looking at interim improvements to make this a safer road.

Again, thank you for your letter. The Governor appreciates hearing from you and, on his behalf, I also thank you for the interest which prompted you to write. If you need additional information regarding this matter, please do not hesitate to contact Mr. Parker F. Williams, State Highway Administrator, at (410) 545-0400 or his Director of Planning and Preliminary Engineering, Mr. Neil Pedersen, who may be reached at (410) 545-0411.

Sincerely,

David L. Winstead
Secretary

cc: Mr. Neil J. Pedersen, Director of Planning and Preliminary Engineering, State Highway Administration
Mr. Parker F. Williams, Administrator, State Highway Administration

My telephone number is (410) 865-1000
TTY For the Deaf: (410) 865-1342
Post Office Box 8755, Baltimore/Washington International Airport, Maryland 21240-0755

432X

Mr. Robert Zepp
US 113 from MD 394 to Delaware

US 113 Study - Purpose and Need Statement
Page Two

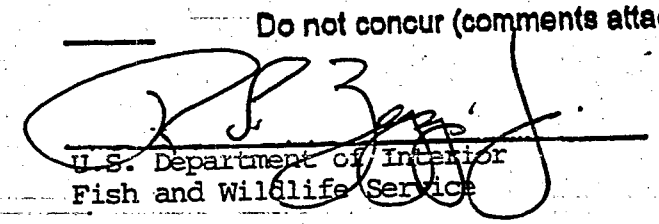
Fill in concurrence/comment point here - Purpose and Need, etc.

Please check one:

__✓__ Concur (without comments)

____ Concur (comments attached)

____ Do not concur (comments attached)



U.S. Department of Interior
Fish and Wildlife Service

2-4-97
Date

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107-4431

DEC 14 1995

Mr. Joseph R. Kresslein
Assistant Division Chief
Project Planning Division
Maryland State Highway Administration
P.O. Box 717
Baltimore, MD 21203-0717

Dear Mr. Kresslein:

This letter is in response to your request for concurrence on the Purpose and Need Statement for the US 113 Study. Upon reviewing the Purpose and Need Statement dated in your November 3, 1995 letter, we c concur to the statement as currently presented.

Our reasons are based on the following:

* The Purpose and Need Statement should discuss the problem--not solutions--such as "dualization" of US 113. The alternatives ana stage will discuss the solutions, like dualization, to the proble

  In this case, the Purpose and Need Statement states that "overall safety" needs to be improved. While there have been spot improve to address the safety issues, it appears that there has not been follow up regarding how successful or unsuccessful the improvemer have been. Studies or analysis of the spot improvements will nee be conducted in order to address the safety issue,

* The Purpose and Need Statement discusses the number of accidents have occurred along US 113 in the study area. Numerous comparisc have been made between various segments in the study area to the statewide average. In some cases the Statement quotes the statew averages, and in others it does not. Statewide averages should b included for all segments for consistency and comparisons.

* In general, the total accident rate is "lower than the statewide average rate for similarly designed highways in each study area a the study areas combined" (page 6). However, fatal accidents are higher in the northern area. The Purpose and Need Statement shou provide an accident map identifying the location of the fatalitie year (season, if available) and type of accident (i.e. head-on, a etc.). (See Interagency Meeting Notes, May 17, 1995. SHA states accident map is available.) This would help determine which area US 113 are less safe than others.

Celebrating 25 Years of Environmental Progress

The traffic data should include origin and destination information to assess any trends indicating where most of the accidents occur. Are they occurring seasonally with people travelling towards Ocean City ("the second largest city in Maryland because of vacations," page 24 of Interagency Notes from 5/17/95), or are they occurring elsewhere?

Solutions, such as dualization, may not necessarily guarantee that fatality rates will drop. For example, in the dualized section from Pokomoke to Snow Hill, "...the fatality rate is slightly higher than the statewide average" (page 25 of the Interagency Notes).

In the Purpose and Need Statement, the accident data includes a statistical figure using Morin's Upper Control Limit. However, there is no explanation why this figure was used and what it means.

The Traffic Summary--Average Daily Traffic--(pages 4 and 5 of the Statement) uses two different variables: 1995 ADT is calculated for weekdays all year, while the forecasted ADT for the year 2020 is calculated for weekends in the summer. It is unclear why two different measurements are used.

Under "Existing Conditions," (second paragraph) which reads: "The southern portion, from south of Snow Hill to just south of Berlin... should read "...from north of Snow Hill..."

Thank you for the opportunity to comment on the Purpose and Need Statement. Should you have questions, please contact Mary Ann Boyer at (215) 597-3634.

Sincerely,

Roy E. Denmark, Jr.
NEPA Program Manager

Maryland Department of Transportation
State Highway Administration

David L. Wi
Secretary
Hal Kassoff
Administrator

March 5, 1996

RE: Contract No. WO 720-101-170
US 113: Snow Hill to
Delaware State Line
PDMS No. 232084

Mr. Roy E. Denmark
NEPA Review Coordinator
US Environmental Protection Agency
Region III
841 Chestnut Building
Philadelphia PA 19107-4431

Dear Mr. Denmark:

Thank you for your letter dated December 14, 1995 offering comments on the Purpose and Need Statement (P+NS) for the US 113 project planning study. I have attached the revised P+NS, summarized your concerns in the addendum and prepared responses to each one.

After reviewing the following responses, I am requesting that you sign the concurrence line provided.

Should you have any further questions or concerns, please feel free to contact Joseph R. Kresslein at (410) 545-8550.

Very truly yours,

Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

by: Joseph R. Kresslein
Joseph R. Kresslein
Assistant Division Chief
Project Planning Division

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Concurrence:

US Environmental Protection Agency — Date

LHE:PFM

Enclosures (5)

cc: Mr. LeRoy Carrigan
Mr. Louis H. Ege Jr.
Mr. Joseph Kresslein
Ms. Gay Olsen
Ms. Cynthia D. Simpson
Ms. Lorraine Strow
Mr. Alan Straus

Addendum

Comment 1:

The Purpose and Need Statement should discuss the problem not solutions, such as dualization of US 113. The alternatives analysis stage will discuss the solutions, like dualization, to the problem(s).

The Purpose and Need states that overall roadway safety needs to be improved. While there have been spot improvements to address the safety issues, it appears that there has not been any follow up regarding the success of those improvements. Studies or analysis of the spot improvements will need to be conducted, in order to address the safety issue.

Response: *Please refer to page eight, paragraph one, BACKGROUND, of the revised Purpose and Need Statement and appropriate attachments*

The Purpose and Need Statement includes a detailed discussion of the problem(s) to be addressed, along with supporting documentation. The purpose and need has been revised to eliminate premature discussion of study alternatives. However, under the section on System Continuity, dualization of US 113 is still referred to, but only in the context of how continuity of the roadway system beyond the project's limits would relate to the need for our study.

Analysis of the success of the spot improvements would not be meaningful at this time because they have not been in place long enough to fairly determine effectiveness.

It should be noted that the improvements made to the intersections at MD 610, MD 589, and Pitts Road were not intended to significantly improve the overall safety conditions in the US 113 corridor. Rather, the left turn lanes and acceleration and deceleration lanes were intended to improve traffic operations at these particular locations.

In general, the spot improvements were designed to benefit certain areas along the roadway. They should be seen as interim improvements that will improve particular locations until the US 113 project planning study can be developed and implemented.

Comment 2:

The Purpose and Need Statement discusses the number of accidents that have occurred along US 113 in the study area. Numerous comparisons have been

3

made between various segments in the study area to the statewide averages and in others it does not. Statewide averages should be included for all segments for consistency and comparisons.

Response: *Please refer to page six, paragraph three of the revised Purpose and Need Statement*

The Purpose and Need Statement has been revised to include, among other things, study rates and statewide rates for all accident comparisons.

Comment 3:

In general, the total accident rate is "lower than the statewide average rate for similarly designed highways in each study area segment and in the study areas combined". However, fatal accidents are higher in the northern area. The Purpose and Need Statement should provide an accident map identifying the location of the fatalities by year (season if available) and type of accident (i.e. head-on, angle, etc.). This would help determine which areas of US 113 are less safe than others.

Response: *Please refer to the Accident Map enclosure*

An accident map is provided as a supplement to this document.

Comment 4:

The traffic data should include origin and destination information to assess any trends indicating where most of the accidents occur. Are they occurring seasonally with people traveling towards Ocean City or are they occurring elsewhere?

Response: *Please refer to either the Accident Map or Worksheet enclosure*

An origin and destination study has not been performed for this project and therefore SHA is unable to supply this information. However the accident map and accident worksheet attached for your review defines the locations of the accident occurrences. The seasons and types of accidents are clearly defined using this format and pie charts are enclosed also, which define the seasons.

Comment 5:

Solutions, such as dualization, may not necessarily guarantee that fatality rates will drop. For example, in the dualized section from Pocomoke to Snow Hill,

" ... the fatality rate is slightly higher than the statewide average" (page 25 of the Interagency Notes).

Response: *Please refer to the Worksheet enclosure*

SHA believes that alternatives that will physically separate opposing traffic will decrease fatalities. This conclusion is based on research that indicates 70% of fatal accidents in the northern study area occurred as a result of opposite direction collisions. However, this study will include investigation of all reasonable alternatives.

Comment 6:

In the Purpose and Need Statement, the accident data includes a statistical figure using Morin's Upper Control Limit. However there is no explanation why this figure was used and what it means.

Response: *Please refer to page seven, paragraph two of the revised Purpose and Need Statement*

Morin's Upper Control Limit was included in the Purpose and Need Statement because, at the April Interagency Review Meeting, the Army Corps of Engineers raised a question of how significance was determined and how it should be displayed/conveyed when discussing significantly high occurrences of certain accidents.

The Purpose and Need Statement does explain that "Morin's Upper Control defines the upper limit of the range above which a statistic becomes significant." It was used to define fatalities in the northern study area as significantly higher than the statewide average, for similar roadways.

Comment 7:

The Traffic Summary--Average Daily Traffic--(pages 4 and 5 of the Statement) uses two different variables: 1995 ADT is calculated for weekdays all year while the forecasted ADT for the year 2020 is calculated for weekends in the summer. It is unclear why two different measures are used.

Response: *Please refer to page four, TRAFFIC, of the Purpose and Need Statement*

The ADT measures are represented this way to illustrate worst case scenarios. The comparrisons that are being made are 1995 ADT vs. the 2020 forecasted ADT, and the 1995 summer ADT vs. the 2020 forecasted summer ADT. This

comparison is more clearly illustrated in the Revised Purpose and Need Statement.

Comment 8:

Under "Existing Conditions", (second paragraph) which reads: "The southern portion, from south of Snow Hill to just south of Berlin..." should read "...from north of Snow Hill... ".

Response: *Please refer to page three, paragraph four of the revised Purpose and Need Statement*

This statement in the Purpose and Need Statement is correct. The southern portion of the study area extends from south of Snow Hill to south of Berlin.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107-4431

MAY 0 2 1996

Mr. Louis H. Ege, Jr.
Deputy Director
Office of Planning and Preliminary Engineering
Maryland State Highway Administration
707 North Calvert Street
Baltimore, Maryland 21203

RE: U.S. 113: Snow Hill to Delaware State Line Purpose and Need

Dear Mr. Ege:

These comments are offered in response to your revised Purpose and Need dated March 5, 1996 and responses to our December 14, 1995 comment letter for the above referenced project. Based on our review, we do not concur with the revised purpose and need.

Our comments are as follows:

- While we understand that the spot improvements have not been in place for a long time, a commitment to assess the success of the spot improvements during the environmental study phases of the project should be addressed in the Purpose and Need. Success or failure of the spot improvements thus far is essential information to determine future needs of the project area and to determine alternatives that could satisfy the purpose and need as intended by NEPA.

- The Accident Maps provided with the revised purpose and need have no key to indicate what the letters and numbers stand for. This should be provided so that the Maps are useful for review.

- Page 6, third and fourth paragraphs include accident and fatality rates, respectively, as compared with the statewide averages. However, as presented, it is confusing. For example, the southern and northern 113 accident rates are lower than the statewide average, yet the last sentence of the third paragraph states "Even (though) the total accident rate is lower than the statewide average rate for similarly designed highways, these figures represent a significant number of accidents." This sentence should be reworded to make more sense and should include how you determine the value of a "significant number." Paragraph four states when describing values for fatality rates "This translates into a study rate of 4.1 fatal acc/100mvm compared to 3.2 fatal acc/100mvm." This statement should specify which rate is a

12

statewide average and which is specific to 113.

- Page 9 last sentence states that "If warranted, the MTA will explore Park-in-Ride opportunities in the future." The alternates analysis in the environmental documents should include the Park-in-Ride options by itself and in combination with other alternatives. The study should include these options to determine if this alternative could satisfy the purpose and need.

- Page 10 of the purpose and need provides conclusions that improvements to US 113 would satisfy the problems of the area. Providing safer roadway for travelers, relieving severe congestion through year 2020 and reducing significantly high fatal accident rates in the northern study area are fine goals to have for the purpose and need and environmental study. However, it is premature to conclude that improvements to US 113 is the solution to these goals. Providing solutions in the purpose and need stage of a project constitutes a predetermination on the part of the state highway administration. The revised purpose and need should not provide conclusions to a study that has yet to be completed.

- Attachments to the purpose and need includes pie charts and study worksheets with information on accident types. Under Collision Types in the Season/Surface/Light Collision Types pie charts Opposite Direction shows to account for 56% of the collision types. However, in the Accident Study Worksheets, the largest number of collision type for the overall Northern and Southern study areas is fixed-object. To determine the problems and solutions for the accident and fatality rates for this project, these figures need to be clarified.

Thank you for the opportunity to comment. Please contact Danielle Algazi at (215) 597-1168 should you have any questions. Please note that starting May 20th, her new number will be (215) 566-2722.

Sincerely,

Roy E. Denmark, Jr.

Roy E. Denmark, Jr.
NEPA Program Manager

cc: Michele Gomez, COE
Bill Schultz, FWS
Renee Sigel, FHWA

Maryland Department of Transportation
State Highway Administration

David L. Wir
Secretary
Hal Kassoff
Administrator

June 17, 1996

RE: Contract No. WO 720-101-170
US 113: Snow Hill to the
Delaware State Line
PDMS No. 232084

Mr. Roy E. Denmark
NEPA Review Coordinator
US Environmental Protection Agency
Region III
841 Chestnut Building
Philadelphia PA 19107-4431

Dear Mr. Denmark:

Thank you for your letter dated May 2 offering comments on the Purpose and Need Statement (P&NS) for the US 113 project planning study. Your concerns have been summarized in the attached errata sheet and responses to each one have been prepared. The revisions to the P&NS which you have recommended will be reflected in the purpose and need discussion of the draft environmental document.

After reviewing the following responses, I am requesting that you sign the concurrence line provided.

Should you have any further questions or concerns, please feel free to contact Joseph R. Kresslein at (410) 545-8550.

Very truly yours,

Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

by: Joseph R. Kresslein
Joseph R. Kresslein
Assistant Division Chief
Project Planning Division

(410) 545-8500

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Fill in concurrence/comment point here - Purpose and Need, etc.

Please check one:

_____ Concur (without comments)

_____ Concur (comments attached)

_____ Do not concur (comments attached)

_____ _____

US Environmental Protection Agency Date

LHE:PFM
cc: Mr. LeRoy Carrigan
Mr. Louis H. Ege Jr.
Mr. Joseph Kresslein
Ms. Gay Olsen
Ms. Cynthia D. Simpson
Ms. Renee Sigel
Ms. Lorraine Strow
Mr. Alan Straus

Addendum

Comment 1:

While we understand that spot the improvements have not been in place for a long time, a commitment to assess the success of the spot improvements during the environmental study phases of the project should be addressed in the purpose and need. Success or failure of the spot improvements thus far is essential information to determine the future needs of the project area and to determine alternatives that could satisfy the purpose and need as intended by NEPA.

Response:

The first paragraph of the Background section, in the Purpose and Need Statement, discusses that almost all of the spot improvements will have been in place for one full year during this summer. The State Highway Administration (SHA) agrees to study these improvements after they have been in place for a year and will include a discussion of their effectiveness in the draft environmental document. However, the accident data used to generate the reports and statistics used in the analysis will not be available until the fall, due to the time necessary for the transfer of the accident reports from the responding state troopers and the compilation of the information.

Comment 2:

The accident maps provided with the revised purpose and need have no key to indicate what the letters and numbers stand for. This should be provided so that the maps are useful for review.

Response:

The maps that were sent indicate the locations where all accidents occurred, during the specified time period. The notations that accompany the locations reflect the following information, in the following order: year, log mile, accident severity, collision type, illumination, and roadway surface.

The year and log mile are self explanatory. Severity is denoted with an **F** for fatal, **I** for Injury, and **P** for Property Damage. Collision type is denoted as being an opposite direction accident, angle accident, left turn accident, sideswipe accident, fixed object accident, rear end accident, collision with an animal accident, parked vehicle accident, and other accident types, which could include accidents caused by thrown objects striking moving vehicles, causing drivers to lose control. Illumination is denoted **N** for night and **D** for day. Roadway Surface is denoted with **D** for dry, **W** for wet and **S** for snow, and **I** for Ice.

Fill in concurrence/comment point here - Purpose and Need, etc.

Please check one:

_____ Concur (without comments)

_____ Concur (comments attached)

_____ Do not concur (comments attached)

_____ _____

US Environmental Protection Agency Date

LHE:PFM
cc: Mr. LeRoy Carrigan
Mr. Louis H. Ege Jr.
Mr. Joseph Kresslein
Ms. Gay Olsen
Ms. Cynthia D. Simpson
Ms. Renee Sigel
Ms. Lorraine Strow
Mr. Alan Straus

Addendum

Comment 1:

While we understand that spot the improvements have not been in place for a long time, a commitment to assess the success of the spot improvements during the environmental study phases of the project should be addressed in the purpose and need. Success or failure of the spot improvements thus far is essential information to determine the future needs of the project area and to determine alternatives that could satisfy the purpose and need as intended by NEPA.

Response:

The first paragraph of the Background section, in the Purpose and Need Statement, discusses that almost all of the spot improvements will have been in place for one full year during this summer. The State Highway Administration (SHA) agrees to study these improvements after they have been in place for a year and will include a discussion of their effectiveness in the draft environmental document. However, the accident data used to generate the reports and statistics used in the analysis will not be available until the fall, due to the time necessary for the transfer of the accident reports from the responding state troopers and the compilation of the information.

Comment 2:

The accident maps provided with the revised purpose and need have no key to indicate what the letters and numbers stand for. This should be provided so that the maps are useful for review.

Response:

The maps that were sent indicate the locations where all accidents occurred, during the specified time period. The notations that accompany the locations reflect the following information, in the following order: year, log mile, accident severity, collision type, illumination, and roadway surface.

The year and log mile are self explanatory. Severity is denoted with an **F** for fatal, **I** for Injury, and **P** for Property Damage. Collision type is denoted as being an opposite direction accident, angle accident, left turn accident, sideswipe accident, fixed object accident, rear end accident, collision with an animal accident, parked vehicle accident, and other accident types, which could include accidents caused by thrown objects striking moving vehicles, causing drivers to lose control. Illumination is denoted **N** for night and **D** for day. Roadway Surface is denoted with **D** for dry, **W** for wet and **S** for snow, and **I** for Ice.

night and D for day. Roadway Surface is denoted with D for dry, W for wet and S for snow, and I for Ice.

Comment 3:

Page 6, third and fourth paragraphs, include accident and fatality rates, respectively, as compared with the statewide averages. However, as presented, it is confusing. For example, the southern and northern accident rates are lower than the statewide average, yet the last sentence of the third paragraph states "even (though) the total accident rate is lower than the statewide average rate for similarly designed highways, these numbers represent a significant number of accidents." This sentence should be reworded to make more sense and should include how you determine the value of a "significant number. "Paragraph four states when describing values for fatality rates "this translates into a study rate of 4.1 fatal acc/100mvm compared to 3.2 fatal acc/100mvm." This statement should specify which rate is a statewide average and which is specific to US 113.

Response

The last sentence of paragraph three, in the Accidents section has been reworded and now reads as follows: "... Clearly, the combined study rate is lower than the statewide average rate, however these figures still represent a very large number of accidents."

The fourth paragraph of the section entitled Accidents has been reworded and now reads as follows: "... This translates into a study rate of 4.1 fatal acc/100mvm for US 113, compared to the statewide average rate of 3.2 fatal acc/100mvm...".

Comment 4:

Page 9 last sentence states that ..."If warranted, the MTA will explore Park-in-Ride opportunities in the future.' The alternates analysis in the environmental documents should include the Park-in-Ride option by itself and in combination with other alternatives. The study should include these options to determine if this alternative could satisfy the purpose and need.

Response:

Park and Ride discussion will be eliminated from the Purpose and Need Statement so as not to discuss alternatives, prematurely. However, it is SHA policy to consider Park and Ride potential and how it will affect the purpose and need of a particular project, as a project develops.

Comment 5:

Page 10 of the purpose and need provides conclusions that improvements to US 113 would satisfy the purpose and need. Providing safer roadways for travelers, relieving severe congestion through year 2020 and reducing significantly high accident rates in the northern study area are fine goals to have for the purpose and need and environmental study. However, it is premature to conclude that improvements to US 113 is the solution to these goals. Providing solutions in the purpose and need stage of a project constitutes a predetermination on the part of the State Highway Administration. The revised purpose and need should not provide conclusions to a study that has yet to be completed.

Response:

The conclusion section of the Purpose and Need Statement will be eliminated from the document, thus removing any implication of predetermination, on the part of the State Highway Administration.

Comment 6:

Attachments to the purpose and need include pie charts and study worksheets with information on accident types. Under Collision Types in the Season/Surface/Light Collision Types pie charts, opposite direction collisions account for 56% of the accident types. However, in the accident study worksheets, the largest number of collision type overall for both the northern and southern portions of the study area is fixed object. To determine the problems and solutions for the accident and fatality rates for this project, these figures need to be clarified.

Response:

All pie charts, supplied as supporting documentation, depict statistics related to **fatal accidents only**, whereas the accident study worksheet depicts statistics related to **all accident types.**

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107-4431

SEP 5 9 59 AM '96

Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering
P.O. Box 717
Baltimore, MD 21203-0717

AUG 26 1996

Attn: Joseph R. Kresslein

Re: Maryland US 113, Purpose and Need

Dear Mr. Ege:

EPA is responding to your response to our comments (June 17, 1996) regarding the above referenced project. While we concur with your responses to our comments, a revised Purpose and Need was not circulated for review. Therefore, we have not reviewed a revised document and thus can not concur with it. In addition, in keeping with NEPA/404 coordination, it would be beneficial if the responses to comments recieved from all the agencies be circulated. We would appreciate it in future correspondence.

Thank you for including us early in the NEPA process. If you have any questions on our comments, you can reach me at (215) 566-2722.

Sincerely,

Danielle Algazi
NEPA Project Coordinator

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107-4431

PROJECT DEVELOPMENT DIVISION
SEP 5 11 25 AM '96

September 5, 1996

Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering
P.O. Box 717
Baltimore, MD 21203-0717

Attn: Joseph R. Kresslein

Re: Maryland US 113, Purpose and Need

Dear Mr. Ege:

Thank you for the facimile that we recieved from Paul Maloney, of Maryland State Highway Administration on September 3. The facimile contained the revised purpose and need for MD US 113. EPA concurs with this version of the document.

If you have any further questions, you can reach me at(215) 566-2722.

Sincerely,

Danielle Algazi
NEPA Project Coordinator

Fill in concurrence/comment point here - Purpose and Need, etc.

Please check one:

___ Concur (without comments)

X Concur (comments attached)

___ Do not concur (comments attached)

US Environmental Protection Agency

8/26/96
Date

LHE:PFM
cc: Mr. LeRoy Carrigan
Mr. Louis H. Ege Jr.
Mr. Joseph Kresslein
Ms. Gay Olsen
Ms. Cynthia D. Simpson
Ms. Renee Sigel
Ms. Lorraine Strow
Mr. Alan Straus

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, U.S. ARMY CORPS OF ENGINEERS
P.O. BOX 1715
BALTIMORE, MD 21203-1715

REPLY TO
ATTENTION OF

DEC 15 10 48 AM '95

Operations Division

CENAB-OP-RX(MD SHA/US 113: MD 394 TO DELAWARE STATE LINE)
96-00132-9

Mr. Louis H. Ege, Jr.
Office of Planning and Preliminary Engineering
Maryland State Highway Administration
707 North Calvert Street
Baltimore, Maryland 21203

Dear Mr. Ege:

I am replying to your subject letter dated November 3, 1995, requesting concurrence on the Purpose and Need for the US 113 Study, from MD 394 to the Delaware State line. The study area is located in Worcester County, Maryland.

There is no clear purpose and need statement in the US 113 document provided for our concurrence. From the background information supplied, it appears that the purpose and need is to improve safety along the US 113 corridor from MD 394 to the Delaware State line. The Corps of Engineers is not opposed to safety improvements within the study area. However, the Corps is currently unable to concur with this Purpose and Need document as presently stated. Additional information is required to determine the cause of the problems occurring within the study area. The following information is requested.

a. A statement which clearly identifies the purpose and need for the study corridor. The purpose and need should be general enough to allow for the development of an array of alternatives to identify and solve the problem within the corridor.

b. According to the document, numerous spot improvements for safety have been completed within the study area. The location and completion dates of these improvements were not noted. Additionally, as indicated in the background information that was provided, no study or statistics were completed to determine the results of these safety improvements. The key factor of the purpose and need statement appears to be safety. Therfore, documentation regarding these improvements, such as location, completion dates, and how well they are functioning, need to be provided.

c. The traffic data provided in the document lists the average daily traffic (ADT) for the study area by the northern and southern segments of the study area. This information is confusing because it compares the existing ADT's for the weekday year round with the design year ADT's for weekend days during the summer. The corresponding table does not facilitate understanding of the conditions and how it supports the purpose and need.

d. Accident information provided is insufficient as it does not outline the date and time of the accidents, the probable cause, and the weather conditions. Without this information it is not possible to determine the problem and the potential solutions. Also, the statewide average accident rate for similarly designed highways was not provided although it was mentioned that the total accident rate for the study area is higher.

e. Dualization of the highway has been mentioned in the purpose and need document as being needed to decrease the number of accidents, specifically fatalities. This statement is inappropriate at this time as the possible solutions or alternatives should be discussed at a later stage of the NEPA process. This document should only state the purpose along with documentation demonstrating the need for the project. An alternative such as dualization should not be discussed at this time. The Corps will work with your office to assist in the development of a list of potential alternatives to be discussed during the NEPA analysis.

We look forward to working with you in finalizing the purpose and need for the US 113 Study. If you have any questions please call Ms. Michele Gomez at (410)962-4343.

Sincerely,

For Keith A. Harris
Chief, Special Projects
Permits Section

cc: Mary Ann Boyer, EPA
Bill Schultz, FWS

Maryland Department of Transportation
State Highway Administration

David L. W
Secretary
Hal Kassof
Administrator

March 5, 1996

RE: Contract No. WO 720-101-170
US 113 Snow Hill to
Delaware State Line
PDMS No. 232084

Mr. Keith A. Harris
Special Projects Section
U.S. Army Corps Of Engineers
P.O. Box 1715
Baltimore MD 21201

Dear Mr. Harris:

Thank you for your letter dated December 15, offering comments on the Purpose and Need Statement (P+NS) for the US 113 project planning study. I have attached the revised P+NS, summarized your concerns in the addendum and prepared responses to each one.

After reviewing the responses, I am requesting that you sign the concurrence line provided.

Should you have any further questions or concerns, please feel free to contact Joseph R. Kresslein at (410) 545-8550.

Very truly yours,

Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

by: Joseph R. Kresslein
Joseph R. Kresslein
Assistant Division Chief
Project Planning Division

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Concurrence:

US Army Corps of Engineers Date

LHE:PFM

Enclosures (7)

cc: Mr. LeRoy Carrigan
Mr. Louis H. Ege Jr.
Ms. Gay Olsen
Ms. Cynthia Simpson
Mr. Alan Straus
Ms. Lorraine Strow

Addendum

Comment a:

[We request] A statement which clearly identifies the purpose and need for the study corridor. The purpose and need should be general enough to allow for the development of an array of alternatives to identify and solve the problem within the corridor.

Response: *Please refer to page three, paragraph one of the revised Purpose and Need Statement*

The Purpose and Need Statement has been revised and a concise purpose and need identified.

Comment b:

According to the document, numerous spot improvements for safety have been completed within the study area. The location and completion dates for these improvements were not noted. Additionally, as indicated in the background information that was provided, no study or statistics were completed to determine the results of these safety improvements. The key factor of the purpose and need statement seems to be safety. Therefore, documentation regarding these improvements, such as location, completion dates, and how well they are functioning need to be provided.

Response: *Please refer to page eight, paragraph one of the revised Purpose and Need Statement and appropriate attachments*

A listing of the spot improvements, their locations, and their completion dates is provided as a supplement to this document.

Analysis of the successfulness of the spot improvements would not be appropriate at this time because they have not been in place long enough to fairly determine effectiveness.

It should be noted that the improvements made to the intersections at MD 610, MD 589, and Pitts Road were not intended to make the corridor as a whole safer. Rather, the left turn lanes and acceleration and deceleration lanes at these locations were intended to improve traffic operations at these particular locations.

In general, the spot improvements were designed to benefit certain spots along the roadway. They should be seen as interim improvements that will improve

particular locations until the US 113 Project Planning Study can be developed and implemented.

Comment c:

The traffic data provided in the document lists the average daily traffic (ADT) for the study area by the northern and southern segments of the study area. This information is confusing because it compares the existing ADT's for the weekday year round with the design year ADT's for weekend days, during the summer. The corresponding table does not facilitate understanding of the conditions and how it supports the purpose and need.

Response: *Please refer to page four, TRAFFIC, of the revised Purpose and Need Statement*

The ADT measures are represented to illustrate worst case scenarios. The comparrisons that are being made are 1995 ADT vs. the 2020 forecasted ADT, and the 1995 summer ADT vs. the 2020 forecasted summer ADT. This comparison is more clearly illustrated in the Revised Purpose and Need Statement.

Comment d:

Accident information provided is insufficient as it does not outline the date and time of the accidents, the probable cause, and the weather conditions. Without this information it is not possible to determine the problem and the potential solutions. Also, the statewide average accident rate for similarly designed highways was not provided although it was mentioned that the total accident rate for the study area is higher.

Response: *Please refer to page five, ACCIDENTS, of the revised Purpose and Need Statement and appropriate enclosures*

An accident map and worksheet, which includes all pertinent details requested, is provided as an attachment. The Purpose and Need Statement has been revised to include, among other things, study rates and statewide rates for accident comparisons.

Comment e:

Dualization of the highway has been mentioned in the purpose and need document as being needed to decrease the number of accidents, specifically

fatalities. This statement is inappropriate at this time as the possible solutions or alternatives should be discussed at a later stage of the NEPA process. This document should only state the purpose along with documentation demonstrating the need for the project. An alternative such as dualization should not be discussed at this time. The Corps will work with your office to assist in the development of a list of potential alternatives to be discussed during the NEPA analysis.

Response:

SHA will has eliminated from the document all reference to dualization as it relates to alternatives to study as potential solutions. Any remaining reference to dualization will only be in reference to the continuity of the roadway and how this project is affected by such continuity. SHA will not discuss alternatives prematurely.

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, U.S. ARMY CORPS OF ENGINEERS
P.O. BOX 1715
BALTIMORE, MD 21203-1715

PROJECT DEVELOPMENT DIVISION
APR 22 10 57 AM '96

REPLY TO ATTENTION OF

Operations Division

Subject: CENAB-OP-RX(MD SHA/U.S. 113: MD 394 TO DELAWARE STATE LINE) 96-00132-9

Mr. Louis H. Ege, Jr.
Office of Planning and Preliminary Engineering
Maryland State Highway Administration
707 North Calvert Street
Baltimore, Maryland 21203

Dear Mr. Ege:

I am replying to your subject letter dated March 5, 1996, requesting our concurrence on the revised purpose and need statement for the U.S. 113 Study, from MD 394 to the Delaware State Line. The study area is located in Worcester County, Maryland.

We do not concur with the purpose and need statement as revised. The Corps recommends the following wording for the purpose and need statement to better demonstrate the supporting need for the project.

"The purpose of this study is to improve safety and to improve traffic flow along U.S. 113 from MD 394 to the Delaware State line. Need for the project is demonstrated by the number of fatal accidents (above the statewide average) in the northern area. The Level of Service for the northern area is currently rated D and is expected to be F by 2020. In addition, County Residents Action for Safer Highways (CRASH), a local citizens group, has requested investigation of the study area."

Also, we request clarification or explanation of the statewide averages used in the background information. Specifically, explain how the combined statewide average for both the northern and southern study areas was derived.

Although the spot safety and traffic improvements along the corridor have not been in place long enough to fairly determine their effectiveness, the Corps recommends that these areas be examined during the project study. The study should determine if they are improving the safety or traffic flow and if these improvements have adequately addressed the purpose and need for the project or if additional work along the U.S. 113 study area needs to be done.

If you have any questions regarding this correspondence, please call Ms. Michele Gomez at (410) 962-4343.

Sincerely,

Brian J. Yanelik

for Keith A. Harris
Chief, Special Projects
Permits Section

cc: Renee Sigel, FHWA
Mary Ann Boyer, EPA
Bill Schultz, FWS

Maryland Department of Transportation
State Highway Administration

David L. Winstead
Secretary
Hal Kassoff
Administrator

June 17, 1996

RE: Contract No. WO 720-101-170
US 113: Snow Hill to the
Delaware State Line
PDMS No. 232084

Mr. Keith A. Harris
Special Projects Section
U.S. Army Corps Of Engineers
P.O. Box 1715
Baltimore MD 21201

Attn: Mr. Vance Hobbs

Dear Mr. Harris:

Thank you for your letter dated April 17, offering comments on the revised Purpose and Need Statement (P&NS) for the US 113 project planning study. Your concerns have been summarized in the attached erratta sheet and responses to each one have been prepared. The revisions to the P&NS which you have recommended will be reflected in the purpose and need discussion in the draft environmental document.

After reviewing the responses, I am requesting that you sign the concurrence line provided.

Should you have any further questions or concerns, please feel free to contact Joseph R. Kresslein at (410) 545-8550.

Very truly yours,

Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

by: Joseph R. Kresslein
Joseph R. Kresslein
Assistant Division Chief
Project Planning Division

My telephone number is (410) 545-8500

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Fill in concurrence/comment point here - Purpose and Need, etc.

Please check one:

_____ Concur (without comments)

_____ Concur (comments attached)

_____ Do not concur (comments attached)

_____ _____
US Army Corps of Engineers Date

LHE:PFM
cc: Mr. LeRoy Carrigan
Mr. Louis H. Ege Jr.
Ms. Gay Olsen
Ms. Cynthia Simpson
Ms. Renee Sigel
Mr. Alan Straus
Ms. Lorraine Strow

Addendum

Comment a:

We do not concur with the Purpose and Need Statement as revised. The Corps recommends the following wording for the Purpose and Need Statement to better demonstrate the supporting need for the project.

"The purpose of this study is to improve safety and to improve traffic flow along US 113 from MD 394 to the Delaware State Line. Need for this project is demonstrated by the number of fatal accidents (above the statewide average) in the northern area. The Level of Service for the northern area is currently rated D and is expected to be F by 2020. In addition, County Residents Action for Safer Highways (CRASH) , a local citizens group has requested an investigation of the study area."

Response:

The opening paragraph of the the Purpose and Need Statement has been revised to read as follows:

The purpose of this study is to improve safety and to improve traffic flow along US 113 from Snow Hill to the Delaware State Line. Need for this project is demonstrated by the number of fatal accidents (*significantly* above the statewide average) in the northern area. *In the summer months*, the Level of Service for the northern area is currently rated D and is expected to be F by 2020. In addition, County Residents Action for Safer Highways (CRASH), a local citizens group, has requested an investigation of the study area *and is exerting pressure on SHA and elected officials to dualize US 113 because of the high fatal accident rate.*

Comment b:

Also, we request a clarification or explanation of the statewide averages used in the background information. Specifically, explain how the combined statewide average for both the northern and southern study areas were derived.

Response:

Combined statewide rates are arrived at by determining what percentage of the roadway being analyzed incorporates different types of controls, then applying the percentages to the statewide accident rates, in the respective roadway sections: ie: weighting accidents on each section of roadway having unique access controls with it's

corresponding percentage of section length to overall study area length. In this case, 96% of the 7.45 mile long northern section of US 113 is a two-lane undivided road with no controls in place while 4% of the same section is a divided roadway with no controls in place. In the southern section, 74% of the 16.1 mile long section of US 113 is a two-lane undivided roadway with no controls in place and 26% is an undivided roadway with partial controls in place.

Together the combined roadway sections measure 23.55 miles, eighty one percent of which is a two-lane undivided roadway with no access controls in place, 18% is an undivided roadway with partial controls in place and 1% is a divided roadway with no controls in place. These percentages are then used to weight the respective roadway section's accidents, based on the statewide average number of accidents for similarly designed roadways.

Comment c:

Although the spot safety and traffic improvements along the corridor have not been in place long enough to fairly determine their effectiveness, the Corps recommends that these areas be examined during the project study. The study should determine if they are improving the safety or traffic flow and if these improvements have adequately addressed the purpose and need for the project or if additional work along the US 113 area needs to be done.

Response:

The second paragraph of the Background section discusses that almost all of the spot improvements will have been in place for a full year during this summer. The State Highway Administration agrees to study these improvements after they have been in place for a year and will include a discussion of their effectiveness in the draft environmental document. However, the accident data used to generate the reports and statistics used in the analysis will not be available until the fall due, to the time necessary for the transfer of the accident reports from the responding state troopers and the compilation of the information.

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, U.S. ARMY CORPS OF ENGINEERS
P.O. BOX 1715
BALTIMORE, MD 21203-1715

REPLY TO
ATTENTION OF

PROJECT DEVELOPMENT DIVISION

JUL 11 11 17 AM '96

July 9, 1996

Operations Division

Subject: CENAB-OP-RX(MD SHA/U.S. 113: MD 394 TO DELAWARE STATE LINE) 96-00132-9

Mr. Louis H. Ege, Jr.
Office of Planning and Preliminary Engineering
Maryland State Highway Administration
707 North Calvert Street
Baltimore, Maryland 21203

Dear Mr. Ege:

I am replying to your subject letter dated June 17, 1996, requesting our concurrence on the revised purpose and need statement for the U.S. 113 project planning study, from MD 394 to the Delaware State Line. The study area is located in Worcester County, Maryland.

For Department of the Army purposes, we concur with the purpose and need statement as revised to read as follows.

"The purpose of this study is to improve safety and to improve traffic flow along U.S. 113 from MD 394 to the Delaware State line. Need for the project is demonstrated by the number of fatal accidents (significantly above the statewide average) in the northern area. In the summer months, the Level of Service for the northern area is currently rated D and is expected to be F by 2020. In addition, County Residents Action for Safer Highways (CRASH), a local citizens group, has requested investigation and improvement of safety within the study area due to the high fatal accident rate."

These changes are requested so as to eliminate the reference to dualization of the roadway which limits a proper alternatives analysis.

If you have any questions regarding this correspondence, please call Ms. Michele Gomez at (410) 962-4343.

Sincerely,

for Keith A. Harris
Chief, Special Projects
Permits Section

cc: Renee Sigel, FHWA
Mary Ann Boyer, EPA
Bill Schultz, FWS

Fill in concurrence/comment point here - Purpose and Need, etc.

Please check one:

____ Concur (without comments)

X Concur (comments attached) - Corps letter dated 7/9/96

____ Do not concur (comments attached)

Vern H Hobbs
US Army Corps of Engineers

7-9-96
Date

LHE:PFM
cc: Mr. LeRoy Carrigan
Mr. Louis H. Ege Jr.
Ms. Gay Olsen
Ms. Cynthia Simpson
Ms. Renee Sigel
Mr. Alan Straus
Ms. Lorraine Strow

PROJECT
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DIVISION
DEC 18 11 44 AM '95

Parris N. Glendening
Governor

John
Se

Ronald
Deput

Maryland Department of Natural Resources
Environmental Review
Tawes State Office Building
Annapolis, Maryland 21401

December 11, 1995

Mr. Joseph R. Kresslein
Assistant Division Chief
Project Planning Division
State Highway Administration
707 North Calvert Street
Baltimore, Maryland 21202

Dear Mr. Kresslein:

Thank you for providing our Department an opportunity to review and comment on the US 113, Snow Hill to the Delaware State Line, Purpose and Need Study. After reviewing the submitta we offer the following comments for your consideration :

1. Extensive wetlands exist along the US 113 corridor. Any impacts to these area should be avoided. If it is impossible to avoid impacts to wetland areas mitigatio should be performed in the immediate area.

2. Previous correspondence to your office (dated July 6, 1989, January 17, 1990 an May 9, 1995) have provided you with information on residence fish species construction closures, and other fisheries data.

3. The Forest Service of the Department of Natural Resources submitted the followin comment:

   The Maryland Reforestation Law, Natural Resources Article, Section 5-103, becam law on January 1, 1988. All highway construction projects by a government or by an other person using state funding are subject to the law when construction activitie will clear one acre or more of the forest land.

Telephone: (410) 974-2788
DNR TTY for the Deaf: (410) 974-3683

Before cutting or clearing of any forest land, the constructing agency must submit a request for review to the appropriate Regional Forest Service office while the highway project is in its initial design stage. On the Eastern Shore of Maryland please contact Katie Kause at (410) 543-6745. The request must include the site plan illustrating project location, existing forest land locations/limits, proposed cutting areas and impacted acreage for each disturbed area, and proposed reforestation/afforestation area (location and acreage). The request also needs to include a "Reforestation Site Review" form (enclosed) with the top section completed. Additionally, for all SHA roadway construction projects, project engineers need to contact Joe Vervier of the SHA Landscape Operations Division. He can be reached at (410) 333-8260. He will coordinate reforestation requirements for all SHA projects per/DNR/SHA Memorandum of Understanding.

Should you have any questions please contact Larry Hughes of my at (410) 974-2788.

Sincerely,

Ray C. Dintaman, Jr.

Ray C. Dintaman, Jr., Director
Environmental Review Unit

RCD:LEH
Enclosure

MARYLAND *Office of Planning*

Parris N. Glendening
Governor

Ronald M. K
Director

PROJECT
DEVELOPMENT
DIVISION
DEC 11 10 13 AM '95

Dec. 7, 1995

Louis H. Ege, Jr.
Deputy Director
Office of Planning and Preliminary Engineering
State Highway Administration
707 North Calvert Street
Baltimore, MD 21203-0717

Dear Mr. Ege:

Staff at the Maryland Office of Planning have reviewed the information on the **Purpose and Need for the US 113 project from Snow Hill to the Delaware state line.** We understand the purpose of the project would be to address the high fatality accident rate in the northern segment and to provide highway system continuity. Our comments on the information provided follow.

The Land Use discussion should include reference to the Economic Growth Resource Protection and Planning Act of 1992 since it is required that state funded projects be reviewed for consistency with the Act.

In the elaboration of the Planning Act Visions, (Procedures for State Project Review publication) access control practices are encouraged in rural areas to direct growth to existing population centers. The Worcester County Comprehensive Plan has also recognized access control as a strategy to prevent unplanned strip commercial development and preserve highway capacity. The purpose and need statement recognizes the impacts of the project on agricultural land use and the natural environment. Those impacts can best be addressed by assuring that the alternatives studied for this project will help to direct growth to the existing population centers.

Public transportation services have been discussed in the section on Modal Interrelationships. It would be useful to know whether the fixed route service travels on US 113, the frequency of service and number of daily trips. This information would be more relevant to the project study.

In addressing safety concerns on US 113, it seems it would be important to know the results of the spot improvements that have been made recently before determining what additional safety improvements are needed.

301 West Preston Street • Baltimore, Maryland 21201-2365
Comprehensive Planning: (410) 225-4562 Fax: 225-4480

470

The Purpose and Need statement would be improved by the inclusion of maps to depict referenced information (ex. Jones and Showell) and diagrams to present LOS and ADT as is often found in SHA's NEPA documents. There were maps and diagrams like these in the draft purpose and need for this project.

We also note that references to Jones and Showell, as *villages* should be corrected to *cross-roads communities*. The County Land Use Plan attaches specific intent to these references and they should be used correctly in reference to the plan.

Please contact Christine Wells or me at (410) 225-4562 if there are questions on these comments.

Sincerely

James T. Noonan

cc: Christine Wells, OP
Tom Weiss, OP Regional

United States Department of the Interior

NATIONAL PARK SERVICE
Northeast Region
U. S. Custom House
200 Chestnut Street
Philadelphia, PA 19106

IN REPLY REFER TO:

L76 (MAR-MR)

JUN 27 1995

Maryland State Highway Administration
Regional and Intermodal Planning Division
P.O. Box 717
Baltimore, MD 21203-0717

Re: PDMS #232061
WO-668-101-170

Dear Sir:

Thank you for the opportunity to review the draft purpose and need statement for US 113. We hope the following comments are useful to you.

This document should explain why the road needs to be four lanes, who will benefit (i.e., long distance haulers, interstate travellers, community residents in what towns, etc.), and what the costs are (in tax dollars, noise, long-term maintenance, social economy, etc; it should also describe how local economics will benefit). The project seems to be justified now only because it is listed in the state and county plans and might improve safety.

Due to the projected impacts on resources, further analysis should also:

- include participation by the Lower Eastern Shore Preservation Center at Salisbury State University, the Lower Eastern Shore Heritage Committee and the Pocomoke River Alliance

- include the results of a survey in the corridor of historic resouces (especially landscapes), and drafts of incentives and regulations which the county could adopt to recognize the local value of historic landscapes and sites, natural areas, and agricultural lands

172

. identify a means to donate conservation easements and lands to a certified land trust

. establish a mechanism to fund a conservation group (e.g., the Pocomoke River Alliance, Worcester Environmental Trust, etc.) to identify and administer projects to restore riparian areas and habitat in the Pocomoke River watershed and the watersheds of the coastal bays.

If you have any questions, please contact Don Briggs, Planner, Northeast Region and Project Coordinator, Lower Eastern Shore Heritage Project at 215-597-1585.

Sincerely,

Patricia E. Bentley

Patricia E. Bentley
Environmental Compliance Review
Coordinator

MARYLAND HISTORICAL TRUST

Office of Preservation Services

PROJECT DEVELOPMENT DIVISION

DEC 1 10 35 AM '95

Parris N. Glendening, Gove
Patricia J. Payne, Secre

November 30, 1995

Mr. Joseph Kresslein, Assistant Division Chief
Project Planning Division
State Highway Administration
707 North Calvert Street, P.O. Box 717
Baltimore, Maryland 21203-0717

RE: Contract No. WO 720-101-170
US 113: MD 394 to the DE Line
Worcester County, Maryland

Dear Mr. Kresslein:

Thank you for your recent letter, dated 3 November 1995 and received by the Trust on 8 November 1995, which supplied a copy of the Purpose and Need Statement for the above-referenced project. The Purpose and Need provides a general overview of the project's background, existing conditions, and conclusions. As you know, this project was dropped from consideration in the past on the assumption that minor spot improvements could resolve the safety and congestion issues. Many spot improvements have been completed and others are planned; however, there have been no subsequent studies to examine the effectiveness of these actions. We believe that SHA should reevaluate the conditions and needs of the study area, in light of the improvements made to date, as part of any further planning for this project.

We understand that SHA is conducting field investigations to identify and evaluate cultural resources within the project's area of potential effects. We look forward to continued coordination with SHA to complete the project's Section 106 consultation. If you have questions or require additional information, please call Ms. Elizabeth Hannold (for structures) at (410) 514-7636 or me (for archeology) at (410) 514-7631. Thank you for your cooperation.

Sincerely,

Elizabeth J. Cole
Administrator
Archeological Services

EJC/EAH/9502900
cc: Ms. Mary Huie
Dr. Charlie Hall VI- 93
Ms. Cynthia Simpson
Ms. Rita Suffness

Division of Historical and Cultural Programs
100 Community Place • Crownsville, Maryland 21032 • (410) 514-7636

EQUAL HOUSING OPPORTUNITY

The Maryland Department of Housing and Community Development (DHCD) pledges to foster the letter and spirit of the law for achieving equal housing opportunity in Maryland.

PROJECT
DEVELOPMENT
DIVISION
FEB 13 PM '96

N. Glendening
Governor

John R. Griffin
Secretary

Ronald N. Youn
Deputy Secretary

Maryland Department of Natural Resources
Environmental Review
Tawes State Office Building
Annapolis, Maryland 21401

February 12, 1996

Mr. Joseph R. Kresslein
Assistant Division Chief
Project Planning Division
State Highway Administration
707 North Calvert Street
Baltimore, Maryland 21202

Dear Mr. Kresslein:

Thank you for providing our Department an opportunity to review and comment on the US 113, Snow Hill to the Delaware State Line, Purpose and Need Study. After reviewing the submittal we offer the following comments for your consideration :

1. The Heritage & Wildlife Administration of the Department of Natural Resources submitted the following information for your use:

Snow Hill USGS Quadrangle

	<u>Current Record</u>	
Symplocos tinctoria	Sweetleaf	Rare
	<u>Historical Records</u>	
Carex joorii	Cypress-swamp sedge	Threatened
Leptoloma Cognatum	Fall witchgrass	Endangered
Potamogeton pusillus	Slender pondweed	Endangered Extirpated

Telephone: (410) 974-2788
DNR TTY for the Deaf: (410) 974-3683

Utricularia inflata	Swollen bladerwort	Endangered
Atlides halesus	Great purple haristreak	Rare

Public Landing USGS Quadrangle

Current Records

Bidens discoidea	Swamp beggar-ticks	Rare
Centrosema virginianum	Spurred butterfly-pea	Rare
Galactia volubilis	Downy milk pea	Endangered
Lupinus perennis	Wild lupine	Threatened
Rhynchosia tomentosa	Hairy snoutbean	Endangered

Berlin USGS Quadrangle

Current Record

Alnus maritima	Seaside alder	Rare

Historical Records

Desmodium pauciflorum	Few-flowered tick-trefoil	Endangered
Fuirena pumila	Smooth fuirena	Endangered
Paspalum dissectum	Walter's paspalum	Endangered
Platanthera blephariglottis	White-fringed orchid	Threatened

Should you have any questions please contact Larry Hughes of my at (410) 974-2788.

Sincerely,

Ray C. Dintaman, Jr.

Ray C. Dintaman, Jr., Director
Environmental Review Unit

RCD:LEH

'76

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401

January 28, 1997

Mr. Louis H. Ege, Jr.
Office of Planning and Preliminary Engineering
Maryland State Highway Administration
707 North Calvert Street
Baltimore, MD 21202

Re: US 113, Snow Hill to DE Line

Dear Mr. Ege:

We have received your request for concurrence on the Alternatives Retained for Further Study, dated September 1996, for the proposed dualization of US 113, from Snow Hill to the Delaware State Line. We were informed by the U.S. Army Corps of Engineers (Corps) that State Highway Administration granted an extension until the jurisdictional determination of wetlands was completed. The field review of wetlands was completed on January 24, 1997, and we do concur with the alternatives, although we have concerns that are discussed below.

Wetlands along Route 113 provide high value habitats for fish, amphibians, reptiles, birds, and mammals. Fish and wildlife use this habitats for nesting, forage, and shelter. The forested wetlands are critical habitats for many species, including feeding and resting areas for songbirds during spring and fall migrations. Destruction of these habitats may cause a corresponding reduction in wildlife populations inhabiting these wetlands.

The function of wetlands in the project area benefit everyone in the community. In an area where pockets of urbanization are creating more impervious surface area and agricultural fields lack forested buffers, proper stormwater management becomes critical to streams. Wetlands can provide stormwater management by filtering nutrients, sediments, and contaminants from run-off for a safe and healthy water supply. Problems in-stream, which may be related to peak flow conditions, are already evident. Steep banks with entrenched stream beds indicate stress on the system and impaired conditions downstream. Existing stream crossings generally are not exacerbating the peak flow problem, though in some cases, downstream ends of culverts restrict passage of resident and anadromous fish. Future recommendations will include oversized structures for fish and wildlife passage and limiting use of right-of-way to 80 feet.

U.S. Fish and Wildlife Service (Service) biologists have participated in all the field reviews, and we have concern that the impacts to wetlands are considerably larger than initially delineated. The northern alignment (4N) will clearly impact more forested wetlands than the southern route

(3N). Although, considerable forested wetlands were also identified along the 3N alternative, the amount of impacts appear to be significantly smaller. Both alternatives will have indirect impacts to waters of the United States due to loss of wetlands and water quality, but 3N will have fewer impacts because of the existing road structure. The Service's recommendations are:

- Modify alternate 3N to reduce impacts to wetlands
- Reevaluate the amount of wetland impacts based on the Corps jurisdictional determination of wetlands
- Study Transportation Management System, taking into account recent safety improvements

We appreciate the opportunity to provide information relevant to fish and wildlife resources. If you have any questions on these comments, please contact David W. Sutherland at (410) 573-4535.

Sincerely,

John P. Wolflin
Supervisor
Chesapeake Bay Field Office

cc: COE, Baltimore, MD (Michele Gomez)
SHA, Baltimore, MD (Lorrine Strow)
FHA, Baltimore, MD (Mary Huie)
EPA, Philadelphia, PA (Danielle Algazi)
NMFS, Oxford, MD (John Nichols)
MDE, Baltimore, MD (Ray Dintiman)

Concurrence with Alternates Retained for Detailed Study

Please check one:

☐ Concur (without comments)

☑ Concur (comments attached)

☐ Do not concur (comments attached)

U.S. Department of Interior
Fish and Wildlife Service

2-4-97
Date

Attachment
cc: Mr. Lee Carrigan
Mr. Louis H. Ege, Jr.
Mr. Joseph Kresslein
Ms. Gay Olsen
Ms. Renee Sigel
Ms. Cynthia Simpson
Mr. Alan Straus
Ms. Lorraine Strow

Maryland Department of Transportation
State Highway Administration

David L. Win
Secretary
Parker F. Wi
Administrator

February 27, 1997

Mr. John P. Wolflin
Supervisor
Chesapeake Bay Field Office
U.S. Department of Interior
Fish and Wildlife Service
177 Admiral Coachrane Drive
Annapolis MD 21401

Dear Mr. Wolflin:

Thank you for your letter providing concurrence on Purpose and Need and Alternatives Retained for Detailed Study.

The following discussion summarizes your comments and explains what information we are developing to address your concerns:

Comment #1
The USFW has concerns regarding the amount of impacts to the forested wetlands under all Dualization alternatives. After the jurisdictional wetland field review, the impacts may be greater than initially assessed. Alternate 3N would cause less impacts to wetlands than Alternate 4N Modified.

Following the jurisdictional wetland determination, all wetlands were surveyed and plotted on our maps. Wetland acreages of impacts were recalculated and shown in the Preliminary Draft EIS, which was provided to you on February 19. We understand there may be slight change in these numbers based on the upcoming field review of agricultural ditches. That information will be provided to you as soon as it is available and will be addressed in the revised DEIS. Also when a selected alternate has been identified, detailed design activities will minimize impacts as much as possible. We will work closely with COE to avoid or minimize impacts to the extent possible.

Comment #2
Modify Alternate 3N to reduce wetland impacts

Since the Alternates Meeting Alternate 3N was modified in order to minimize environmental impacts. Additional wetland avoidance and minimization measures will be investigated and this information will be included in the Draft Environmental Impact Statement.

Comment #3
Study Transportation Management System (TSM) taking onto account recent safety improvements.

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Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

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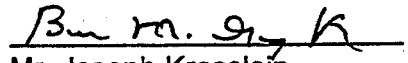
The traffic and accident analysis based on the TSM improvements will be included in the draft document. In addition to those spot improvements implemented and programmed, a full range of additional TSM improvements such as intersection improvements and adding turn-lanes and acceleration and deceleration lanes are being evaluated under the proposed TSM alternates (2N and 2S).

Installing jersey barrier along the median was not considered feasible since US 113 is a two-lane roadway with no control of access and numerous intersections and driveways. A jersey barrier may address to some extent the opposite direction collisions; however, it would severely restrict access for area residents, making it necessary for many to make U-turns at intersections. We feel this could result in an increase in other types of accidents.

Information addressing your comments will be included in the DEIS. We hope that this information addresses your concerns. Your response should be addressed to the attention of Ms. Gay Olsen in the Project Planning Division. Should you have any questions, please call Mr. Joseph Kresslein at (410) 545-8550.

Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

By: 
Mr. Joseph Kresslein
Assistant Division Chief
Project Planning Division

cc: Mr. Roy Denmark (EPA) (w/incoming)
Mr. Ray Dintaman (DNR) "
Mr. Elder Ghigiarelli (MDE) "
Mr. Timothy E. Goodger (NMFS) "
Mr. Keith Harris (COE) "
Mr. J. Rodney Little (MHT) "
Mr. James T. Noonan (MOP) "
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Ms. Cynthia Simpson "
Mr. Robert Small "
Ms. Lorraine Strow "
Ms. Cynthia Wilkerson (NPS) "
Mr. Jim Wynn "
Mr. John Zanetti "
Ms. Lisa Simmer (RK&K) "
Mr. Robert Zepp (USFWS) "

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107-4431

January 31, 1997

Mr. Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering
P.O. Box 717
Baltimore, MD 21203-0717

RE: US 113 from MD 394 to the Delaware State Line, Worcester County, MD: Alternatives Retained for Detailed Study.

Dear Mr. Ege:

The Environmental Protection Agency is responding to your request for our concurrence on the description of the Alternates Retained for Detailed Study for the above referenced project. We apologize for the delay in responding.

As currently presented in the study, we do not concur. The range of alternatives that are being considered need to be expanded. We are interested in working with you to move forward on this project through the NEPA/404 process. Given prior experience we believe that some of our comments are based on reoccurring themes in response to your documents. This practice only works to delay the process because of the need of your agency to respond to comments through back and forth letter writing until concurrence has been obtained. Thus, we would like to see an entire revised document to review so that we can concur without further complication and to ensure the incorporation of our comments. Since reviews are based on coordination with other agencies, the document should contain responses to all agency comments so that agencies can promptly determine the results of the comment period and expedite the review.

Our detailed comments on U.S. 113 Alternates Retained are found below:

- It is not clear from the alternates package whether the consideration of the northern section as a separate alternative would be analyzed to fulfill the purpose and need of the project, whether the dualization occurs on either the existing alignment or on a new alignment. Considering the location of the northern section versus the southern end, it seems that the northern end would have greater need for upgrading, since the logical destination for the majority of the travelers would be in the Ocean City area. It is also the area with the most potential for growth. The environmental document should examine these factors and consider the northern section alone to be dualized along with the combination of spot improvements and/or Transportation Systems Management (TSM) possibilities for the southern section to fulfill the purpose and need of the project.

- We would strongly recommend providing additional alternatives that include a combination of TSM and alignments throughout the whole length of the project

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study area.

- The reasoning behind dropping Alternates 4N, from just north of MD 90 to just north south of Showell on the west and the east side in the Showell area from consideration as described on page 3 of the package was not significant enough to warrant elimination. These alternatives should be brought forward in the environmental document and determination of their possibility of fulfilling the purpose in need should be presented at that stage of the process. This would allow for further examination of these alternatives along with the other alternatives and give process its due, in accordance with NEPA.

- As we have stated previously in our comments to the Purpose and Need Statement, we believe that previous spot improvements should be closely examined. Accident data that may show a correlation between the improvements and a reduction in accident numbers should be addressed in the environmental document. This study is crucial in the determination of future improvements to U.S. 113.

Thank you for the opportunity to comment. If you have any questions, please contact Danielle Algazi. She can be reached by phone at (215) 566-2722, by facsimile at (215) 566-2782 or by E-Mail at ALGAZI.DANIELLE@EPAMAIL.EPA.GOV.

Sincerely,

Richard V. Pepino
Chief, Environmental Protection Branch

cc: Michele Gomez, COE
William Schultz, FWS
Mary Huie, FHA
John Nichols, NMFS
Elder Ghigiarelli, MDE
Ray Dintaman, Md DNR

Maryland Department of Transportation
State Highway Administration

David L. Win
Secretary

Parker F. Will
Administrator

February 24, 1997

RE: Contract No. WO 720B11
US 113 from Snow Hill to
the Delaware State Line

Mr. Richard V. Pepino
Chief, Environmental Protection Branch
U S Environmental Protection Agency
Region III
841 Chestnut Building
Philadelphia PA 19107-4431

Dear Mr. Pepino:

Thank you for your letter providing comments on the Alternates Retained for Detailed Study for US 113 improvements from Snow Hill to the Delaware State Line.

We appreciate your cooperation in offering to work with us to expedite the review process and to move this project forward through the NEPA/404 process. We agree with you that responding to your comments by letter until concurrence is obtained could delay the process. We met with Ms. Danielle Algazi on February 13 to discuss the project and address most of your concerns, and subsequently provided her with the preliminary version of the Draft Environmental Impact Statement at the interagency review meeting on February 19. This document contains a revised discussion of Alternates Retained for Detailed Study.

Your comments on the Alternates Retained for Detailed Study are summarized below with our response following:

Comment #1.
Will alternates for the southern and the northern sections be evaluated separately? The northern section of US 113 carries more traffic and is the area with greater potential for growth. Consider spot improvements/or Transportation System Management (TSM) for the southern section.

It is true that traffic volumes are much higher in the northern section and will result in future traffic congestion and declining levels of service. However, the more immediate need in the project area is to improve safety conditions throughout the entire route. Head-on collisions and fatalities are a concern in both the northern and southern sections. Although we will investigate the feasibility of a full range of TSM improvements, we believe that neither the currently programmed spot improvements, nor the TSM alternates will adequately address the

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safety problem. US 113 north of the Delaware State Line as well as south of Snow Hill and through the Berlin area is a four-lane divided highway. This being the major north-south route in Worcester County, we believe that dualizing the roadway would be the most effective way to reduce the high percentage of opposite direction collisions throughout both study sections of US 113. Two of the three most recent fatal accidents occurred in the southern study area and involved vehicle collisions with oncomming traffic.

Comment #2
EPA recommends providing additional alternatives, including a combination of TSM and alignments for the entire study length.

In the northern area we have included an additional alternate which combines portions of both Alternate 3N and 4N Modified in an effort to find a solution that minimizes environmental impacts to the extent possible. The TSM alternate will be evaluated as a "stand-alone" improvement individually in both the northern and southern study areas. In addition, the option of combining the TSM with the dualization alternates and staging improvements will also be investigated.

Comment#3
The reasoning behind dropping portions of Alternate 4 was not significant. These alternatives should be further discussed in the environmental document.

Based on a preliminary assessment of costs using a base cost of $4.8 million per mile, Alternates 4N and 4N Option A are approximately equal in cost from MD 90 to south of Showell. The Alternate 4N alignment would be approximately 400 feet longer than Alternate 4N Modified resulting in an additional cost of $0.3 million. Cost however, was not the only basis for eliminating this segment of the 4N alternate. The Alternate 4N alignment west of the existing roadway from MD 90 to South of Showell has greater impacts both to woodlands and farmland than Alternate 4N Modified which was retained. Alternate 4N would have required taking approximately 2.4 acres more woodlands and 5.5 acres more farmland than Alternate 4N Modified and provides no offsetting benefits over Alternative 4N Modified.

The 4N Modified alignment just north of MD 90 is located closer to the existing US 113 alignment, thereby avoiding the need to bisect large properties. The 4N alignment splits four properties between MD 90 to south of Showell, whereas Alternate 4N Modified affects only the edges of properties adjacent to the roadway, thereby not splitting any properties. One of the properties that would be bisected by Alternative 4N is the Rancho Fiesta Equestrian Farm. These impacts would render the entire farm inoperable. Under Alternate 4N, SHA would own property on the east and west of US 113 which could not be used in conjunction with any highway improvements.

Comment #4
Spot improvements should be closely examined. Show a correlation between spot improvements and a reduction in accidents in the environmental document.

A more detailed list of spot improvements included under the No-Build Alternate and TSM improvements proposed with Alternate 2 are included in the preliminary Draft Environmental Impact Statement as well as an accident analysis based on spot improvements.

We hope that this information addresses your concerns and are again requesting your concurrence with the Alternatives Retained for Detailed Study. Your response should be addressed to the attention of Ms. Gay Olsen in the Project Planning Division. Should you have any questions, please call Mr. Joseph Kresslein at (410) 545-8550.

Very truly yours

Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

by: Joseph R. Kresslein

Joseph R. Kresslein
Assistant Division Chief
Project Planning Division

cc:
Mr. Roy Denmark (EPA) (w/incoming & attachment)
Mr. Ray Dintaman (DNR) "
Mr. Elder Ghigiarelli (MDE) "
Mr. Timothy E. Goodger (NMFS) "
Mr. Keith Harris (COE) "
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Mr. Jim Wynn "
Mr. John Zanetti "
Ms. Lisa Zeimer (RK&K) "
Mr. Robert Zepp (USFWS) "
Mr. David Wallace (RK&K)

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107-4431

March 31, 1997

Mr. Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering
P.O. Box 717
Baltimore, MD 21203-0717

RE: US 113 from MD 394 to the Delaware State Line, Worcester County, MD: Pre-Draft EIS, February 19, 1997.

Dear Mr. Ege:

The Environmental Protection Agency (EPA) has reviewed the above referenced document. Our comments are being provided to aid in the development of the Draft Environmental Impact Statement (DEIS).

Based on our review, we clearly recognize the significant number of fatalities occurring on U.S. 113. The northern section is well above the statewide average for fatalities and it is equally clear that there is an immediate need to provide safety measures to improve the conditions of the road. In fact, EPA has made this project our top priority Maryland transportation project so that we can give it the full attention that is required to expedite the project.

Our main concern regarding the Pre-Draft EIS was the range of alternatives and potential environmental impacts associated with the existing alternatives. The Pre-Draft EIS did not provide all reasonable and feasible alternatives that could satisfy the purpose and need of the project, while minimizing impacts to the environment. After the meetings and field visits with SHA, EPA and other Federal, state and local resource agencies on March 19, 25, 27 and 28, EPA believes that sufficient progress has been made to bring forward alternatives to be retained for detailed study. Based on the facsimile that we received on March 27, 1997 describing Alternative 2S, EPA concurs on the Alternates Retained For Detailed Study with the following provisions:

-Each build alternative should include the following statement, "shifts would occur so as to avoid/minimize displacements and sensitive environmental features (streams and wetlands)," as stated in the description of Alternative 2S.

- Alternatives 4N and 3N/4N combination should include provisions to avoid

impacts to wetlands during the alignment configuration phases of the project.

-Each alternative should provide detailed information to support findings of improved safety conditions and the correlation between the improvements on the road and predicted increased safety.

EPA also has concerns about the environmental impacts that were not addressed in the Pre-DEIS. This project has the potential to impact both Maryland's Coastal Bay and the Pocomoke River/Chesapeake Bay watershed. There are approximately 20 stream and tributary crossings for the proposed US 113 build alternatives. The wetlands connected with these crossings provide valued watershed functions that are not easily replicated. One of these wetlands is dominated by bald cypress, which is a relatively unique resource in Maryland and associated with the Pocomoke watershed system. The extent of value of these systems and the attempt to avoid, minimize, rectify, reduce and compensate for these impacts were not adequately documented. The indirect impacts of the potential growth associated with U.S. 113 and the Worcester County Comprehensive Plan and the potential to impact environmental resources and the future land use of the County were not evaluated in the document. Finally, incremental impacts of the proposed action on these watersheds, when added to other past, present and reasonably foreseeable future actions have not been addressed in the document. This cumulative impact assessment should provide a historical perspective of land use in the watershed area. This information could be obtained by coordinating closely with Maryland's Office of Planning and Worcester County Planning Office.

Our detailed comments are enclosed. We are looking forward to reviewing the Draft EIS document. Thank you for the opportunity to comment early in the process. If you have any questions, please contact Danielle Algazi. She can be reached by phone at (215) 566-2722, by facsimile at (215) 566-2782 or by E-Mail at ALGAZI.DANIELLE@EPAMAIL.EPA.GOV.

Sincerely,

Richard V. Pepino
Chief, Environmental Protection Branch

Enclosure

cc: Michele Gomez, COE
David Sutherland, FWS
Mary Huie, FHA
John Nichols, NMFS
Elder Ghigiarelli, MDE
Larry Hughes, DNR
Phil Hager, Worcester County Planning
Ray Dintaman, DNR
Christine Wells, MOP
Al Kampmeyer, MDE Salisbury

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, U.S. ARMY CORPS OF ENGINEERS
P.O. BOX 1715
BALTIMORE, MD 21203-1715

PROJECT DEVELOPMENT DIVISION

REPLY TO ATTENTION OF

Jan 23 8 01 AM '97

Operations Division

Subject: CENAB-OP-RX(MD SHA/US 113: MD 394 TO DELAWARE STATE LINE) 96-00132-9

Mr. Louis H. Ege, Jr.
Office of Planning and Preliminary Engineering
Maryland State Highway Administration
707 North Calvert Street
Baltimore, Maryland 21202

Dear Mr. Ege:

I am replying to your subject letter dated October 11, 1996, requesting our concurrence on the Alternatives Retained for Further Study for the US 113 Study located in Worcester County, Maryland. Ms. Cynthia Simpson of your office granted the Corps an extension of time on providing our response until after the jurisdictional determination has been completed for this study.

The Corps has concerns regarding the amount of environmental impact which will occur with Alternate 4N Modified. The amount of wetlands to be altered with this alternate was estimated at 28.5 acres. During the jurisdictional determination, more wetlands than was originally mapped by the SHA were found along this alternate. While the Corps and the U.S. Fish and Wildlife Service assisted the SHA in correcting the wetland lines in some of these areas, there is still a fair amount of wetlands which have not been delineated. Therefore, it can be assumed that the 28.5 acres of potential impact will increase.

Alternate 3N will also have a large number of environmental impacts associated with it, mainly residential and commercial displacements. The wetland impacts associated with this alternate may also increase from the estimated 10.3 acres as a result of the jurisdictional determination.

The archaeological and historic issues which need to be addressed through Section 106, also have not been adequately identified, as per the November 15, 1996 letter from Maryland Historical Trust. These issues need to be addressed before we can determine which alternates will have the least environmental impact.

Because of the great amount of environmental impacts associated with both the 3N and 4N Modified alternates, we recommend that the SHA investigate various combinations of these two alternates which satisfy the project purpose and reduce the

amount of overall environmental impacts, including impacts to waters of the United States, including jurisdictional wetlands.

The Corps also recommends that Transportation Systems Management (TSM) be studied which take into account the safety and traffic improvements which were previously implemented by the SHA, as well as investigate other safety improvements which will address the purpose and need of the US 113 Study. Other TSM alternates which could be studied would include turning lanes, acceleration/deceleration lanes, medians with jersey barrier dividers, intersection improvements, and rumble strips along shoulders and at major intersections.

If you have any questions regarding this correspondence, please call Michele Gomez at (410) 962-4343.

Sincerely,

Keith A. Harris
Chief, Special Projects
Permits Section

cc: FHWA
USFWS
EPA
NMFS
MDE-Salisbury
DNR-ERU

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Maryland Department of Transportation
State Highway Administration

David L. Winstead
Secretary
Parker F. Williams
Administrator

February 25, 1997

RE: Contract No. WO 720B11
US 113 from Snow Hill
to the Delaware State Line

Mr. Keith Harris
Chief, Special Projects
Permits Section
US Army Corps of Engineers
Baltimore District
P.O. Box 1715
Baltimore MD 21203-1715

Dear Mr. Harris:

Thank you for your letter providing comments on the Alternatives Retained for Detailed Study for the US 113 project from Snow Hill to the Delaware State Line.

The following discussion summarizes your comments and explains what information we are developing to address your concerns:

Comment #1
The COE has concerns regarding the amount of wetland impacts, since more wetlands were identified as a result of the jurisdictional determination.

Following the jurisdictional wetland determination, all wetlands were surveyed and plotted on our maps. Wetland impact acreage was recalculated and shown in the preliminary Draft EIS, which was provided to Ms. Michelle Gomez on February 19. We understand that there may be slight changes in these figures based on the results of upcoming field review of agricultural ditches. That information will be provided to you as soon as it is available and will be addressed in the revised DEIS. Also when a selected alternate has been identified detail design activities will minimize impacts as much as possible. We will work closely with COE to avoid or minimize impacts to the extent possible.

Comment #2
Alternate 3N has a large number of relocations as well as a large amount of wetland impacts. Wetland impacts may have increased after the Jurisdictional determination.

It is true Alternate 3N has a large number of displacements (24 residential/ 6 commercial) since it follows the existing alignment. It would also result in approximately 8 acres of wetland impacts.

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Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Comment #3
Archeological and historical issues need to be addressed.

Identification and evaluation of historic standing structures and archeological resources in the study area have been completed. Coordination with Maryland Historical Trust (MHT) is underway. Seven structures identified in the study area were either listed on or are eligible for the National Register of Historical Places. The preliminary DEIS includes more detailed information regarding both historic standing structures and archeological resources. The final version of the DEIS will reflect the results of the MHT coordination.

Comment #4
Investigate combinations of alignments in order to reduce environmental impacts.

We have included a combination alternate which uses portions of Alternate 3N and 4N Modified for the northern section. For the southern section, the No-Build, TSM (2S), and Dualization along the existing alignment (3S) are under consideration. Combinations of the various southern alternates with northern alternates are also available as mentioned in the preliminary DEIS.

Comment #5
The results of the TSM and spot improvements currently being implemented need to be considered and TSM improvements which address the project purpose and need should be studied. Consider additional TSM improvements such as acceleration/deceleration lanes, median jersey barrier, rumble strips, and intersection improvements.

The traffic and accident analysis based on the TSM improvements will be included in the draft document. In addition to those spot improvements implemented and programmed, a full range of additional TSM improvements such as intersection improvements and adding turn-lanes and acceleration and deceleration lanes are being evaluated under the proposed TSM alternates (2N and 2S).

Installing jersey barrier along the median was not considered feasible since US 113 is a two-lane roadway with no control of access and numerous intersections and driveways. A jersey barrier may address to some extent the opposite direction collisions; however, it would severely restrict access for area residents, making it necessary for many to make U-turns at intersections. We feel this could result in an increase in other types of accidents.

Information addressing your comments will be included in the DEIS. We hope that this information addresses your concerns and are again requesting your concurrence with the Alternatives Retained for Detailed Study. Your response should be addressed to the attention of Ms. Gay Olsen in the Project Planning Division. Should you have any questions, please call Mr. Joseph Kresslein at (410) 545-8550.

'92

Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

By: _____

Mr. Joseph Kresslein,
Assistant Division Chief
Project Planning Division

cc: Mr. Roy Denmark (EPA) (w/incoming & attachment)
Mr. Ray Dintaman (DNR) "
Mr. Elder Ghigiarelli (MDE) "
Mr. Timothy E. Goodger (NMFS) "
Mr. Keith Harris (COE) "
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Mr. Robert Zepp (USFWS) "

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, U.S. ARMY CORPS OF ENGINEERS
P.O. BOX 1715
BALTIMORE, MD 21203-1715

REPLY TO
ATTENTION OF

APR 11 1997

Operations Division

Subject: US 113 CORRIDOR STUDY FROM MD 394 TO THE DELAWARE STATE LINE

Mr. Louis H. Ege, Jr.
Maryland State Highway Administration
707 North Calvert Street
Baltimore, Maryland 21202

Dear Mr. Ege:

I am replying to your request for concurrence on the Alternates Retained for Further Study for the US 113 Study located in Worcester County, Maryland.

As discussed in the March 26, 1997 conference call with your agency and Federal Highway Administration and the facsimiles sent subsequent to that call, it is our understanding that the following alternates will be retained.

1. Alternates 1S and 1N-No Build

2. Alternates 2S and 2N-Basic Transportation Systems Management

3. Alternates 2S

* Two lane highway along existing alignment with 20 foot median, median barrier, passing lanes, and 60 mph design speed

4. Alternates 3S and 3N

* Four lane dualized highway along existing alignment with 2(foot median, median barrier; 3N will have a 50 mph and 60 mp design speed, 3S will have a 60 mph design speed

* Four lane dualized highway along existing alignment with 3 foot median

5. Alternate 4N modified

* Four lane dualized highway on new alignment with 20 foc median

* Four lane dualized highway on new alignment with 34 foc median

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6. Alternate 3N/4N combination

* Four lane dualized highway on existing alignment with partial new location; 20 foot median

* Four lane dualized highway on existing alignment with partial new location; 34 foot median

The Corps concurs with these Alternates Retained for Further Study provided that the road alignment, for all alternates, will be shifted to avoid or minimize impacts to waters of the US, including jurisdictional wetlands, displacements of residences or businesses and conservation of prime agricultural lands.

If you have any questions concerning this correspondence, please call Ms. Michele Gomez at (410) 962-4343

Sincerely,

for Keith A. Harris
Chief, Special Projects
Permits Section

cc: Danielle Algazi, EPA
Renee Siegel, FHWA
John Nichols, NMFS
David Sutherland, FWS
Beth Cole, MHT
Al Kampmeyer, MDE (Salisbury)
Larry Hughes, DNR

Parris N. Glendening
Governor

John R
Secr

Carolyn
Deputy

Maryland Department of Natural Resources
Environmental Review
Tawes State Office Building
Annapolis, Maryland 21401

PROJECT DEVELOPMENT DIV
NOV 23 11 33 AM '96

November 21, 1996

FYI

Louis H. Ege, Jr.
Deputy Director
Office of Planning and Preliminary Engineering
Maryland Department of Transportation
State Highway Administration
P.O. Box 717
Baltimore, Maryland 21203-0717
(Attn: Ms. Gay Olsen)

RE: Project No. WO 720B11; US 113 from MD 394 to the Delaware State Line; Worcester County, MD

Dear Mr. Ege:

Thank you for the opportunity to review the Alternatives Retained for Detailed Study for the US 113 Study. Please find attached the Department of Natural Resources' signed concurrence sheet. If you should have any additional questions concerning the Departments concurrence with the subject alternatives, please call me at 410-974-2788.

Sincerely,

Ray C. Dintaman, Jr.

Ray C. Dintaman, Jr., Director
Environmental Review Unit

RCD

Telephone: (410) 974-2788
DNR TTY for the Deaf: (410) 974-3683

96

Concurrence with Alternates Retained for Detailed Study:

Please check one:

☑ Concur (without comments)

☐ Concur (comments attached)

☐ Do not concur (comments attached)

R. C. Dintaman Jr. — 11-21-96

Maryland Dept. of Natural Resources — Date

Attachment

cc: Mr. Lee Carrigan
Mr. Louis H. Ege, Jr.
Mr. Joseph Kresslein
Ms. Gay Olsen
Ms. Renee Sigel
Ms. Cynthia Simpson
Mr. Alan Straus
Ms. Lorraine Strow

MARYLAND *Office of Planning*

Parris N. Glendening
Governor

Ronald M. Kr
Director

November 20, 1996

Mr. Louis H. Ege, Jr.
Deputy Director
Office of Planning & Preliminary Engineering
Maryland State Highway Administration
P.O. Box 717
Baltimore, MD 21203-0717

Attention: Ms. Gay Olsen

Dear Mr. Ege:

Staff at the Maryland Office of Planning have reviewed the information provided in the description of Alternates Retained for Detailed Study for the US 113 Study. Our comments on the adequacy of the information are provided herein. We have also included our comments regarding consistency of the alternates with the Economic Growth Resource Protection and Planning Act. However, we must clarify that it is the responsibility of MDOT to make "the determination of consistency" as required in Executive Order 01.01.1992.27.

Adequacy of Information:
There is additional information requested which will help us to evaluate the recommended alternates for the US 113 Project:

Access control policies. There is no discussion on the access control policies intended to be included as part of the TSM strategy.

It is not clear from the information provided if the TSM improvements would provide satisfactory results for improving safety and reducing traffic congestion. Clarification on what the TSM improvements would accomplish should be provided.

Information on the completed and ongoing spot improvements for US 113 within the study area should be provided. (e.g., project locations, safety issues addressed, deficiencies corrected, expected improvement results, etc.). Since there are two systems preservation projects for US 113 in the draft 1997 CTP, we would like to understand if they will address some of the identified safety issues. There are projects for resurfacing US 113 and adding left turn lanes and acceleration /deceleration lanes identified in the CTP. If they are considered to be part of the No-Build Alternate, then are we correct in understanding that they will not provide "any significant improvements" to capacity or reduce the accident rate?

If cost is the basis for dropping a portion of Alternate 4N, then the estimated costs of each of the alternates should be provided to allow for a comparison.

The following comments relate to the consistency of the recommended alternates with the Maryland Economic Growth, Resource Protection and Planning Act of 1992.

301 West Preston Street • Baltimore, Maryland 21201-2365
Comprehensive Planning: (410) 225-4562 Fax: 225-4480

498

TSM Alternates The SHA's effort to improve system management on US 113 particularly for safety improvements, are consistent with the Visions of the Planning Act and state policies to maximize the use of existing transportation facilities. To be consistent with Worcester County's 1989 Comprehensive Plan policy, to preserve capacity on US 113, access management strategies should be included in the TSM alternate. The 1992 Worcester County Zoning and Subdivision Control Article requires access management on the County's arterials and collectors. The Article also provides access point design standards.

Alternate 3N and 4N Modified These alternates would widen the existing US 113 to a four-lane divided highway. This portion of US 113 north of Berlin is within the County's planned development area. These alternates would significantly improve roadway safety and would facilitate development in the area. To be consistent with County policy, the alternates must be designed to prevent strip commercial development and minimize driveway access points. The 1989 County Comprehensive Development Plan addressed strategies to limit commercial development to selected areas along US 113 to preserve its capacity.

Alternate 4N would impact fewer residential and commercial properties but has greater adverse impact on agriculture and natural resources. Information on estimated costs for these Alternates would assist in our evaluation.

Alternate 3S This alternate would widen existing US 113 to a four-lane divided highway in order to significantly improve the safety conditions. Based on information provided in the Purpose and Need Statement, traffic has not been the major problem for this portion of US 113, nor would it be for the next two decades. This alternate would have significant agricultural and environmental impacts and growth management implications since this portion of US 113 runs through the County's primary agricultural and conservation areas. To minimize the adverse impacts this widening and upgrade might have on agricultural lands and growth management, and to be consistent with County policy access management/control need to be included in the project. Increasing roadway capacity in agriculture areas without access control/management can encourage sprawl. The Planning Act Visions encourage access control practices in rural areas to direct growth to suitable areas.

Please contact Christine Wells or me at (410) 767-4562 if there are questions on the above comments.

Sincerely,

James T. Noonan

cc: Christine Wells, OP
Tom Weiss, OP Regional

Maryland Department of Transportation
State Highway Administration

David L. Wi
Secretary

Parker F. Wi
Administrator

February 20, 1997

Re: Project No. WO720B11
US 113 from Snow Hill to the
Delaware State Line
Worcester County, Maryland

Mr. James T. Noonan
Maryland Office of Planning
301 West Preston Street
Baltimore MD 21201-2365

Dear Mr. Noonan,

Thank you for your review and comment on the Alternatives Retained for Detailed Study for the proposed dualization of US 113 from Snow Hill to the Delaware State Line in Worcester County.

The following discussion summarizes the comments in your November 25, 1996 letter and we have developed information in response which we feel addresses your concerns.

Comment #1: There is no discussion of access control policies included as part of the TSM strategy.

Access to existing properties must be maintained, however future policy along the corridor will focus on minimizing the number of entrances where applicable. This policy of minimizing any future driveway access points will be implemented with any of the build alternatives.

Numerous access points can be eliminated under Alternative 4N Modified since portions of this alignment will be on new location. Sections of the existing roadway that will no longer be utilized as mainline US 113 will be designed as service roads, thereby minimizing the number of access points on mainline US 113. Alternatives 3S and 3N propose dualizing the existing alignment, therefore decreasing the number of access points will be more challenging for this alternative. Under the TSM Alternative, only spot safety improvements are proposed, however the feasibility of consolidating existing entrances will be investigated.

My telephone number is (410) 545-8500

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

500

Comment #2: It is not clear whether TSM improvements would provide satisfactory results for improving safety and reducing traffic congestion.

The enclosed table highlights the TSM improvements which are programmed to be implemented with the No-Build Alternative and those improvements that will be included under Alternative 2. The currently programmed improvements will provide some interim safety measures. During the development of the alternatives retained for detailed study, we will investigate which TSM measures will provide optimum improvements in the corridor and will evaluate their effectiveness in meeting the full range of project needs. It should also be noted that many of the improvements included in Alternative 2 could also be included along with the design of the other alternatives.

Comment #3: If cost is used as a basis for dropping a portion of Alternative 4N, then estimated costs of each alternative should be provided for comparison.

Based on a preliminary assessment of costs using a base cost of $4.8 million per mile, Alternatives 4N and 4N Option A are approximately equal in cost from MD 90 to south of Showell. The Alternative 4N alignment would be approximately 400 feet longer than Alternative 4N Modified resulting in an additional cost of approximately $0.3 million over that alternative. Cost however, was not the singular basis for eliminating this segment of the 4N alternative.

The Alternative 4N alignment west of the existing roadway from MD 90 to South of Showell has greater impacts both to woodlands and farmland then Alternative 4N Modified which was retained. Alternative 4N would have required taking approximately 2.4 acres more woodlands and 5.5 acres more farmland than Alternative 4N Modified and provides no offsetting benefits over Alternative 4N Modified.

The 4N alignment splits four properties between MD 90 to south of Showell whereas 4N Modified is located closer to the existing alignment only affecting the edges of properties adjacent to the roadway and not splitting any properties. One of the properties that would be bisected by Alternative 4N is the Rancho Fiesta Equestrian Farm. These impacts to the farm would render the entire farm inoperable. Under Alternative 4N, SHA would have to purchase the entire property which extends east and west of US 113, which is far in excess of what is required for highway improvements.

Information addressing your comments will be included in the Draft Environmental Impact Statement (DEIS). We hope that this information addresses your concerns. We also requesting your evaluation of the Alternates Retained for Detailed Study for consistency with the *Maryland Economic Growth Resource Protection and Planning Act of 1992*. Should you have any questions, please call Mr. Joseph Kresslein at (410) 545-8550.

Sincerely,

Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

by: Joseph R. Kresslein
Joseph R. Kresslein
Assistant Division Chief
Project Planning Division

LHE:CM
cc: Mr. Roy Denmark (EPA) (w/incoming & attachment)
Mr. Ray Dintaman (DNR) "
Mr. Elder Ghigiarelli (MDE) "
Mr. Timothy E. Goodger (NMFS) "
Mr. Keith Harris (COE) "
Mr. J. Rodney Little (MHT) "
Ms. Gay Olsen "
Ms. R. Suseela Rajan "
Ms. Renee Sigel (FHWA) "
Ms. Cynthia Simpson "
Mr. Robert Small "
Ms. Lorraine Strow "
Ms. Cynthia Wilkerson (NPS) "
Mr. Jim Wynn "
Mr. John Zanetti "
Ms. Lisa Zeimer (RK&K) "
Mr. Robert Zepp (USFWS) "

502

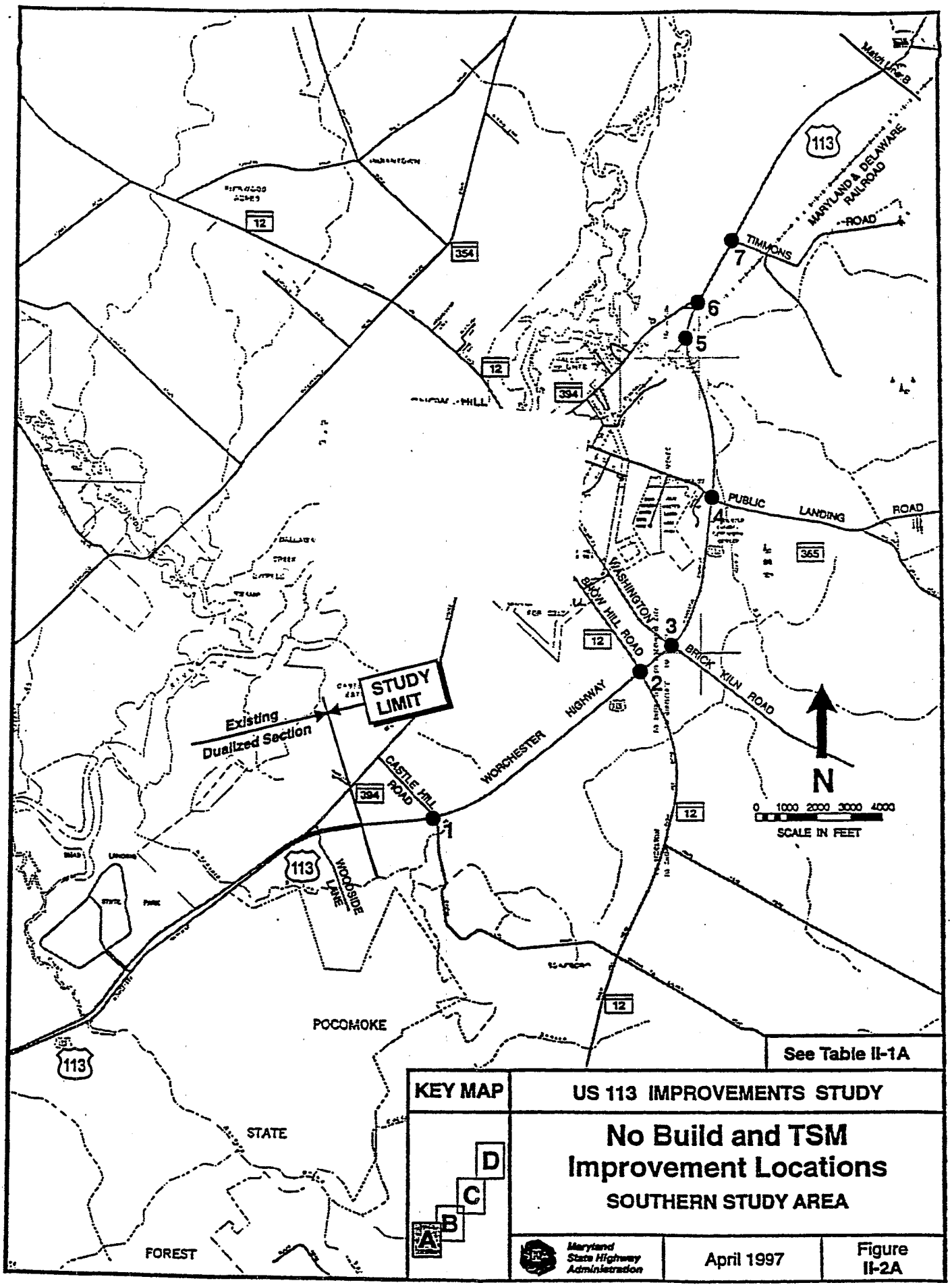
113
MARYLAND & DELAWARE RAILROAD
ROAD
TIMMONS
7
6
5
12
354
394
PUBLIC LANDING ROAD
4
365
WASHINGTON
BROWN HILL ROAD
3
BRICK KILN ROAD
2
STUDY LIMIT
Existing Dualized Section
WORCHESTER HIGHWAY
CASTLE HILL ROAD
1
WOODSIDE LANE
POCOMOKE
STATE
FOREST
N
0 1000 2000 3000 4000
SCALE IN FEET
See Table II-1A
KEY MAP
A
B
C
D
US 113 IMPROVEMENTS STUDY
No Build and TSM Improvement Locations
SOUTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Figure II-2A

Table II-1A: No Build and TSM Improvements

ID Number	Improvement Location	No-Build Improvements	TSM Improvement
1	US 113 at Castle Hill Road	Install intersection warning flashers Planned	
2	US 113 at MD 12		Install oversized intersection warning signs and stop signs
3	US 113 at Washington Street/Brick Kiln Road	Install intersection warning flashers Planned	
4	US 113 at MD 365	Install stop sign ahead sign; Complete Install intersection warning flashers Planned	
5	US 113 at RR Crossing (south of MD 394)		Install mechanical crossing gates
6	US 113 at MD 394	Install intersection warning flashers; Complete Install improved signing Planned	
7	US 113 at Timmons Road		Install additional street lighting; Install stop line on Timmons Road

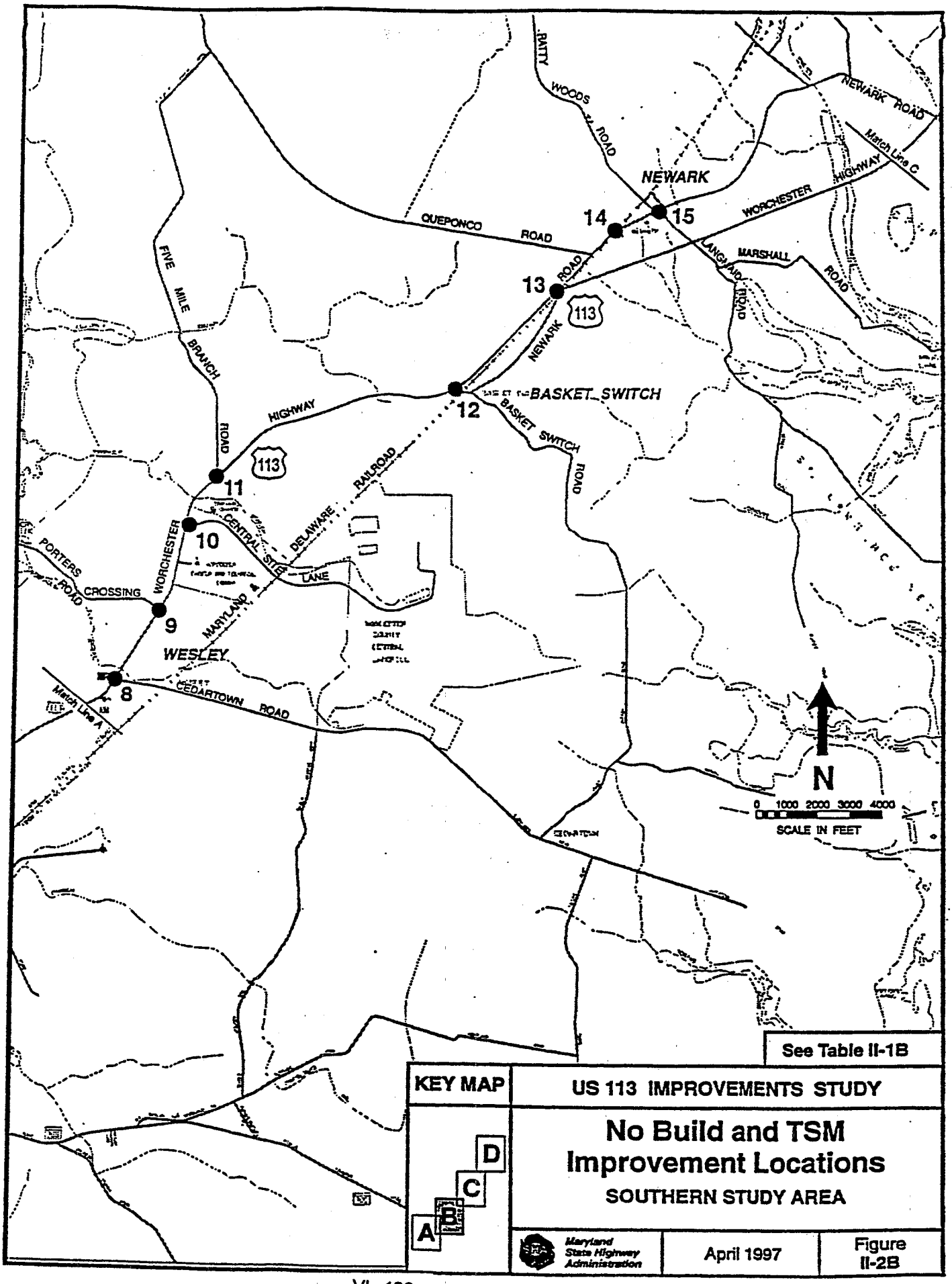
RATTY
WOODS
ROAD
NEWARK ROAD
Match Line C
NEWARK
HIGHWAY
WORCHESTER
14
15
QUEPONCO
ROAD
ROAD
LANGLAND
MARSHALL
ROAD
13
113
NEWARK
FIVE MILE
BRANCH
ROAD
HIGHWAY
12
BASKET SWITCH
BASKET SWITCH
ROAD
113
11
RAILROAD
DELAWARE
CENTRAL
STATE
LANE
10
WORCHESTER
PORTERS
ROAD
CROSSING
9
MARYLAND
WESLEY
8
CEDARTOWN ROAD
Match Line A
N
0 1000 2000 3000 4000
SCALE IN FEET
See Table II-1B
KEY MAP
A
B
C
D
US 113 IMPROVEMENTS STUDY
No Build and TSM
Improvement Locations
SOUTHERN STUDY AREA
Maryland
State Highway
Administration
April 1997
Figure
II-2B

Table II-1B: No Build and TSM Improvements

ID Number	Improvement Location	No-Build Improvements		TSM Improvement
8	US 113 at Cedartown Road	Install street lighting	Complete	
9	US 113 at Ports Crossing Road	Install street lighting	Complete	
10	US 113 at Central Site Lane			Install street lighting; Install southbound US 113 intersection warning sign
11	US 113 at Five Mile Branch Road	Install street lighting	Complete	
12	US 113 at Basket Switch Road	Install street lighting	Complete	
13	US 113 at Newark Road (South)		Complete	
14	US 113 at RR Crossing (north of Newark Rd.)			Install mechanical crossing gates
15	US 113 at Langmaid Road	Install street lighting; Install flasher	Complete Planned	

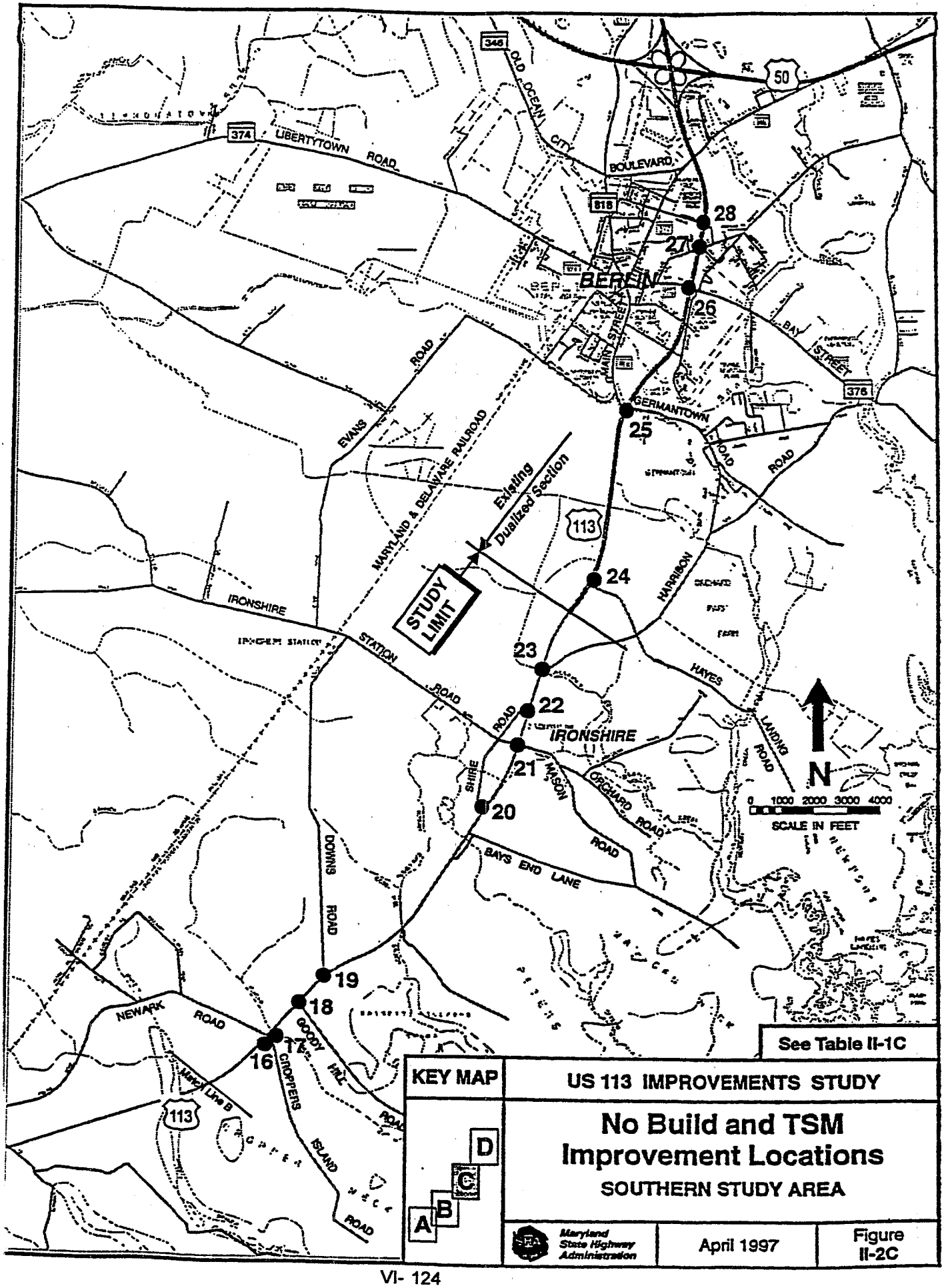
346
OLD OCEAN CITY BOULEVARD
50
374
LIBERTYTOWN ROAD
818
28
27
BERLIN
26
MAIN STREET
BAY STREET
376
GERMANTOWN ROAD
25
EVANS ROAD
MARYLAND & DELAWARE RAILROAD
Existing Dualized Section
113
24
STUDY LIMIT
HARRISON
IRONSHIRE
STATION ROAD
23
HAYES
22
IRONSHIRE
LANDING ROAD
21
MASON
ORCHARD ROAD
20
BAYS END LANE
DOWNS ROAD
19
18
NEWARK ROAD
17
16
GROPPERS
GOODY HILL ROAD
Maryland Line B
113
ISLAND
ROAD
N
0 1000 2000 3000 4000
SCALE IN FEET
See Table II-1C
KEY MAP
A
B
C
D
US 113 IMPROVEMENTS STUDY
No Build and TSM Improvement Locations
SOUTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Figure II-2C

Table II-1C: No Build and TSM Improvements

ID Number	Improvement Location	No-Build Improvements		TSM Improvement
16	US 113 at Gunning Club Lane/Newark Road			Install stop lines on side roads; Install concrete channelization island
17	US 113 at Croppers Island Road	Install street lighting	Complete	
18	US 113 at Goody Hill Road	Install street lighting	Complete	
19	US 113 at Downs Road	Install street lighting	Complete	
20	US 113 at Shire Road (South)			Install street lighting; Sign intersection for no passing; Install stop lines on Shire Road
21	US 113 at Ironshire Station Road/Mason Road	Install street lighting	Complete	Sign intersection for no passing; Install stop lines on Mason Road
22	US 113 at Shire Road (north)	Install street lighting	Complete	Install stop lines on Shire Road
23	US 113 at Harrison Road	Install street lighting	Complete	Install stop lines on Harrison Road
24	US 113 at Hayes Landing Road	Install street lighting	Complete	
25	US 113 at Germantown Road	Install street lighting	Complete	Install intersection warning flashers
26	US 113 at Bay Street			Install "puppy tracks" to guide left turn movements on US 113; Install oversized intersection warning signs; Install intersection warning flashers

Table II-1C: No Build and TSM Improvements (continued)

ID Number	Improvement Location	No-Build Improvements	TSM Improvement
27	US 113 at Branch Street		Install oversized intersection warning signs; Install intersection warning flashers
28	US 113 at Franklin Avenue		Install oversized intersection warning signs and stop signs

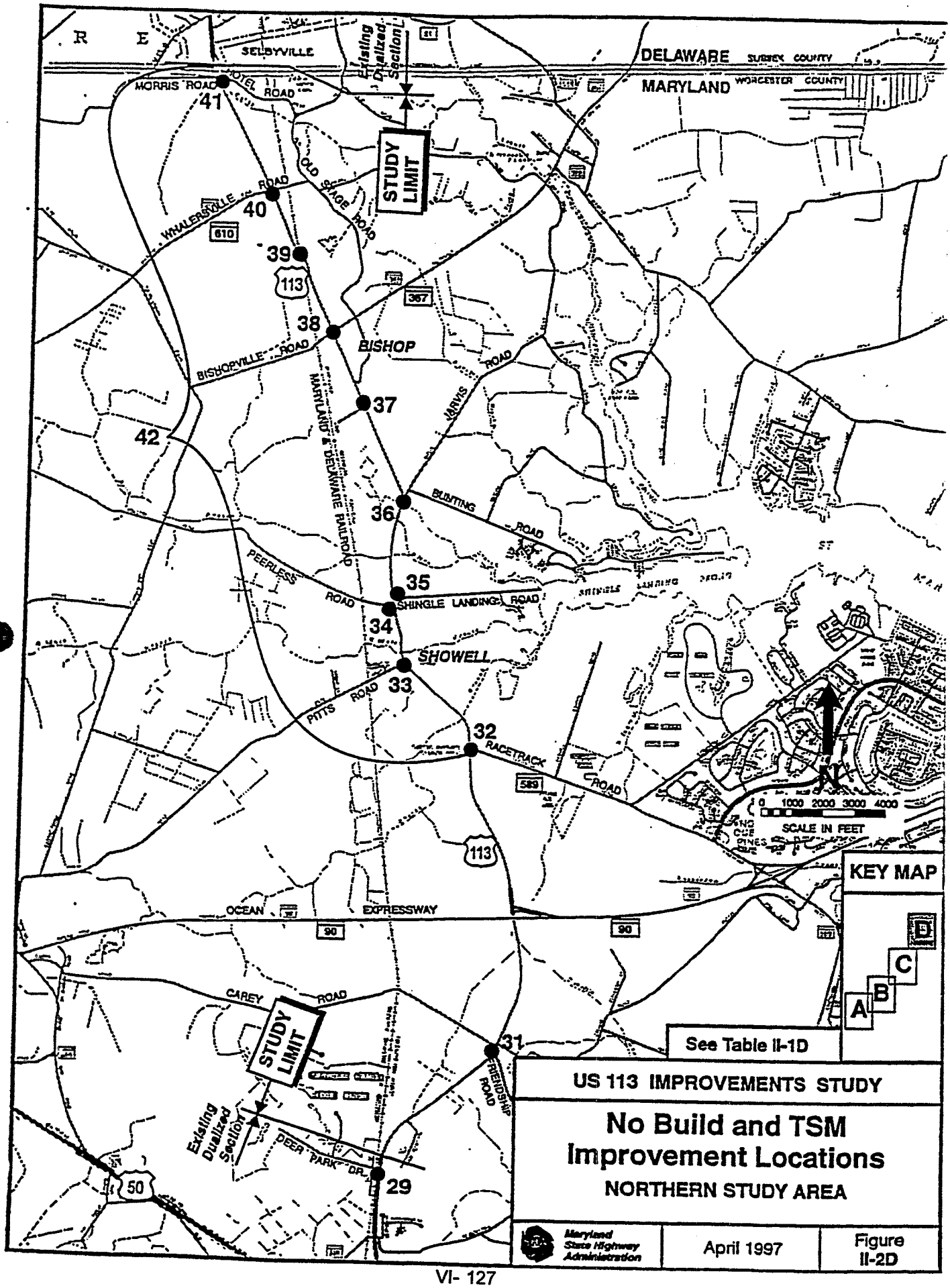
DELAWARE
SUSSEX COUNTY
MARYLAND
WORCESTER COUNTY
SELBYVILLE
MORRIS ROAD
HOTEL ROAD
Existing Dualized Section
STUDY LIMIT
WHALERSVILLE ROAD
OLD STAGE ROAD
BISHOPVILLE ROAD
BISHOP
MARYLAND & DELAWARE RAILROAD
HARVIS ROAD
BUNTING ROAD
PEERLESS ROAD
SHINGLE LANDING ROAD
SHOWELL
PITTS ROAD
RACETRACK ROAD
OCEAN EXPRESSWAY
CAREY ROAD
FRIENDSHIP ROAD
DEER PARK DR.
41
40
39
38
37
36
35
34
33
32
31
29
42
610
113
367
589
90
50
0 1000 2000 3000 4000
SCALE IN FEET
KEY MAP
A
B
C
D
See Table II-1D
US 113 IMPROVEMENTS STUDY
No Build and TSM Improvement Locations
NORTHERN STUDY AREA
Maryland State Highway Administration
April 1997
Figure II-2D

Table II-1D: No Build and TSM Improvements

ID Number	Improvement Location	No-Build Improvements		TSM Improvement
29	US 113 at Deer Park Drive	Relocate crossover to provide access to Deer Park Drive from northbound US 113; Construct acceleration and deceleration lanes along northbound US 113	Planned Planned	
30	US 113 at MD 452	Construct acceleration and deceleration lanes along northbound US 113; Construct southbound US 113 bypass lane	Planned Planned	
31	US 113 at Jones Road/Carey Road			Install stop lines on side roads
32	US 113 at MD 589	Provide acceleration/deceleration lanes on northbound US 113; Install traffic signal with advance warning signs and flashing beacon	Complete Complete	
33	US 113 at Pitts Road	Widen Pitts Road to provide left and right turn lanes; Install flashers	Complete Complete	
34	US 113 at Peerless Road			Install street lighting; Install stop sign and stop line on Peerless Road; Construct northbound US 113 bypass lane
35	US 113 at Shingle Landing Road			Install street lighting
36	US 113 at Bunting Road/Jarvis Road	Relocate the Jarvis Road/Butning Road intersection; Construct southbound US 113 left turn lane	Planned Planned	

Table II-1D: No Build and TSM Improvements (continued)

ID Number	Improvement Location	No-Build Improvements	TSM Improvement
37	US 113 at Kary Asphalt Entrance	Widen southbound US 113 shoulder to extend acceleration lane; Planned Widen northbound US 113 shoulder to provide bypass lane Planned Pave with 1 1/2" bituminous concrete	
38	US 113 at MD 367	Provide northbound and southbound bypass lanes on US 113; Planned Construct westbound MD 367 right turn lane; Planned Install street lighting Planned	Sign intersection for no passing
39	US 113 at RR Crossing (south of MD 610)		Install mechanical crossing gates
40	US 113 at MD 610		Install additional street lighting; Construct curbing in southeast quadrant of intersection
41	US 113 at Morris Road/Hotel Road		Provide acceleration lane along southbound US 113; Install oversized intersection warning signs and stop signs
42	US 113 from MD 589 to the Delaware State Line		Overlay US 113 with a high skid resistance surface

MARYLAND DEPARTMENT OF THE ENVIRONMENT
2500 Broening Highway • Baltimore, Maryland 21224
(410) 631-3000

is N. Glendening
ernor

Jane T. Nishida
Secretary

March 14, 1997

Mr. Joseph Kresslein
Assistant Division Chief
Project Planning Division
State Highway Administration
P.O. Box 717
Baltimore, MD 21203-0717

Dear Mr. Kresslein:

I am responding to your request for concurrence on the Alternates Retained for Detailed Study for the U.S. 113 project in Worcester County from south of Snow Hill to the Delaware State Line. The study area for the project consists of two sections. The southern study area extends from the existing dualized portion of U.S. 113 just south of Snow Hill to the existing dualized portion of U.S. 113 just south of Berlin. The northern study area extends from the existing dualized portion of U.S. 113 just north of Berlin to the Delaware State Line.

In October, 1996, a package describing the alternatives to be carried forward for detailed study was distributed to the review agencies. Since that time, a combination alternative has been added that consists of portions of the initial two dualization alternatives.

The Maryland Department of the Environment (MDE) concurs with the modified set of alternatives for detailed study as presented in the Preliminary Draft EIS for the project which was distributed on February 19, 1997. These include No-Build (Alternative 1S and 1N); Transportation System Management (Alternative 2S and 2N); and the following dualization alternatives: Dualization Along Existing Alignment (Alternatives 3S and 3N); Dualization on New Alignment (Alternative 4N modified); and Combination Alternative (Alternative 4N/3N).

As the study progresses, MDE recommends that SHA continue to examine potential combination(s) of alternatives. This will result in the selection of an alternative that minimizes environmental and social impacts, while still accomplishing the project's purpose and need.

If you have any questions, please contact me at (410) 631-8091.

Sincerely,

Elder A. Ghigiarelli, Jr.
Chief, Coastal Zone Consistency

EAGJr:cma

cc: Gary Setzer
Terry Clark/Steve Dawson

MARYLAND DEPARTMENT OF THE ENVIRONMENT
2500 Broening Highway • Baltimore, Maryland 21224
(410) 631-3000

ırris N. Glendening
ɔvernor

Jane T. Nishida
Secretary

March 27, 1997

Mr. Louis H. Ege, Jr.
Deputy Director
Office of Planning and Preliminary Engineering
State Highway Administration
707 North Calvert Street
Baltimore, MD 21202

Dear Mr. Ege:

The Maryland Department of the Environment (MDE) has reviewed the Preliminary Draft Environmental Impact Statement (EIS) for the U.S. 113 Planning Study, Snow Hill, Maryland to Delaware State Line, dated February 19, 1997. By letter dated March 14, 1997, MDE concurred with the Alternatives Retained for Detailed Study as presented in the Preliminary Draft EIS. At the Interagency Meeting on March 19, 1997, the alternatives were further refined and an updated alternatives package was faxed to review agencies on March 21, 1997. MDE concurs with the revised set of alternatives to be retained as presented in that package.

Recognizing that the DEIS will be revised to reflect the revised set of alternatives, the following general comments are provided on the preliminary document at this time.

1. Summary, p. S-5. This section contains a narrative summary of the TSM and dualization alternatives. Since alternative 4N-Modified is retained for detailed study, a narrative summary should also be given for "Alternatives 3S and 4N-Modified" as a dualization alternative.

2. Summary, p. S-6. Under the section on required permits, the NPDES permit is issued by MDE, not EPA. Also, the last bullet should read "Nontidal Wetlands and Waterways Permit".

3. Chapter II. Alternatives Considered. At the Interagency Meeting on 3/19/97, there was discussion on the functional classification of the roadway and its potential affect on the feasibility of various alternatives under consideration. This section should contain a discussion of the issue. Further, if the functional classification deems any of the alternatives under consideration infeasible, those alternatives should be eliminated at this point and not addressed in Chapter IV, Environmental Consequences.

4. Chapter IV, Environmental Consequences, page IV-13. I agree with the recommendation made at the 3/19/97 meeting that additional information should be presented in the section on land use. Depending on the extent of the additional detail, I would recommend that attempts be made to distinguish between overall land use impacts in the study area, and those direct and indirect/secondary impacts specifically attributable to the U.S. 113 project. The land use discussion should also address the affect of partially controlled access, and the fact that the primary need for the project is for improved safety conditions.

5. Page IV-30. The sentence at the middle of this page regarding regulation under Section 404 is out of place. This sentence should be placed at the end of this section and reworded as follows: "All waters of the United States are regulated under Section 404 of the Clean Water Act (CWA). These areas are also regulated by the State of Maryland through its wetlands and waterways statutes. Project activities impacting jurisdictional waters and wetlands will require authorization from the Corps of Engineers and the Maryland Department of the Environment."

6. Chapter VI. Comments and Coordination, page VI-1. Please note in this section that MDE had no comments on the Purpose and Need Statement for the project.

Thank you for the opportunity to provide comments on the Preliminary Draft EIS. If you have any questions, please contact me at (410) 631-8093.

Sincerely,

Elder A. Ghigiarelli, Jr.
Chief, Coastal Zone Consistency
Wetlands and Waterways Program

EAGJr:cma

cc: Gary Setzer
Terry Clark/Steve Dawson

76

Concurrence with Alternates Retained for Detailed Study

Please check one:

☐ Concur (without comments)

☐ Concur (comments attached)

☐ Do not concur (comments attached)

_____ _____

National Marine Fisheries Date

Attachment
cc: Mr. Lee Carrigan
Mr. Louis H. Ege, Jr.
Mr. Joseph Kresslein
Ms. Gay Olsen
Ms. Renee Sigel
Ms. Cynthia Simpson
Mr. Alan Straus
Ms. Lorraine Strow

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Habitat And Protected
Resources Division
Oxford, Maryland 21654

November 25, 1996

Louis H. Ege, Jr.
Deputy Director, Office Of Planning & Preliminary Engineering
State Highway Administration
P.O. Box 717
Baltimore, Maryland 21203-0717

Attn: Gay Olsen

Dear Mr. Ege:

We have reviewed the Alternatives Retained for Detailed Study, dated September 1996, for the proposed dualization of U.S. Route 113 from Snow Hill to the Delaware State Line in Worcester County, Maryland. Based on information we have obtained from the subject document and the September 1996 Interagency Meeting, we do not concur with these selections at this time.

Our concerns rest primarily with the high level of wetland impacts associated with Alternate 4N-Modified, which have been preliminarily estimated as 28.5 acres. Nontidal wetland impacts associated with this project will indirectly affect estuarine fish resources through degradation of water quality. Nutrient loading and poor quality of surface water and groundwater sources have been identified as major problems affecting estuarine habitat in the Maryland back bays. Consequently, it is imperative that wetland losses associated with this and other significant development proposals in the back bay watersheds be minimized.

While Alternate 3N may result in a lower level of wetland impacts, its ultimate selection may be hampered by the large number of residential displacements associated with it. Therefore, we strongly recommend that you investigate various combinations of the 3N and 4N-Modified alignments to determine if a new alternate can be developed for the northern portion of the study area that reduces the level of wetland impacts, while still minimizing impacts to residential and commercial properties.

If there are any questions concerning these comments, you may call John S. Nichols at (410) 226-5771.

Sincerely,

Timothy E. Goodger
Assistant Coordinator

cc: FWS (Bill Schultz, Annapolis)
EPA (NEPA Program, Region III)
MD DNR (Environmental Review)
MDE (Water Quality Certification)

578

Maryland Department of Transportation
State Highway Administration

David L. Winstead
Secretary

Parker F. Williams
Administrator

December 23, 1996

RE: Project No. WO720B11
US 113: Snow Hill to
Delaware State Line
PDMS No. 232084

Mr. Timothy E. Goodger
Habitat and Protected Resources
National Marine Fisheries Service
Oxford Laboratory
Oxford MD 21650

ATTN: Mr. John Nichols

Dear Mr. Goodger:

Thank you for your November 25 letter offering comments on the Alternates Retained for Detailed Study. We understand your concerns with wetland impacts associated with Alternate 4N Modified and its effect on estuarine fishery resources. Be assured that we are aware of the importance of minimizing those impacts.

As recommended in your letter, a Combination Alternate which uses portions of Alternates 3N and 4N Modified will be also be presented in the draft environmental document. We have included in the development of alternates for this project, the option of combining various segments of each alternate to maximize the flexibility in avoiding and minimizing impacts. After the December, 1995 Alternates Public Meeting, we analyzed each individual segment to determine if it adequately addressed the project purpose and need and whether it should be modified to minimize project cost and impacts. As reflected in the Alternates Retained for Detailed Study package, some segments of Alternate 4N from just north of MD 90 to Jarvis Road (highlighted on the attached mapping) were dropped after this analysis in order to minimize wetland impacts and relocation costs. The attached table better illustrates the comparison of impacts associated with the segments which were dropped versus comparable segments of Alternate 4N Modified, which were retained for detailed study. This discussion, as well as an impacts comparison table, broken down by segments, will be included in the draft environmental document.

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

The Combination Alternate will follow the Alternate 4N Modified alignment from US 50 north, through the previously graded interchange area at MD 90, across existing US 113 at MD 589, bypassing the town of Showell to the east. Like Alternate 4N Modified, the Combination Alternate ties back into existing US 113 just north of Showell, but then follows Alternate 3N along the existing US 113 alignment to the northern project terminus at the Delaware State Line.

We hope that this information addresses your concerns and again request your concurrence on the Alternates Retained for Detailed Study.

Should you have any further questions or concerns, please feel free to contact Mr. Joseph Kresslein at (410) 545-8550.

Very truly yours,

Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

by: Joseph R. Kresslein
Joseph R. Kresslein
Assistant Division Chief
Project Planning Division

Attachments (3)
cc: Ms. Danielle Algazi
Mr. Ray Dintaman
Mr. Louis H. Ege, Jr.
Mr. John Forren
Mr. Elder Ghigiarelli
Mr. Keith Harris
Mr. Joseph Kresslein
Mr. Rodney Little
Mr. James T. Noonan
Ms. Gay Olsen
Mrs. Suseela Rajan
Ms. Renee Sigel
Ms. Cynthia Simpson
Ms. Lorraine Strow
Mr. Jim Wynn
Mr. Robert Zepp

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NORTHERN STUDY AREA
Alternative Segment Impact Comparison

Southern Segment (north of US 50 to MD 589) - Preliminary Impact Summary

ALTERNATE	3N	4N	4N Option A	4N Option B	4N Modified[1]
Displacements					
Residences	10	1	1	1	1
Businesses	0	0	0	0	0
TOTAL	10	1	1	1	1
Environmental Impacts					
Wetlands	3.5	7.1	7.1	7.1	7.1
100-year Floodplain	3.3	0.0	0.0	0.0	0.0
Historic Properties*	2	0	0	0	0

* Direct ROW impacts only, indirect impacts (ie. noise, visual, etc.) are still under evaluation

Middle Segment (MD 589 to Jarvis Road) - Preliminary Impact Summary

ALTERNATE	3N	4N	4N Option A	4N Option B	4N Modified[1]
Displacements					
Residences	4	1	2	6	1
Businesses	0	0	0	0	0
TOTAL	4	1	2	6	1
Environmental Impacts					
Wetlands	7.8	9.1	10.8	8.4	6.1
100-year Floodplain	2.1	4.1	5.2	3.1	2.6
Historic Properties*	1	0	0	0	0

* Direct ROW impacts only, indirect impacts (ie. noise, visual, etc.) are still under evaluation

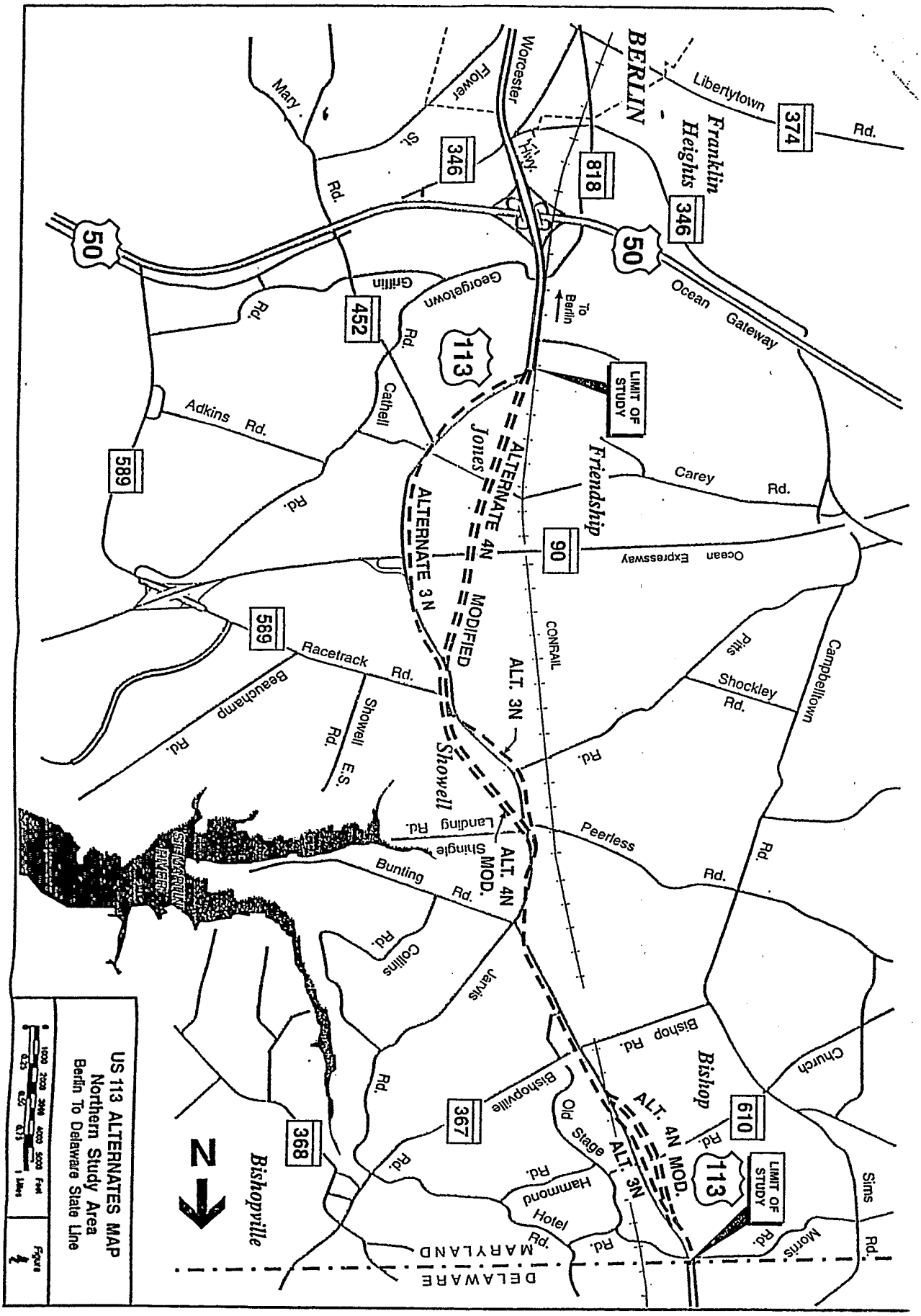
Northern Segment (Jarvis Road to the Delaware State Line) - Preliminary Impact Summary

ALTERNATE	3N[1]	4N	4N Option A	4N Option B	4N Modified
Displacements					
Residences	6	1	1	2	1
Businesses	6	3	3	3	2
TOTAL	12	4	4	5	3
Environmental Impacts					
Wetlands	2.2	16.2	16.2	16.2	15.3
100-year Floodplain	0.8	0.8	0.8	0.8	0.8
Historic Properties*	1	1	1	1	1

* Direct ROW impacts only, indirect impacts (ie. noise, visual, etc.) are still under evaluation

[1] This segment is included in the Combined Alternate

5


BERLIN
Franklin Heights
Worcester Hwy.
Flower St.
Mary Rd.
Libertytown Rd.
374
346
818
50
Ocean Gateway
To Berlin
Georgetown Rd.
Gallin Rd.
452
113
LIMIT OF STUDY
Adkins Rd.
Cathell Rd.
589
Jones
ALTERNATE 4N
ALTERNATE 3N
Friendship
Carey Rd.
90
Ocean Expressway
MODIFIED
CONRAIL
ALT. 3N
Racetrack Rd.
Beauchamp Rd.
Showell E.S. Rd.
Showell
Landing Rd.
Shingle
Bunting Rd.
ALT. 4N MOD.
Peerless Rd.
Shockley Rd.
Campbellstown Rd.
Pitts
SINEPUXENT BAY
Collins Rd.
Jarvis Rd.
Bishopville Rd.
Bishop
Church Rd.
610
367
368
Old Stage Rd.
Hammond Rd.
Hotel Rd.
ALT. 4N MOD.
ALT. 3N
Bishopville
DELAWARE
MARYLAND
Morris Rd.
Sims Rd.
N
US 113 ALTERNATES MAP
Northern Study Area
Berlin To Delaware State Line
Figure 4

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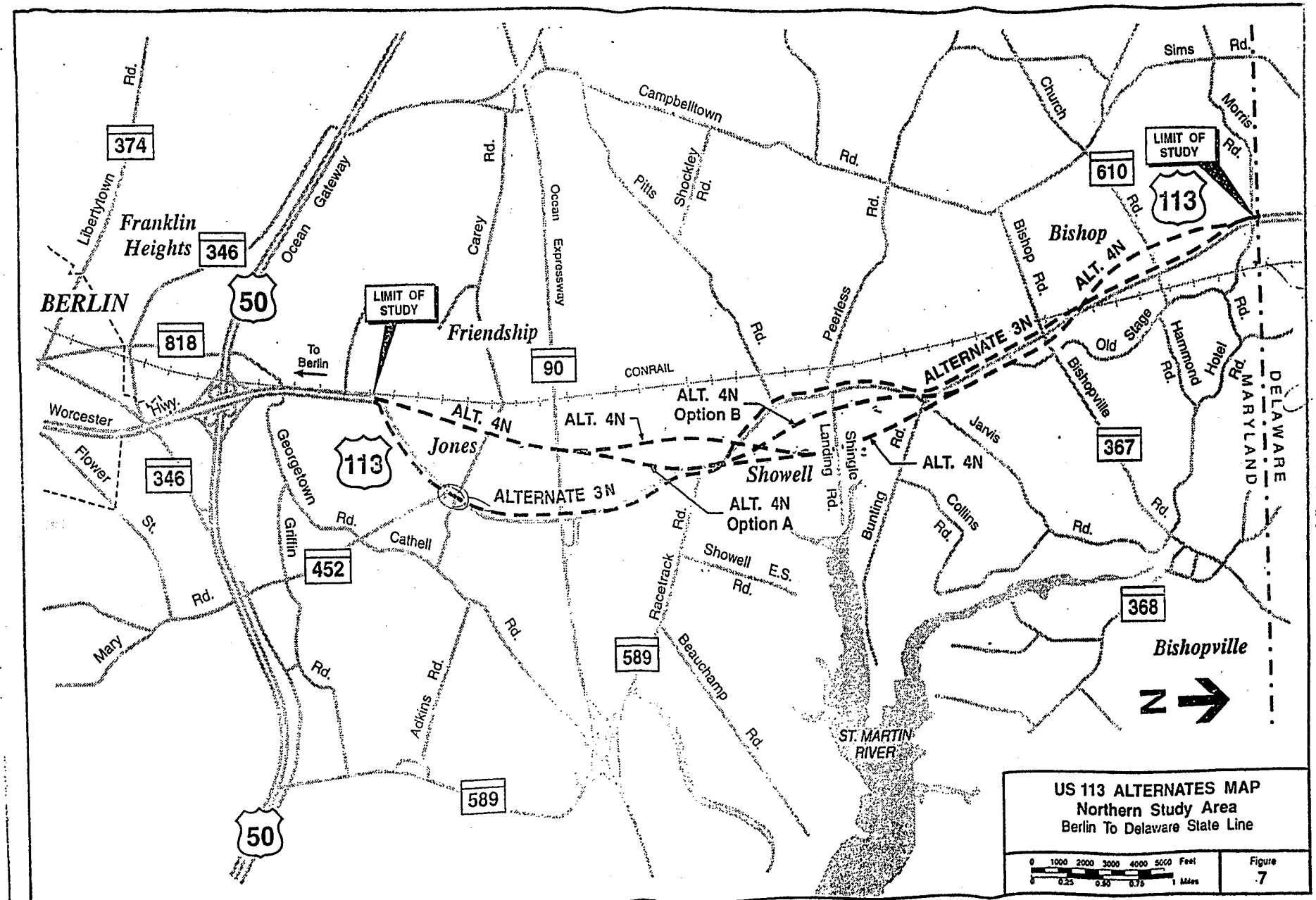

US 113 ALTERNATES MAP
Northern Study Area
Berlin To Delaware State Line

0 1000 2000 3000 4000 5000 Feet
0 0.25 0.50 0.75 1 Miles

Figure 7

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administrati
NATIONAL MARINE FISHERIES SERVICE
Habitat And Protected
Resources Division
Oxford, Maryland 21654

March 31, 1997

Louis H. Ege, Jr.
Deputy Director, Office Of Planning & Preliminary Engineering
State Highway Administration
P.O. Box 717
Baltimore, Maryland 21203-0717

Attn: Gay Olsen, Project Planning Division

Dear Mr. Ege:

We have reviewed the draft Environmental Impacts Statement, Section 404 application, and supplemental information on project alternates that are to be retained for detailed study for the U.S Route 113 Planning Study in Worcester, County, Maryland.

We provide our concurrence at this point in the combined NEPA/404 review process on this project for the following list of alternates retained for detailed study.

1) Alternates 1S and 1N (No Build)

2) Alternates 2S and 2N (Basic TSM)

3) Alternate 2S (Two-lane roadway with 20-foot median, median barrier, passing lanes, and 60mph design speed)

4) Alternates 3S and 3N (Four-lane dualized roadway along existing alignment with 20-foot median and median barrier; 50 and 60mph design in northern study area; 60mph design only in the southern study area)

5) Alternates 3S and 3N (Four-lane dualized roadway along existing alignment with 34-foot median; 50 and 60mph design in northern study area; 60mph design only in the southern study area)

6) Alternate 4N Modified (Four-lane dualized roadway on new locations, with 20-foot median)

7) Alternate 4N Modified (Four-lane dualized roadway on new locations, with 34-foot median)

8) Alternate 3N/4N Combination (Four-lane dualized roadway with partial new location, with 20-foot median)

9) Alternate 3N/4N Combination (Four-lane dualized roadway with partial new location; with 34-foot median)

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Regarding Alternate 2S; we recommend that a large degree of flexibility be retained for this alternate to ensure that design, cost and/or construction constraints do not result in its premature elimination from the review process. As many design variations as possible should be considered for the 2S Alternate, with the goal of designing a safe two-lane highway that will significantly reduce wetland/stream impacts beyond those associated with the four-lane highway alternates for the southern study area. Considerations under this alternate should also go further to include the use of a 34-foot grassed median strip, should this be required for the purposes of providing adequate stormwater management.

We also concur with the most recent proposal to construct either a grassed or crowned concrete median design on all alternates, with elimination of the curb and gutter design.

We are very concerned about new stream crossings at Middle Branch and Church Branch that are proposed for all build alternates in the northern study area (except 3N, 50mph design). If an alternate is selected that will require new stream crossings, complete or partial bridging of the new crossings should be given full consideration to minimize impacts to stream channel/floodplain morphometry and hydrology.

Finally, all tributary streams within the Pocomoke River watershed that are affected by the southern study area are documented spawning grounds for white perch (Morone americana), yellow perch (Perca flavescens), alewife (Alosa pseudoharengus) and blueback herring (Alosa aestivalis)(Weinrich et al., 1987; Jim Mowrer, 1997 personal communication, Maryland Department Of Natural Resources, Fisheries Division). White perch and possibly yellow perch spawning runs, and migratory runs of the elver stage of American eels (Anguilla rostrata) are also known to occur in many of the tributaries to the coast embayments (Al Wische, 1997 personal communication, Maryland Department Of Natural Resources, Fisheries Division). Consequently, instream construction activities should be restricted from February 15 to June 15 at all proposed crossings of tributaries within the Pocomoke River and coastal embayment watersheds.

If there are any questions concerning these comments, you may call John S. Nichols at (410) 226-5771.

Sincerely,

Timothy E. Goodger
Officer In Charge
Oxford Habitat Office

LITERATURE CITED

Weinrich, Dale R., N.H. Butowski, E.W. Franklin, and J.P. Mowrer. 1987. Investigation of anadromous alosids. Project Number F-37-R. Maryland Department Of Natural Resources, Fisheries Division.

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MARYLAND
HISTORICAL
TRUST

Parris N. Glendening, Governor
Patricia J. Payne, Secretary

November 15, 1996

fice of Preservation Services

Ms. Gay Olsen
Project Planning Division
State Highway Administration
707 North Calvert Street
Baltimore, Maryland 21203-0717

RE: Project No. WO 720B11
US 113 from MD 394 to the
Delaware State Line
Worcester County, MD

Dear Ms. Olsen:

Thank you for your letter, dated 11 October 1996 and received by the Trust on 15 October 1996, requesting our comments on the Alternatives Retained for Detailed Study for the above-referenced project.

The Trust has no specific comments regarding the alternatives retained for detailed study. The Environmental Impacts section of the document should note that the Trust holds a perpetual historic preservation easement on the St. Martin's Church property. The two build alternates both have the potential to affect significant historic and archeological properties. SHA has not yet conducted archeological surveys of the build alternates. Thus, we are unable to make informed comments regarding effects to historic properties (including standing structures and archeological properties) until we have received the results of SHA's identification and evaluation of archeological resources within the two alternatives.

We are concerned about the basis for the numbers SHA illustrated for environmental impacts to historic properties listed in Figures 7 and 8. The document mentions at least 10 properties listed on or eligible for the National Register of Historic Places. The figures give precise numbers for impacts to historic properties. However, SHA and the Trust have not yet resolved all eligibility or boundary issues or assessed the project's effects to those resources. In addition, please remember that under Section 106, effects may encompass more than direct impacts or taking of eligible properties. In our opinion, it is premature and misleading to include precise number of impacts when SHA and the Trust have not yet progressed to that stage of the Section 106 process.

The Maryland Department of Housing and Community Development (DHCD) pledges to foster the letter and spirit of the law for achieving equal housing opportunity in Maryland.

We trust that SHA will undertake the archeological investigations and assessment of effects to historic properties before project plans have developed to an extent that would preclude the avoidance of significant archeological sites. Further consultation with our office will be necessary to complete the project's Section 106 review.

If you have questions or require additional information, please call Ms. Kimberly P. Williams (for structures) at (410) 514-7637 or me (for archeology) at (410) 514-7631. Thank you for providing us this opportunity to comment.

Sincerely,

Elizabeth J. Cole
Administrator
Archeological Services

EJC/EAH
9603648

cc: Mr. Bruce Grey
Dr. Charlie Hall
Ms. Renee Sigel
Mr. Keith Harris
Mrs. Howard F. Yerges
Mrs. Ricks Savage

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MEMORANDUM OF AGENCY/PUBLIC FIELD REVIEW MEETINGS

Dates: (1) Thursday August 3, 1995 10 AM to 3 PM
(2) Friday August 4, 1995 9 AM to Noon

Attendance:

Name	Organization	Phone #
Maryland State Highway Administration		
Lee Carrigan (1,2)	SHA - Project Planning	(410) 333-4582
Paul Maloney (1,2)	SHA - Project Planning	(410) 333-4582
Lorraine Strow (1,2)	SHA - Project Planning	(410) 333-1184
Howard ? (1)	SHA	(410) ???-834?
Wayne? Pan? (1)	SHA - Bridge H&H	(410) ???-834?
Bill Branch (1,2)	SHA - Environmental Design	(410) 333-8083
Glenn Evans (1,2)	SHA - Dist. 1, Construction	(410) 543-6715
Hicham Baassiri (1)	SHA - Dist. 1	(410) 543-6715
Gene Cofiell (1)	SHA - Dist. 1 Traffic	(410) 543-6715
Donnie Drewer (1)	SHA - Dist. 1, District Engineer	(410) 543-6715
State and Federal Agencies		
Mary Huie (1)	FHWA	(410) 962-4440
John Nichols (1)	National Marine Fisheries Service	(410) 226-5771
Art Coppola (1)	Army Corps of Engineers	(410) 962-1723
Steve Dawson (1)	Non-tidal Wetlands & Waterways, MDE	(410) 543-6703
Worcester County and Local Representatives		
Jeanne Lynch (1)	Worcester County Commissioners	(410) 213-2229
Hal Morris (1)	Worcester County Transportation Department	(410) 632-1200
Warren Rosenthal (2)	Worcester County Economic Development	(410) 632-3110
Rex Haily (1,2)	Berlin	(410) 641-3830
Bennett Bozman (2)	38th District	(410) 641-2227
Public (including CRASH members)		
Ray Jackson (1)	CRASH - Snow Hill	(410) 632-0300
Jack Lord (1)	CRASH	(410) 352-9867
Bob Hulburd (1,2)	CRASH	(410) 641-5300
Louise Ash (2)	CRASH	(410) 632-2600
Tony Kanz (2)	CRASH & OPA	(410) 641-8071
Sean O'Sullivan (2)	Daily Times	(410) 749-7171
Perry Weed (1)	~~Long Gil Chrest~~	(410) 822-0822
Rummel, Klepper & Kahl, Engineers		
David Wallace (1)	RK&K	(410) 728-2900

Project: **U.S. 113 - Worcester Highway - Planning Study**
From MD 394 (Market Street) Split to the Delaware state line
Contract No. WO 720-101-170-P

Subject: Field Review

BRIEFING

Prior to the bus tour, David Wallace, Lee Carrigan, and others briefed those present on project histor and need. With the aid of a handout presenting project background, traffic data, accident data, design criteria and a detailed listing of recently completed/current/anticipated construction projects by the District as well a a pair of 11" x 17" color project maps (scale 1" = 6,000'±), the following topics were discussed:

- Traffic data: including SHA's recent collection of traffic data and summer weekday and summe weekends. On the basis of comments offered by those present, SHA agreed to present considerabl traffic details, including data on truck characteristics, at the Alternates Public Meeting to be held thi fall (December, 1995).

- The graphic summarizing fatal accidents was reviewed. In addition to this exhibit, several citizer requested additional information concerning overall accident experience, including personal injury ar property damage only accidents.

- In response to a question from a citizen concerning "... what environmental regulations have change since SHA's study several years ago of bypass alternatives at Showell", Lee Carrigan stated that th approved classification methodology for wetland determinations has been relaxed (in essenc returning to the 1987 criteria). In response to a citizen's question concerning the outcome of th Maryland - Delaware funded Beach Access Study, SHA representatives stated that Delaware stoppe the project because of concerns that any improvements would result in the additional funnelling Maryland traffic destined to Ocean City, Maryland through Delaware.

- In response to a citizen's question concerning construction costs, specifically referring to Delaware recent cost for the dualization of their final US 113 segment, District Engineer Don Drewer indicat that while the District can fund "special projects" that have less than a $2 million value, constructi of US 113 would represent a major capital investment. Furthermore, this project is too large to l constructed as one project, in all likelihood, three construction contracts would be required f dualization of the section between Berlin and the state line. Each constructed segment would ha to be usable.

T30

(1) THURSDAY, AUGUST 3, 1995 - FIELD REVIEW

Following the above briefing, those present boarded a Worcester County-Ride bus and toured the US 113 project corridor from the southern project limit to the Delaware State line. Typically, the tour stopped for a visual inspection of every stream crossing (environmental data concerning wetland characteristics were reviewed), every historic site (inventory data reviewed) and every recent or proposed construction project being implemented by the District.

The following additional comments were recorded during this review:

- Desirably, the median width on the dualized alternative must be of sufficient width to shelter a WB-50 or B-40 vehicle.

- In response to Jack Lord's suggestion, SHA agreed to investigate interchange options at Maryland 90 -- specifically, could a frontage road serve as the connection between the presently graded cloverleaf interchange at MD 90 and relocated US 113 instead of the connection currently being constructed in the southwest quadrant.

- At Carey Creek, Bill Branch requested that Steve Dawson check DNR's records for the protection status of a branded sunfish which may exist in this creek.

- The accident classification (personal injury, property damage, etc.) should be checked for US 113 within the project limits.

- In response to a citizen's question asking "Because US 113 is a US Route, shouldn't it make more sense to dualize the route?". SHA responded ... "not necessarily - a need for dualization must be demonstrated."

- In response to a citizen's question stating "SHA is working on the Purpose and Need for the project now, how will the traffic and accident statistics effect the approval of the project? Will they hurt or help the changes?" to this, SHA answered "That being below the statewide average in almost all cases, the traffic and accident statistics will not help prove the need for dualization."

(2) FRIDAY, AUGUST 4, 1995 - FIELD REVIEW

For the benefit of those who could not attend the Thursday field review, Lee Carrigan again briefe the attendees about the project and distributed the handouts. The US 113 project corridor was toured fro south to north in similar fashion to the previous day's field review.

The following additional comments were recorded during this review:

- The public may want the southernmost end of the project around Snow Hill constructed soon.
- There is an Indian Burial Ground approximately 1000 feet east of US 113, south of Five Mile Cre
- Taylorville (Tirrville?) Road Tax ditch 1,000 feet before MD 90, south of MD 90.
- Houses are being built on Shingle Landing Road, near the north end of the job, where SH relocated alternates from the 1990 project planning study.
- Traffic may be too low at MD 589 to the Delaware Line. Glenn will supply counts on MD 589.
- CRASH representatives requested copies of the Fatal Accident graphic, traffic count work sheets, accident statistic work sheets.

DWW/sms

US 113
(Worcester Highway)

Snow Hill to the Delaware State Line

Field Review
August 3 & 4, 1995

Maryland State Highway Administration

Rummel, Klepper & Kahl

US 113 Project Planning Study
Field Review

August, 1995

PROJECT SUMMARY

US 113 is a major highway on the Delmarva Peninsula. In combination with US 13 and US 50, they form the backbone of the transportation system of the lower Eastern Shore of Maryland and Sussex County, Delaware. US 113 directly links three of Worcester County's four incorporated areas, Berlin, Snow Hill (the county seat) and Pocomoke City, and indirectly serves the fourth, Ocean City (during the summer vacation season it is the second largest city in Maryland).

US 113 north and south of the project limits (north of the Delaware State line and south of Snow Hill, Maryland) is a four-lane divided highway. A 4.4 mile segment of US 113 through Berlin, Maryland is also presently a dualized highway. In Delaware, the remaining two-lane undivided portion of US 113, from Milford to Georgetown, is currently being reconstructed as a four-lane divided highway. Within the study limits, except around Berlin, US 113 is a two-lane undivided roadway, typically with full shoulders.

The US 113 project has been in the Highway Needs Inventory (HNI) since the early 60's, and the present HNI shows dualization for the roadway. The Beach Access Study of the late 80's and early 90's concluded that improvements to US 113 should be done as small projects to avoid large scale disruption. An Alternates Public Meeting for the northern study area (US 50 to the Delaware State Line) was held on November 19, 1990, after which, the project was put on-hold. Currently, this project planning study, which began January, 1995, is included in the Development and Evaluation Section of the 1995-2000 Consolidated Transportation Program (CTP). The Draft Purpose and Need Statement was completed by SHA in February, 1995 and presented to the environmental resource agencies in May, 1995.

TRAFFIC/ACCIDENT SUMMARY

TRAFFIC SUMMARY - Vehicles Per Day

Location	Existing Traffic S to N	Design Year (2015) Traffic S to N	Projected Summer Increase
Southern Study Area (Snow Hill to Berlin)	2,700 to 10,300 ADT	4,500 to 15,000 ADT	+ 25%
Berlin Area (dualized section)	11,300 ADT	17,000 ADT	+30%
Northern Study Area (Berlin to Delaware Line)	9,800 to 6,800 ADT	10,000 to 15,000 ADT	+30 to 40%

Truck percentage of Average Daily Traffic (ADT) is approximately 15%

The quality of traffic flow along a roadway segment or through an intersection is measured in terms of level of service (LOS), ranging from 'A' (best) to 'F' (worst). All roadway segments and intersections within the study area operate at LOS 'D' or better with existing and design year (2015) traffic volumes except the intersection of US 113/MD 367 which is expected to operate at LOS D(E) in the AM(PM) peak period in year 2015.

ACCIDENT SUMMARY: JANUARY 1989 through DECEMBER 1993			
Location	Total # of Acc.	Total # of Fatal Acc./ # Killed	Total # of Pers. Inj. Acc./ # Injured
Southern Study Area (Snow Hill to Berlin) 16.1 miles	140	4/5	63/113
Berlin Area 4.4 miles (dualized section)	77	1/1	42/93
Northern Study Area (Berlin to Delaware Line) 7.45 miles	167	7/7	91/177

Both the southern and northern study areas are lower than the statewide average total accident rate for similarly designed highways. Fatalities, however, were significantly higher than the statewide average in the northern study area. The majority of accidents are angle accidents caused by turning vehicles and opposite direction accidents caused by failing to keep to the right of center.

The accident data also revealed two high accident intersections along US 113. The first is MD 376 (1992) and the second is MD 346 (1990). There were no high accident sections for this period.

DESIGN CRITERIA

- Functional Classification: Arterial (it is currently Arterial)
- Design Speed: 60 MPH (except in constrained areas where 50 MPH or closed sections could be used)

- Dual Typical Section:
  12' Lanes
  10' Outside Shoulders
  4' Inside Shoulders
  34' Depressed Median (or wider if possible)

- Partial control of access is proposed for relocation alternatives and no control of access for the alternatives along the existing alignment

PROJECT SCHEDULE

US 113 Planning Study Schedule	
Alternates Public Meeting	Fall 1995
Combined Location Design/Public Hearing	Fall 1996
Location and Design Approvals	Spring 1997

This schedule is compatible with the schedule presented to the CRASH team in March 1995.

IMMEDIATE IMPROVEMENTS TO THE US 113 CORRIDOR

Improvements Completed

- Install wide paint lines (12" center, 8" edge lines)
- No passing pennants mounted independently of other signs
- Delaware Line bridge end markers
- Signing Improvements @ MD 394

US 113 at MD 610

- Widen existing pavement to provide left turn lanes at NBR & SBR of US 113
- Construct right turn lanes at MD 610
- Construct traffic signal
- Construct right turn lane @ SBR of US 113

US 113 at Pitts Road

- Widen Pitts Road to provide right turn at US 113
- Install new flasher (work in progress)

US 113 at MD 589

- Widen US 113 to provide acceleration and deceleration lanes
- Construct traffic signal at the intersection

Improvements in Progress

Pavement marking arrows and two way traffic signs at every mile

Install Raised Pavement Markers from Pocomoke to Delaware State Line

- Contract No. Wo-706-501-177 US 113 from south of Groton Road to 2.80 MP
  Total = 2.50 miles (resurfacing) completed
  RPM's will be completed in August 1995.

- Contract Wo-710-501-177 US 113 from vicinity of Franklin Avenue to US 50
  Total - 0.95 miles - NTP - 10/23/95 (resurfacing)
  RPM's will be completed in November

- US 113 from Goody Hill Road to MD 818 NBR (repair joints and resurfacing)
  RPM's will be completed Summer 1996

Improvements Within 6-9 Months (Contingent upon funding availability)

- Install flasher at MD 365
- Install flasher at Castle Hill Road
- Install flasher at Washington Street
- Install flasher at MD 394
- Install flasher at Langmaid Road
- Install flasher at Germantown Road
- Install street lights at Cedartown Road
- Install street lights at Porters Crossing Road
- Install street lights at Five Mile Branch Road
- Install street lights at Basketswitch Road
- Install street lights at Newark Road
- Install street lights at Cropper Island Road
- Install street lights at Downs Road
- Install street lights at Goody Hill Road
- Install street lights at Shire Drive
- Install street lights at Mason Road
- Install street lights at Ironshire Station Road
- Install street lights at Harrison Road
- Install street lights at Hayes Landing Road
- Install street lights at MD 394
- Install street lights at Landmaid Road
- Install street lights at Germantown Road

OTHER IMPROVEMENTS AT THE US 113 CORRIDOR

Improvements within 2 years (Contingent upon funding availability)

US 113 at Jarvis Road

- Relocate Bunting Road
- This project would need additional right of way and concurrence from Worcester County
- Construct US 113 southbound left turn lane onto Bunting Road

US 113 at MD 90

- Ramps from US 113 NB & SB to MD 90 EB and from MD 90 EB to US 113 NB & SB

US 113 at MD 367

* Widen existing pavement to provide left turn lanes at NBR & SBR of US 113
* Construct right turn lanes at WBR of MD 367
* Intersection lighting and flasher

US 113 at MD 452

* Construct acceleration, deceleration lanes at NBR of US 113
* Construct southbound bypass lane (right-of-way acquisition is necessary)

US 113 at Deer Park Road

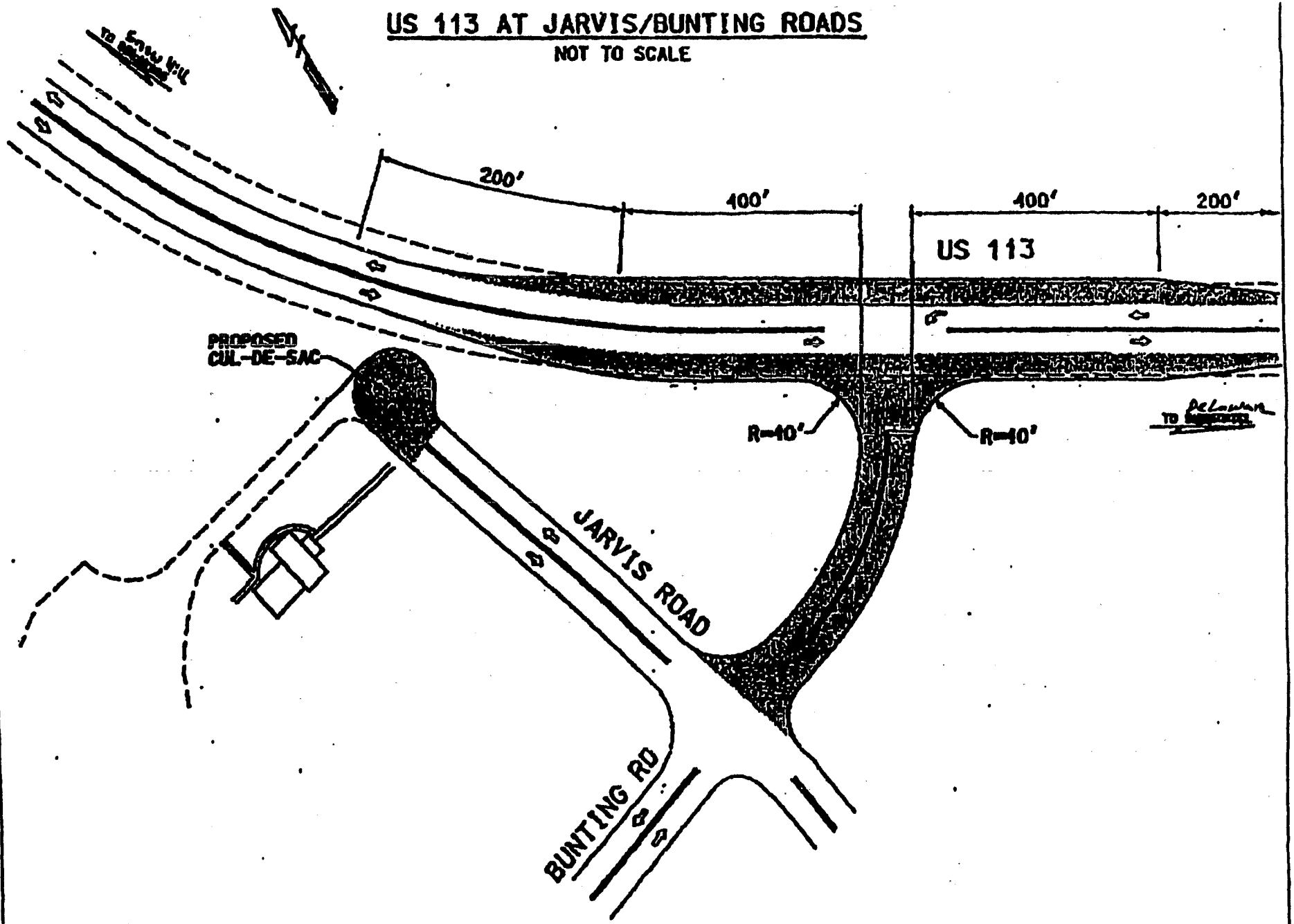
* Relocate crossover to provide access to Deer Park Road

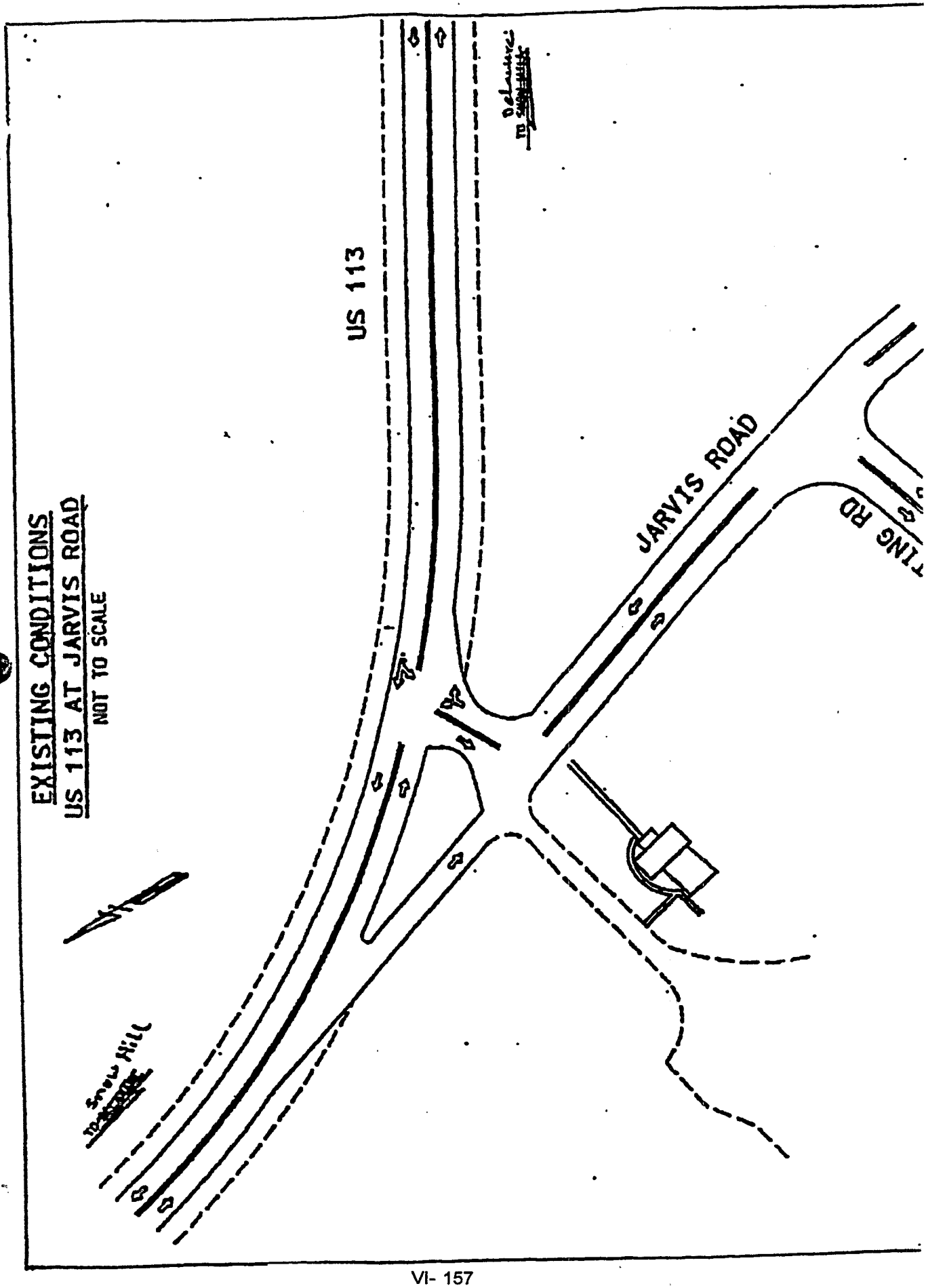
US 113 at Kary Asphalt Entrance

* Widen US 113 SBR shoulder to extend acceleration lane at US 113
* Widen US 113 NBR shoulder to provide optional bypass lane
* Pave with 1-1/2 inch bituminous concrete system within the limits of work at all locations

US 113 AT JARVIS/BUNTING ROADS

NOT TO SCALE





EXISTING CONDITIONS
US 113 AT JARVIS ROAD
NOT TO SCALE

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Maryland Department of Transportation
State Highway Administration

David L. Winstead
Secretary
Hal Kassoff
Administrator

July 24, 1995

Mr. Art Copola
U.S. Army Corps of Engineers
P.O. Box 1715
Baltimore MD 21201

Dear Mr. Copola:

The State Highway Administration (SHA) invites you to attend a two day meeting, we are holding, regarding environmental issues on the US 113 project planning study. The meeting will be held on August 3 and 4. On August 3, we will meet at the Snow Hill High School, at 10:00 a.m. (see map) and is expected to end approximately 3:00 p.m.

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Very truly yours,

Neil J. Pedersen

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

Attachment

cc: Mr. Joseph Kresslein
Mr. Alan Straus
Ms. Gay Olsen
Ms. Lorraine Strow

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
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Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717

2

54

Maryland Department of Transportation
State Highway Administration

July 24, 1995

Mr. Mike Slattery
Department of Natural Resources
Tawes State Office Bldg. E-2
Annapolis MD 21401

Dear Mr. Slattery: Mike

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Very truly yours,

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

Attachment

cc: Mr. Joseph Kresslein
Mr. Alan Straus
Ms. Gay Olsen
Ms. Lorraine Strow

My telephone number is _____

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Maryland Department of Transportation
State Highway Administration

David L. Winstead
Secretary
Hal Kassoff
Administrator

July 24, 1995

Mr. Pete Stokley
E.P.A. - Wetlands Protection Service
Region III
841 Chestnut Street
Phiadelphia PA 19107

Dear Mr. Stokley: Pete

The State Highway Administration (SHA) invites you to attend a two day meeting, we are holding, regarding environmental issues on the US 113 project planning study. The meeting will be held on August 3 and 4. On August 3, we will meet at the Snow Hill High School, at 10:00 a.m. (see map) and is expected to end approximately 3:00 p.m.

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Very truly yours,

Neil J. Pedersen

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

Attachment

cc: Mr. Joseph Kresslein
Mr. Alan Straus
Ms. Gay Olsen
Ms. Lorraine Strow

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Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717

Maryland Department of Transportation
State Highway Administration

David L.
Secretary
Hal Kass
Administrat

July 24, 1995

Mr. Michael Day
Chief, Office of Preservation Services
Maryland Historical Trust
100 Community Place
Annapolis MD 21032-2023
ATTN: Beth Hannold

Dear Mr. Day:

The State Highway Administration (SHA) invites you to attend a two day meeting, we are holding, regarding environmental issues on the US 113 project planning study. The meeting will be held on August 3 and 4. On August 3, we will meet at the Snow Hill High School, at 10:00 a.m. (see map) and is expected to end approximately 3:00 p.m.

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Very truly yours,

Neil J Pedersen

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

cc: Mr. Joseph Kresslein
Mr. Alan Straus
Ms. Gay Olsen
Ms. Lorraine Strow

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Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717

544

Maryland Department of Transportation
State Highway Administration

David L. Winstead
Secretary
Hal Kassoff
Administrator

July 24, 1995

Mr. William Schultz
U.S. Depepartment of the Interior
Fish and Wildlife Services
177 Admiral Cochrane Dr.
Annapolis MD 21401

Dear Mr. Schultz: Bill

The State Highway Administration (SHA) invites you to attend a two day meeting, we are holding, regarding environmental issues on the US 113 project planning study. The meeting will be held on August 3 and 4. On August 3, we will meet at the Snow Hill High School, at 10:00 a.m. (see map) and is expected to end approximately 3:00 p.m.

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Very truly yours,

Neil J Pedersen

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

Attachment

cc: Mr. Joseph Kresslein
Mr. Alan Straus
Ms. Gay Olsen
Ms. Lorraine Strow

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Maryland Department of Transportation
State Highway Administration

David L. W
Secretary
Hal Kassof
Administrator

July 24, 1995

Mr. John Nichols
Habitat and Protected Resources
National Marine Fisheries Services
Oxford Laboratory
Oxford MD 21650

Dear Mr. Nichols:

The State Highway Administration (SHA) invites you to attend a two day meeting, we are holding, regarding environmental issues on the US 113 project planning study. The meeting will be held on August 3 and 4. On August 3, we will meet at the Snow Hill High School, at 10:00 a.m. (see map) and is expected to end approximately 3:00 p.m.

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Very truly yours,

Neil J Pedersen

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

Attachment

cc: Mr. Joseph Kresslein
Mr. Alan Straus
Ms. Gay Olsen
Ms. Lorraine Strow

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Maryland Department of Transportation
State Highway Administration

David L. Winstead
Secretary
Hal Kassoff
Administrator

July 24, 1995

Mr. Andrew Der
Nonpoint Source Permit Program
D.O.E. Water Management Administration
2500 Broening Highway
Baltimore MD 21224

Dear Mr. Der: Andy

The State Highway Administration (SHA) invites you to attend a two day meeting, we are holding, regarding environmental issues on the US 113 project planning study. The meeting will be held on August 3 and 4. On August 3, we will meet at the Snow Hill High School, at 10:00 a.m. (see map) and is expected to end approximately 3:00 p.m.

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Very truly yours,

Neil J Pedersen

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

Attachment

cc: Mr. Joseph Kresslein
Mr. Alan Straus
Ms. Gay Olsen
Ms. Lorraine Strow

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Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717

Maryland Department of Transportation
State Highway Administration

David L.
Secretary
Hal Kass
Administrat

July 24, 1995

Mr. Jim Noonan
Office of State Planning
State Clearing House
301 West Preston Street
Baltimore MD 21201

Dear Mr. Noonan: Jim

The State Highway Administration (SHA) invites you to attend a two day meeting, we are holding, regarding environmental issues on the US 113 project planning study. The meeting will be held on August 3 and 4. On August 3, we will meet at the Snow Hill High School, at 10:00 a.m. (see map) and is expected to end approximately 3:00 p.m.

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Very truly yours,

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

Attachment

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Mr. Alan Straus
Ms. Gay Olsen
Ms. Lorraine Strow

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548

Maryland Department of Transportation
State Highway Administration

David L. Winstead
Secretary
Hal Kassoff
Administrator

July 24, 1995

Mr. Harold W. Morris
Director of Planning,Permits and
Inspections
Rm. 116 Court House
Snow Hill MD 21863

Dear Mr. Morris:

The State Highway Administration (SHA) invites you to attend a two day meeting, we are holding, regarding environmental issues on the US 113 project planning study. The meeting will be held on August 3 and 4. On August 3, we will meet at the Snow Hill High School, at 10:00 a.m. (see map) and is expected to end approximately 3:00 p.m.

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Very truly yours,

Neil J Pedersen

Neil J. Pedersen, Director
Office of Planning and
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Maryland Department of Transportation
State Highway Administration

David L. W
Secretary
Hal Kasso
Administrato

July 24, 1995

Ms. Sandy Coyman
County Planning Chairperson
Rm. 116 Court House
Snow Hill MD 21863

Dear Ms. Coyman: Sandy

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Neil J Pedersen

Neil J. Pedersen, Director
Office of Planning and
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Mr. Alan Straus
Ms. Gay Olsen
Ms. Lorraine Strow

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50

Maryland Department of Transportation
State Highway Administration

David L. Winstead
Secretary
Hal Kassoff
Administrator

July 24, 1995

Mr. Tim Stoner
General Manager
Ocean Pine Association
2700 Ocean Pine
Berlin MD 21811

Dear Mr. Stoner:

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Maryland Department of Transportation
State Highway Administration

David L. Wi
Secretary
Hal Kassoff
Administrator

July 24, 1995

Mr. Robert G. Hulburd
County Residents Action for Safer Highways
11073 Cathell Road
Berlin MD 21811

Dear Mr. Hulburd:

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Very truly yours,

Neil J. Pedersen

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

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Maryland Department of Transportation
State Highway Administration

David L. Winstead
Secretary

Parker F. Williams
Administrator

MEMORANDUM

TO: Lou Ege, Jr., Deputy Director
Project Planning Division

ATTN: Sue Rajan

FROM: Susan M. Jacobs, Acting Chief
Environmental Programs Division

DATE: March 31, 1997

SUBJECT: FMIS No.: WO 721B11
Description: US 113 -- Snow Hill to the Delaware Line

RE: Wetland Jurisdictional Review

Attached for your use are the minutes of the February 27, 1997, Jurisdictional Review meeting. This meeting completed the JD for the US 113 Corridor. All the wetlands delineated by Coastal Resources have been verified by the US Army Corp of Engineers. The Maryland Department of Environment Nontidal Wetlands and Waterways Division has stated that they will accept the USACOE determination. The survey crews were on site while the JD was proceeding, and were provided with revised mapping. All ditches containing hydrophytic vegetation are considered jurisdictional and will be noted as such on the plans. The ditches were not flagged or surveyed, but will be shown from the topographic mapping.

The Environmental Programs Division, at your request, is proceeding with the mitigation site search, and the Function and Value evaluations for the potentially impacted wetlands. We will provide you with minutes of those meetings as soon as possible.

Please distribute these minutes to all interested parties. If you have any questions or comments, please contact Robert Shreeve at (410) 545-8613.

SMJ/JWH/RES

cc: Bruce Grey, PPD EPS

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
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Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

RECEIVED
MAR 24 1997
ENVIRONMENTAL
PROGRAMS DIVISION

COASTAL
RESOURCES
INC.

Rob
For your
Action
Jack

MINUTES OF MEETING

Project: U.S. Route 113, Snow Hill to Delaware State Line
Project No. WO 720-1-1-170-P

Date: February 27, 1997

Purpose: Wetland Jurisdiction Determination

Location: Snow Hill, Worcester County

In Attendence: Robert Shreeve, SHA-EPD
Gary Jellick, CRI
Michelle Gomez,USCOE

The purpose of the meeting was to complete the jurisdictional determination for three locations in the study area. The attendees met at the SHA District garage in Snow Hill at 9:30 a.m. on February 27, 1997.

Wetland 2 — West Side. All flag locations were verified by the Corps between flags 2-1 to 2-9 and 2A-1 to 2A-6. A jurisdictional channel was added to the map at Station 1104 (this channel does not show up on the topographic plans). The channel will be labeled R4x on the project plans to signify an excavated intermittent stream.

Wetland 5A — West Side between Station 1168 and Station 1174. This is a new wetland that was flagged by the Corps of Engineers and the U.S. Fish and Wildlife Service during a previous site visit. CRI subsequently reviewed the flagging, and the wetland was not inspected again during this field visit. It appears that the wetland has formed in an old borrow area.

Route 90 Interchange — Each quadrant of the Route 90 interchange was reviewed by the group. Two, small depressional wetlands were verified in the northwest quadrant of the interchange, which may have been created by previous disturbance during construction of Rt. 90. Wetland 27A is an emergent wetland that includes an

2988 Solomons Island Road, Edgewater, MD 21037
(410) 956-9000 Balt. (410) 269-9269 DC (301) 261-4805 FAX (410) 956-0566

approximate 20'x100' area. Wetland 27B is a forested wetland that includes an approximate 50'x100' area. Wetland 27C is located in the southeast quadrant of the interchange, and appears to have formed because of blocked drainage ditches.

The group also reviewed numerous drainage ditches in the interchange, and the Corps indicated the limit of jurisdiction within each ditch. The jurisdictional limit within the ditches was indicated on the project plans and no flagging was placed in the field.

After the field review, the group discussed the mapping of farmed wetlands in the study area. All in attendance agreed that flagging and surveying of farmed wetlands was not needed at this time for the purpose of the environmental document. It is acceptable to the Corps to show the approximate location of farmed wetlands based on a review of NRCS information and limited field reconnaissance. Farmed wetlands will be flagged and surveyed prior to permitting only in the area of the selected alternative.

If there are any additions or deletions to these minutes, please contact Gary Jellick at (410) 956-9000.

cc: Attendees
Sue Rajan (SHA-PPD)
Lisa Zeimer (RKK)

COASTAL RESOURCES INC.

MINUTES OF MEETING

Project: U.S. Route 113, Snow Hill to Delaware State Line
Project No. WO 720-1-1-170-P

Date: October 29 to 31, 1996

Purpose: Wetland Jurisdiction Determination

Location: Snow Hill, Worcester County

In Attendence:

Lee Carrigan, SHA-PPD	Mary Huic, FHWA
Paul Maloney, SHA-PPD	Bill Carver, SHA-PPD
Lorraine Strow, SHA-PPD	John Zanetti, SHA-HDD
Robert Shreeve, SHA-EPD	Andy Parker, RK&K
Gary Jellick, CRI	David Sutherland, USFWS
Michelle Gomez,USCOE	Larry Hughes, MDDNR

The purpose of the meeting was to conduct a jurisdiction determination (JD) of forty wetlands identified and flagged in the project planning area by Coastal Resources, Inc. The field review was scheduled for three days.

The attendees met at the SHA District garage in Snow Hill at 8:00 a.m. on October 29, 1996. An overview of the project was presented by Lee Carrigan, Gary Jellick, and Andy Parker. The initial schedule for the field review was to complete the southern study area on the first day, and move to the northern study area on days 2 and 3. However, the schedule was revised within the first few hours of the field review when it became apparent that much more time would be needed to complete the jurisdiction determination for the entire planning area.

A joint decision was made to focus the field review on the northern study area since the northern portion of the project would likely be built before the southern study area. The review was shifted to the northern study area at 1:00 p.m. on October 29. The following information summarizes the results of the jurisdiction determination in the order that the wetlands were reviewed.

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(410) 956-9000 Balt. (410) 269-9269 DC (301) 261-4805 FAX (410) 956-0566

546

Southern Study Area

Wetland 8 - West side only. Wetland boundary between flag numbers 1 to 20 (last flag) approved by the agencies and all in attendance. No changes to flagging.

Wetland 6 - West side only. Wetland boundary between flags 1A to 8A (last flag) and 1B to 22 B (last flag) verified by the agencies. The ditch that extends north of Wetland 6 to the culvert (approx. 250 feet) was determined to be jurisdictional by the Corps because it connects two jurisdictional wetland areas. The ditch should be shown as PEMx on the wetland map; the "x" signifies that it is excavated. The ditch averages 8 feet wide south of the culvert and five feet wide north of the culvert. A flag was placed 100 feet north of the culvert to delineate the limit of regulatory jurisdiction in the ditch.

No decision was made by the Corps concerning the ditch south of Wetland 6 along Public Landing Road; additional information must be reviewed to make the JD.

Wetland 5 - The wetland boundary from flags 1 to 9 (last flag) were verified by the agencies.

A new wetland area was identified by the Corps approximately 2000 feet north of Wetland 5, near the Worcester County jail. The wetland was identified as New-1 and five flags were used to delineate the boundary. New-1 is approximately 30 x 100 feet.

A wet spot at the edge of an agricultural field was observed approximately 1200 feet north of Wetland 5. Wetland vegetation was present in the wet spot; however, the soil did not exhibit hydric characteristics. The Corps stated that the NRCS would have to make the jurisdiction determination in this area.

Wetland 3 - West side only. The wetland boundary between flags 1 and 6 (last flag) were verified by the agencies. An area immediately south of Wetland 3 was inspected and was determined not to be jurisdictional by the Corps. This non-jurisdictional area was not originally flagged by CRI, but shows up on the wetland delineation map from previous site planning studies (NWI maps). The wetland designation will be removed from the map.

Wetland 1 - West side only. Wetland boundary flags 1 to 5 (last flag) were verified.

A new wetland (New-2) was identified in a swale located 150 feet north of Wetland 1. The wetland boundary will be flagged by CRI at a later date.

Northern Study Area

Wetland 40 - West and East side. Wetland boundary verified between flags 1A to 11A (last flag) on the east side, and flags 1B to 13 B (last flag) on the west side. No changes made to delineation.

Wetland 39 (on new alignment, north or Rt. 610) - Delineation verified by the Corps after several flags were moved. Wetland flags have not yet been surveyed; therefore, the flag numbers were not noted.

End of Day 1, 4:45 p.m.

October 30, 1996 (8:00 a.m.) - Group met at Calvery Christ Church parking lot.

Wetland 37 (on new alignment, south of Rt. 610) - The delineation along the northern edge of the wetland was reviewed (flags 32 to 49-last flag). The Corps disagreed with the wetland flagging in this area and all flags were moved, generally to the tree line and Rt. 610. The Corps also noted that the corn field between Rt. 610 and the tree line may be a wetland, and the NRCS would have to be consulted. Flags 1 to 31 were not reviewed by the Corps.

Because of the time needed to review the wetland boundary on flat landscapes and the difference between the original flagging and the Corps flagging, a joint decision was made to postpone the JD on Wetland 37 and try to complete the JD for the major stream valleys of the northern study area.

Wetland 38 (between RR tracks and Rt. 113) - Several flags were moved and the delineation was extended to include the ditch along Rt. 113. All current flag locations (1-12) were verified by the Corps.

Wetland 31 (west side and east side) - Verified flags 1 to 14 on the east side and flags 1 to 6 on the west side. New flags (1A to 5A) were added to include a swale along Rt. 113 in the northwest quadrant. Note: last flag on east side is #29 and last flag on west side is #9, which were not verified.

Wetland 30 (west side and east side) - Verified delineation on the west side from flags 1 to 15 (last flag). Added two flags (1A and 2A) to ensure that the entire study area was flagged. Verified delineation on east side from flags 1 to 24 (last flag on in southeast quadrant) and 1A to 10A (last flag in northeast quadrant). The channel that enters the wetland in the northeast quadrant is "waters of the U.S" (intermittent).

End Day 2, 5:00 p.m.

October 31, 1996 (8:00 a.m.) - Group met at Calvery Christ Church parking lot.

Wetland 28 (west side and east side) - Verified delineation on the west side from flags 1 to 12. Waters of the U.S. continue south in a ditch (phagmites cover) along Rt. 113 to a culvert at Racetrack Road. Verified delineation on east side from flag 1 to 15 (last flag), and added three flags in southeast quadrant to ensure coverage of study area (1A - 1C, verified). Note: last flag on west side is #20, which was not verified.

Wetland 29 (excavated depression) - Corps tentatively agrees with delineation, but final jurisdiction determination was not made pending additional investigation. Flags 2 to 15 were reviewed but not verified. Note: last flag is #20.

End Day 3, 11:30 a.m.

If there are any additions or deletions to these minutes, please contact Gary Jellick at (410) 956-9000 by November 22, 1996.

cc: Attendees

COASTAL RESOURCES INC.

To: Rob Shreeve, Project Manager
Environmental Programs Division

From: Gary Jellick, Coastal Resources, Inc.

Date: December 11, 1996

Subject: U.S. Route 113, Snow Hill to Delaware State Line
Wetlands Jursdiction Determination,
Supplemental Meeting Minutes for November 26 and 27, 1996

The following documentation is intended to supplement the meeting minutes prepared by Todd Nichols for the referenced project (see memorandum to Rob Shreeve dated December 2, 1996). The attendance list and overview of the field review is provided in Mr. Nichols' minutes.

Northern Study Area Alternate 4N

Wetland 27 Flags 1A to 5A were moved 50 to 100 feet west away from the southbound on-ramp. Flag #1 thru flag #37 along the mainline were verified by all in attendance. Flags 38 to 40 were not verified by the agencies because they were outside the proposed r/w.

Note: the entire group reviewed the delineation for Wetland 27 during the afternoon of November 26. The group broke into two teams on November 27 to continue the field review. Michelle Gomez, Al Rizzo, and Gary Jellick reviewed the following wetlands.

Wetland 23 Two new flags (2A and 3A) were added along the northern edge of the wetland to include a wet "finger". All other flags were verified without modification.

As the team walked north along the proposed alignment toward Wetland 26, three small depressional wetlands were identified that were not shown on the plans. One of the depressions was flagged with nine flags (identified as New3). The team decided not to flag the other two depressions in order to save time. Coastal Resources will flag the remaining two depressions at a later date when the agencies return to complete the review for the southern study area.

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Wetland 26 The agencies determined that a farmed wetland exists within the agricultural field located approximately between station 2014 and 2016. The farmed wetland is contiguous with Wetland 26. The agencies also determined that the area of phagmites, which was not originally flagged, should be included in the wetland by connecting flag 1A to flag 8A (eliminate flags 2A to 7A).

Wetland 37 The agencies verified flags 1 to 41 along Alternate 4N with one modification: flags 26 to 29 were removed so that now flag 25 should connect to flag 30.

Flags 1 to 31 along existing U.S. 113 were verfied by the agencies with the following modifications: flag 25 was moved approximately 25 feet east toward 113 and the Corps made note that the wetland should extend approximately 10 feet into the mowed lawn of trailer home between flags 1 and 3. Ms. Gomez stated that we could off-set the line on the map without moving the flags since it is a mowed area.

In summary, the wetlands identified by Coastal Resources in the northern study area have been field verified by the agencies, and surveying should now be completed for accurate representation on the project plans. Coastal Resources will flag two, small depressional areas between wetland 23 and wetland 26 for future verification by the agencies. Coordination with the NRCS will be needed to address farmed wetlands in the study area; however, Ms. Gomez stated that the Corps has the lead on linear projects.

If you have any questions regarding these minutes, please at (410) 956-9000.

cc: Todd Nichols
Andy Parker (RKK)

Maryland Department of Transportation
State Highway Administration

David L
Secretary
Parker I
Administr

DEC 21

MEMORANDUM

TO: Louis H. Ege, Jr., Deputy Director
Project Planning Division

ATTN: Sue Rajan

FROM: Susan M. Jacobs, Acting Chief
Environmental Programs Division

DATE: December 20, 1996

SUBJECT: FMIS No.: WO720B11
Description: US 113 from MD 394 to the Delaware State Line

RE: Wetland Jurisdictional Review

Attached for your use and review are minutes of the November 26 and 27, 1996, Wetland Jurisdictional Review. The Northern Study Area has been completed with t exception of some new areas between W-23 and W-26 that will be flagged by Coast Resources. The Northern wetland delineation can be surveyed.

The next Jurisdictional Review will concentrate on completing the Southern Study A January 8 and 9, 1997 have been set to conduct the meeting. EPD will advise you when the Southern area can be surveyed.

If you have any questions or comments, please contact Robert Shreeve at (410) 54 8613.

SMJ/JWH/RES

cc: Bruce Grey, PPD EPS
Gary Jellick, Coastal Resources Inc.

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Maryland Department of Transportation
State Highway Administration

David L. Winstead
Secretary

Parker F. Williams
Administrator

December 2, 1996

TO: Rob Shreeve, Project Manager
Environmental Programs Division

FROM: Todd Nichols

SUBJECT: U.S. 113, Wetland Jurisdictional
Field Review - Minutes

On ~~December 25~~ November 26, 1996, the first day of a two day field review, representative of the U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers and SHA met at 8:00 AM at the Church located at U.S. 113 and MD 90. The attendees were:

Mr. David Sutherland	U.S. Fish and Wildlife Service
Mr. Al Rizzo	U.S. Fish and Wildlife Service
Mr. Jeff Trulik	U.S. Army Corps of Engineers
Ms. Michelle Gomez	U.S. Army Corps of Engineers
Mr. Todd Nichols	MD State Highway Administration
Gary Jellick	Coastal Resources, Inc.

Due to the severe weather, the attendees agreed to meet back at the site at 12:00 noon. At noon the group reconvened and began the jurisdictional review at wetland 27. As was discussed at a previous meeting between Susan Jacobs, Michelle Gomez and Gary Jellick, the group was to review the soils and hydrology of this system with Mr. Rizzo, and reach agreement on the hydrologic characteristics exhibited in the soil as it relates to jurisdictionality. As a result of this review, it was determined that although a primary indicator of hydrology was not present, that two secondary indicators was adequate to verify hydrology (this was verified in the 1987 Corps Manual). Most wetland flags were moved 100 feet or so west (away from proposed work). The hydrology of this system was very complex, and with the thick understory of pepperbush and greenbrier, the J.D was very time consuming. Gary Jellick noted all flags which were moved.

On November 26, 1996 the group met at 8:00 AM and broke into two groups. Todd Nichols and Jeff Trulik reviewed the wetlands adjacent to existing U.S. 113 and the others reviewed those wetlands along Alternate 4N, ~~the selected alternate~~. Gary Jellick will be writing Alternative 4N J.D. results.

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Results of Todd and Jeffs J.D. review:

W-24. No flags were moved, Jeff concurred with the J.D. of the forested area; however, he did have some concerns about the farm field located south of W-24.

W-25 This system is much more extensive than is depicted on the plans. The wetland line was extended about 300 ft. N.E. along U.S. 113. We removed flags 4, 5, & 6, but added flags 3D and 3E. The Corps will take jurisdiction of the roadside ditch for several hundred feet. The ditch hydrology was directly fed by W-25.

W-34 No flags moved, Jeff concurred with the flagged wetlands; however, he felt the farm fields were disturbed farmed wetlands and should be delineated. Jeff took note of recent logging activities 800 feet west of U.S. 113.

W-33 No flags moved, Jeff concurred with the flagged wetlands. He felt the ditch located near sta. 2265 is jurisdictional waters.

W-36 The area has recently been "bushhogged", so we reflagged the limits along U.S. 113.

Around 1:30 PM we met the rest of the attendees at W-37. We attempted to verify the limits of the "upland island" 800 feet west of sta. 2315 on existing U.S. 113. After nearly forty-five minutes I decided to call the entire area in as wetland, as requested by Michelle Gomez,; however, if alternate 4N is chosen SHA and COE will verify. This upland area is about 2 acres in size and if called wetland could ultimately cost SHA +$200,000 to mitigate.

In summary, the northern section was completed with minor changes. The biggest concern will be the status of the disturbed farmed wetlands.

If you have any further questions see me or call Gary Jellick.

Thanks for the opportunity to help out on this project.

Maryland Department of Transportation
State Highway Administration

David L. [illegible]
Secretary
Parker F. Williams
Administrator

MEMORANDUM

TO: Lou Ege, Jr., Deputy Director
Project Planning Division

ATTN: Sue Rajan

FROM: Susan M. Jacobs, Acting Chief
Environmental Programs Division

DATE: February 5, 1997

SUBJECT: FMIS No.: WO 721B11
Description: US 113 -- Snow Hill to the Delaware Line

RE: Wetland Jurisdictional Review

Attached for your use are the minutes of the January 22 and 23, 1997, Jurisdictional Review meeting. To ensure that a complete set of the JD meeting minutes exists, the minutes from the October 29 - 31, 1996, and November 26 and 27, 1996, meetings are also included. All the wetlands delineated by Coastal Resources have been verified by the US Army Corp of Engineers. The Maryland Department of Environment Nontidal Wetlands and Waterways Division has stated that they will accept the USACOE determination. The survey crews were on site while the JD was proceeding, and were provided with revised mapping. All ditches containing hydrophytic vegetation are considered jurisdictional and will be noted as such on the plans. The ditches were not flagged or surveyed, but will be shown from the topographic mapping.

There are still issues that need to be resolved as part of the Jurisdictional Determination. USACOE wants to coordinate with the National Resource Conservation Service to make the determination on possible farmed wetlands. Coastal Resources will proceed with evaluating Infrared photos to determine the presence of wetlands in the identified areas.

Wetland 29 was reviewed by USACOE in October, but no formal determination has been made. By receipt of these minutes, USACOE is requested to make a determination.

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USACOE requested, at the November review, that SHA re-check the MD 90/US 113 (Alternate 4N) interchange for the presence of wetlands. At the November meeting, USACOE noted that the area adjacent to the interchange may contain wetlands. Due to time constraints, the area was not reviewed because it had not been delineated. Coastal Resources will investigate and delineate as needed. EPD will request USACOE verify the delineation when USACOE is available.

As noted in the November minutes, Wetland 37 should have a comprehensive delineation completed if Alternate 4N is selected in the area of Sta. 2320+00. There seemed to be an extensive upland inclusion in the wetland.

As referred to in the January minutes, the area opposite Wetland 2 has since been determined to have forested wetlands. USACOE determined that wetlands do exist after an in-depth vegetative analysis determined that the vegetation was hydrophytic. USACOE did not determine the extent of the wetlands. Coastal Resources will delineate the wetlands in the next week. EPD will request USACOE verify the delineation when USACOE is available.

USACOE checked a wetland area found on the October JD. The wetland was flagged as "New 1," but was questioned by USACOE. USACOE determined that the wetland was larger than originally flagged. USACOE delineated the wetland. SHA needs to survey and show on the plans.

The resolution of these outstanding issues is under way. Please distribute these minutes to all interested parties. If you have any questions or comments, please contact Robert Shreeve at (410) 545-8613.

SMJ/JWH/RES

cc: Bruce Grey, PPD EPS

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COASTAL RESOURCES INC.

MINUTES OF MEETING

Project: U.S. Route 113 from MD 394 to Delaware State Line
Project No. WO 720-1-1-170-P

Date: January 22 and 23, 1997

Purpose: Wetland Jurisdiction Determination

Location: Snow Hill, Worcester County

In Attendence: Robert Shreeve, MD State Highway Administration, EPD
David Sutherland, U.S. Fish and Wildlife Service
Michelle Gomez, U.S. Army Corps of Engineers
Gary Jellick, Coastal Resources, Inc.

The purpose of the meeting was to complete the jurisdictional determination for the southern study area between Snow Hill and Berlin. The attendees met at the SHA District garage in Snow Hill at 8:00 a.m. on January 22, 1997.

The agencies emphasized that the jurisdictional determination is valid only for the wetland areas that were flagged within the study area. Wetlands have been flagged within 100-feet from the edge of pavement on the side of the road where widening is proposed, and within 50-feet of the edge of pavement on the side where no widening is proposed. If project plans are revised such that disturbance will occur outside of the 50' or 100' study area, additional verification of wetland boundaries will be necessary. Potential wetlands outside the study area are noted on the project plans for information purposes only, and have not been field verified.

In addition to reviewing the location of flagged wetlands, the attendees also noted the characteristics of the numerous ditches in the study area to determine regulatory jurisdiction. The ditches have not been flagged; however, they are identified on the topographic base map for the project. Those ditches that support wetland vegetation, or that appear to be channelized natural streams, where determined to be jurisdictional by the agencies. The jurisdictional determination for each ditch was noted on the project plans, and is not discussed in these minutes.

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All attendees agreed that for the purpose of calculating impacts, the ditches would be assigned a width of 5-feet unless otherwise noted, and would be labeled with the suffix "x" to indicate that the wetland or stream is man-made or excavated (PEMx = emergent wetland ditch; R4x = channelized intermittent stream; R2x = channelized perennial stream). The attendees also agreed that the roadside ditches would be replaced in-kind, and that they should not be included in the overall mitigation requirements for the project.

The following information summarizes the results of the jurisdiction determination in the order that the wetlands were reviewed.

Wetland 1A - West side. This area is a new extension of Wetland 1, which was previously verified by the Corps. The wetland boundary between flags 1A-1 to 1A-8 were verified by all in attendance. Wetland 1A has recently been logged and has a new growth of emergent and scrub/shrub species. Wetland 1 and Wetland 1A are connected by a jurisdictional ditch located along U.S. 113. The jurisdictional ditch will be labeled as PEMx on the project plans.

Wetland 2 - West side. Wetland 2 was extended to the toe of slope for the road embankment from approximately Station 1101 to Station 1091. Eleven new flags were placed along the toe of slope and were labeled New-1 to New-11. Flag New-11 ties-in to the existing flag E2-3. Flags E2-1 and E2-2 were removed.

The area on the east side of 113, opposite of Wetland 2, was reviewed by the Corps; however, a final decision on regulatory jurisdiction was not made. The Corps stated that additional information will be reviewed, and the SHA will be informed if the area should be flagged. Coastal Resources did not flag the area as wetland because the plant community is predominately white oak (facu), loblolly (fac-), red oak (facu), American holly (facu), and highbush blueberry (facw).

Wetland 3 - East side. No changes made to wetland flagging. The agencies determined that the ditch that enters the wetland from the south is jurisdictional, and should be labeled as PEMx.

Wetland 4 - South side of Brick Kiln Road. The wetland is outside the design area. If final design impacts this area, the wetland will be verified by the agencies.

Wetland 7 - Wetland boundary between Flag 6C and Flag 22C was verified by the agencies.

Wetland 8 - The wetland boundary between Flag E5-1 and E5-22 was verified by the agencies. The wetland map was revised between Station 1215 and Station 1205 to indicate that the wetland comes within 100 feet of the road; however, this area is outside the 50' study area and was not verified by the agencies.

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Sta. 1315 - West side. The wooded area immediately north of the Snow Hill Mennonite Church near Test Plot 15 was reviewed. The agencies verified that jurisdictional wetlands do not exist in the area.

Wetland 9 - West side. The jurisdictional area within 100 feet of the U.S. 113 is confined to the stream channel. A scrub/shrub wetland fringe exists within the channel.

- East side. Wetland boundary flags verified. The map should be re-labeled to indicate that emergent wetlands are located outside of the tree-line. The drainage ditch along U.S. 113 immediately north of Wetland 9 is jurisdictional for a distance of 50 feet past the last flag, and should be classified as PEMx.

Wetland 10 - West side. All flags (E7-1 to E7-10) were verified by the agencies with no modification.

- East side. Agencies verified that jurisdictional waters are confined to the streambank, which has been channelized. The channel was not flagged.

Sta. 1555 - East side, approximately 500 feet north of Newark Rd. The agencies verified that jurisdictional wetlands do not exist in the wooded area. This area appears to be effectively drained by drainage ditches. However, a small emergent wetland, predominantly soft rush, was identified along the south side of the wooded area, within 50-feet of the road. The wetland was field measured to cover a 15'x50' area, which will be shown on the final wetland maps. No flags were placed around the emergent wetland.

Three wet spots were observed in the agricultural field on the west side of 113 between Station 1556 and Station 1561. One of the wet spots is within 100-feet of the road. The agencies stated that NRCS photos shall be reviewed by SHA/CRI to confirm and delineate any farmed wetlands in this area.

Sta. 1575 - West side. The wastewater treatment pond for the Town of Newark is not considered jurisdictional waters by the agencies.

Wetland 12 -The wetland boundary was verified by the agencies with the following modifications:

West side, northern area

- Flag W9-2 was moved 160-feet east to the edge of the phragmites at driveway culvert.
- Flag W9-3 and W9-4 were moved 20-feet south to the edge of the tree-line.
- Flag W9-9 should connect to Flag W9-15; Flags W9-10 to W9-14 were removed.
- Flag W9-22 was verified without modification (last flag)

West side, southern area

- Flags W9-23, 24, and 25 were moved 20-feet northeast.
- Flag W9-31 was moved 25-feet south
- Flag W9-32 (last flag) was verified without modification
- Ditch along road is jurisdictional (PEMx) for 200-feet south of Flag W9-29

East side, southern area

- Flag E9-1 moved 90-feet south
- Flag E9-2 moved 50-feet south
- Flag E9-16 moved 10-feet east
- Flag E9-18 (last flag) verified without modification

East side, northern area

- Flag E9-20 moved 20-feet west
- Flags E9-33, 34, and 35 were relocated to the toe of slope (SHA Survey Dept has been instructed to survey new location of these flags)

Wetland 13 - West side. Flag W10-2 was moved 60-feet north along road. All other flags W10-1 to W10-11 were verified by the agencies. The channel within 75 feet o the culvert shall be labeled as a perennial stream on the final wetland map.

East side. Flag E10-3 moved 50-feet west to edge of phagmites at culvert. Al other flags (E10-1 to E10-11) were verified by the agencies.

Sta. 1697 West side. The agencies confirmed that jurisdictional wetlands do not exis within 100 feet of the road. Potential wetlands (not confirmed) exist outside o the 100-foot study area in this location.

Wetland 14 - Wetland is outside the 50' study area and was not verified. The agencies verifie that no wetlands exist within 50-feet of the road.

Wetland 15 - All flags (1 to 12) were previously verified by the Corps independently after th last field review was completed on November 27, 1996.

Wetland 16 - West side. All flags (1 to 11) verified without modification

East side. Flag 5A moved 25-feet south (Note: Flagging had not yet bee surveyed in this area; therefore, the survey plot will not need to be revised). potential wetland exists outside the 50-foot study area, between Wetland 16 an Goody Hill Road.

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Sta. 1733 - West side. A depressional forested wetland was identified, but not flagged, on the west side between Wetland 15 and Wetland 16. The agencies stated that NRCS photos shall be reviewed by SHA/CRI to confirm and delineate any farmed wetlands in this area.

Wetland 17 - Flag W14-2 was moved 55-feet north into a mowed lawn. (Note: Flagging had not yet been surveyed in this area; therefore, the survey plot will not need to be revised). The Corps stated that the lawn portion of the wetland should be identified as a "Landscaped Wetland".

Sta. 1746 - East side. A potential farmed wetland exists outside the 50-foot study area, approximately 800-feet north of Goody Hill Road. The agencies stated that NRCS photos shall be reviewed by SHA/CRI to confirm and delineate any farmed wetlands in this area.

Wetland 18 - West side. All flags (1 to 14) were verified by the agencies without modification.

East side. Six new flags (18A-1 to 18A-6) were placed between Sta. 1760 and Sta. 1762. (SHA Survey Dept. has been instructed to survey new location of these flags). Flags 18B-1 to 18B-6 were verified by the agencies.

Wetland 20 - All flags between 17-1 and 17-12 were verified by the agencies. Several flags were moved closer to the road; however, flag numbers were not noted because the flags had not yet been surveyed.

Wetland 21 - East and West sides. All flags verified without modification.

Sta. 2010 On new alignment in northern study area - Two new wetlands were previously identified by the agencies during the field review in November, 1996 and have subsequently been flagged by CRI. The wetlands were flagged New4-1 to 14 and New5-1 to 18. All flags were verified by the agencies without modification. (SHA Survey Dept. has been instructed to survey these new locations)

If there are any additions or deletions to these minutes, please contact Gary Jellick at (410) 956-9000.

cc: Andy Parker (RKK)

Maryland Department of Transportation
State Highway Administration

David L. Wi
Secretary

Parker F. Wi
Administrator

MEMORANDUM

TO: Lou Ege, Jr., Deputy Director
Project Planning Division

ATTN: Sue Rajan

FROM: Susan M. Jacobs, Acting Chief
Environmental Programs Division

DATE: April 11, 1997

SUBJECT: FMIS No.: WO 720B11
Description: US 113 -- Snow Hill to the Delaware Line

RE: Wetland Mitigation Site Review

Attached for your use are the minutes of the March 20, 27 and 28, 1997, Wetland Mitigation Site Review meetings. These meetings established that the agencies concur that wetland creation is possible along the US 113 Corridor. This is sufficient for the agencies to evaluate the alternates retained for study, but does not commit the agencies, or SHA, to any site for mitigation needs.

The Environmental Programs Division, at your request, is proceeding with the remainder of the mitigation site search. EPD, in coordination with Coastal Resources Inc., the Office of Real Estate and the Project Planning Division, will begin making property owner contacts to establish the availability of the identified sites. EPD will also review the conceptual mitigation site plans that will be needed for the FEIS and developed by RK&K/CRI.

Please distribute these minutes to all interested parties. If you have any questions or comments, please contact Robert Shreeve at (410) 545-8613.

SMJ/JWH/RES

cc: Joe Kresslein, PPD EPS

My telephone number is _____

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COASTAL RESOURCES INC.

MINUTES OF MEETING

Project: U.S. Route 113, Snow Hill to Delaware State Line
Project No. WO 720-1-1-170-P

Date: March 20, 1997

Purpose: Field Review of Potential Wetland Mitigation Sites

Location: Snow Hill, Worcester County

In Attendence: Robert Shreeve, SHA-EPD
Michelle Gomez,USCOE
Al Kampmeyer MDE
Gary Jellick, CRI

The purpose of the meeting was to review potential wetland mitigation sites in the southern study area that may be used to compensate for unavoidable wetlands impacts associated with the project. The attendees met at the SHA District garage in Snow Hill at 10:00 a.m. on March 20, 1997. Gary Jellick provided draft copies of site location maps and summary tables for each recommended site based on a preliminary review by SHA and CRI. The following general comments were made by the agencies that would be applicable to all potential mitigation sites:

1. Adjacent land use (current and future) shall be identified as it relates to potential impact on the mitigation sites (i.e., habitat value, hydrology).

2. The U.S. Fish and Wildlife Service and USEPA shall be involved in ranking the suitability of potential sites for wetland mitigation. (Note: The USFWS and USEPA are scheduled to review mitigation sites on March 28, 1997).

3. Archeological review of the sites shall be required before the agencies concur with the use of the sites for wetland mitigation.

4. Consultation with the Natural Resource and Conservation Service (NRCS) shall be conducted to verify the status of Prior Converted Cropland or Farmed Wetlands that may exist within the proposed mitigation sites.

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The following wetland mitigation sites were reviewed by the agencies and were determined to be suitable for additional on-site investigations. At this time, the sites shall be considered potential mitigation sites for the purpose of the environmental document. Final agency concurrence on each site for permitting purposes shall occur after more detailed studies are completed. Refer to the attached table for a general description of each site.

Sites that are potentially suitable for wetland mitigation:

2A - 100' west of station 1035
3 - 2000' east of station 1080
4 - 2500' east of station 1105
4A - 1000' east of station 1132
14 - 3600' west of station 1775
14A - 2000' east of station 1735
16 - 1000' east of station 1865
16A - 100' west of station 1740

Site 6 (1500' east of station 1220) was reviewed and found to be unacceptable for additional investigations because of questionable hydrology and the distance to the cypress swamp along Patty's Branch. CRI and SHA will investigate another area to the south of Site 6 which may offer a direct connection to the cypress swamp.

If there are any additions or deletions to these minutes, please contact Gary Jellick at (410) 956-9000.

cc: Attendees
Sue Rajan (SHA-PPD)
Lisa Zeimer (RKK)

COASTAL RESOURCES INC.

MINUTES OF MEETING

Project: U.S. Route 113, Snow Hill to Delaware State Line
Project No. WO 720-1-1-170-P

Date: March 27-28, 1997

Purpose: Field Review of Potential Wetland Mitigation Sites

Location: Snow Hill, Worcester County

In Attendence: Jack Hett, SHA-EPD
Michelle Gomez,USCOE
David Sutherland, USFWS
Danielle Algazi, EPA
Al Kampmeyer, MDE (3/27 only)
Gary Jellick, CRI (3/28 only)
Ricardo Gonzalez, CRI (3/27 only)

The purpose of the meeting was to review potential wetland mitigation sites in the northern and southern study area that may be used to compensate for unavoidable wetlands impacts associated with the project. The attendees met at the SHA District garage in Snow Hill at 10:00 a.m. on March 27, 1997. Ricardo Gonzalez provided draft copies of site location maps and summary tables for each recommended site based on a preliminary review by SHA and CRI.

The following wetland mitigation sites were reviewed by the agencies and were determined to be suitable for additional on-site investigations. At this time, the sites shall be considered potential mitigation sites for the purpose of the environmental document. Final agency concurrence on each site for permitting purposes shall occur after more detailed studies are completed.

The following sites were reviewed on March 27, 1997. All attendees agreed that the sites are suitable for additional investigations:

2988 Solomons Island Road, Edgewater, MD 21037
(410) 956-9000 Balt. (410) 269-9269 DC (301) 261-4805 FAX (410) 956-0566

- **Site 19-** 100' west of station 2010. The location of suitable area will depend on which alignment is selected.

- **Site 28-** 1100' west of station 2215. Some concern raised by the agencies regarding the distance to the railroad tracks and how much natural buffer could be maintained between the tracks and the mitigation site.

- **Site 32-** 600' west of station 2340. All agencies agreed that Site 32 is acceptable for additional investigations.

- **Site 33-** 100' west of station 2335 (May not be suitable if alternative 4N is selected)

Site 21 and 21A were reviewed and found to be unacceptable by the agencies for additional investigations because of questionable hydrology, and the location between existing and proposed roads. Site 21 is adjacent to station 2080, on the west side of Rt. 113, and Site 21A is 700' west of station 2080.

In addition, the Corps of Engineers questioned the suitability of Site 22 because of adjacent land use, which may affect the potential for the site to provide wildlife habitat. The site is bounded by Rt. 90 and Rt. 113 to the south and west, and has a gravel driveway along the northern boundary. The Corps also questioned the source of hydrology for the site. The SHA agreed that Site 22 would not be considered a primary mitigation site for the purpose of the environmental document. The USFWS noted that the site was currently being used by shore birds and waterfowl as the result of flooding caused by a recently constructed berm on the adjacent property.

March 28, 1997

The group met at the SHA Snow Hill garage at 8:30 a.m. to discuss the sites that were reviewed on the previous day, and to discuss the wetland function assessment methodology presented in the draft environmental document. The agencies do not accept the SHA checklist methodology that was used for the environmental document, and stated that a preferred alternative could not be determined until a more rigorous field method was used to evaluate wetland functions and values.

The Corps of Engineers recommended, and the SHA agreed, that the New England method should be used for the wetland function assessment. The group decided that the field work will be done with two teams, one for the north and one for the south. The field work will have to be completed by April 4, 1997 to meet the schedule for the environmental document. The Corps of Engineers stated the functional assessment could be completed on the basis of "wetland systems", whereby similar wetlands would be grouped together for the purpose of data gathering. The agencies will report back to the SHA regarding the potential field dates for available staff.

The following sites were reviewed on March 28, 1997. All attendees agreed that the sites are suitable for additional investigations:

- **Site 6A**- 1500' east of station 1220. This is an alternative to Site 6, which was previously eliminated from further consideration on March 20, 1997. Groundwater at Site 6A was measured at 3.5' below the ground surface in an open borehole. The Corps questioned the amount of cut that would be needed (approx. 5'), which would allow the site to function as a floodplain of Purnell Branch (cypress area).

- **Site 10**- 600' east of station 1450. All agencies agreed that Site 10 is acceptable for additional investigations.

- **Site 11**- 1000' east of station 1520. The agencies prefer the area that is currently a horse pasture to allow a connection with existing wetlands in the pasture.

- **Site 12**- 1000' west of station 1540. The far western portion of the field should be further investigated for a possible connection to Coonsfoot Branch.

- **Site 12A**- 300' east of station 1560. All agencies agreed that Site 12A is acceptable for additional investigations.

The group field review ended at 1:00 p.m., but sites 2A, 3, 4 and 4A were reviewed in the afternoon by the USFWS and CRI (the Corps, MDE, and SHA previously reviewed these site on March 20, 1997). The USFWS agreed that these sites should be considered for additional investigations. The USFWS and CRI also identified one additional site that may be suitable for mitigation in the area of the cypress swamp. The site is located 800' east of station 1230 between the railroad tracks and the cypress swamp. Portions of the site are used for pasture, which comes within 20' of the swamp. A floodplain connection could be made by excavating from 2-6 feet of soil. Approximately 2 acres may be suitable for mitigation. The site has been designated as Site 6B and shall be reviewed by the SHA and the agencies during subsequent field work in the project area.

If there are any additions or deletions to these minutes, please contact Gary Jellick at (410) 956-9000.

cc: Attendees
Sue Rajan (SHA-PPD)
Lisa Zeimer (RKK)

United States Department of the Interior

FISH AND WILDLIFE SERVICE

TAKE PRIDE IN AMERICA

PROJ DEVELO DIVISI

APR 26 9 17 AM '95

Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401
April 19, 1995

Mr. Louis H. Ege, Jr., Deputy Director
Office of Planning and Preliminary Engineering
Maryland State Highway Administration
P.O. Box 717
Baltimore, Maryland 21203-0717

Attn: Joseph R. Kresslein, Assistant Division Chief
Environmental Planning, Project Planning Division

Re: Contract #AW 821-108-070
US 113 Improvements
Worcester County, Maryland

Dear Mr. Ege:

This responds to your March 13, 1995, request for information supporting your investigation of natural resources within the above referenced project area. We have reviewed the information you enclosed and are providing comments in accordance with the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

Except for occasional transient individuals, no other Federally listed or proposed endangered or threatened species are known to exist in the project area. Should project plans change, or should additional information on the distribution of listed or proposed species become available, this determination may be reconsidered.

This response relates only to threatened and endangered species under our jurisdiction. It does not address Service concerns pursuant to the Fish and Wildlife Coordination Act or any other legislation. For information on other rare species, including state-listed species, you should contact Ms. Lynn Davidson of the Maryland Natural Heritage Program at (410) 974-2870.

We appreciate the opportunity to provide information relative to fish and wildlife resources. If you have any questions on these comments, please contact Mark Sherfy of this office at (410) 573-4542.

Sincerely,

for John P. Wolflin
Supervisor
Chesapeake Bay Field Office

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Maryland Department of Transportation
State Highway Administration

David L. Winstead
Secretary

Parker F. Williams
Administrator

February 21, 1997

Mr. J. Rodney Little
Director
Maryland Historical Trust
100 Community Place
Crownsville MD 21032-2023

Dear Mr. Little:

The US 113 corridor is experiencing a severe deterioration in safety and service, and the State Highway Administration (SHA) is proceeding with project planning to upgrade this road from south of Snow Hill to the Delaware State line. This section of US 113 has experienced a number of serious accidents over the last few years, including three fatal accidents since mid-December, 1996. The project is receiving a high level of interest from local citizen groups and local, State and Federal elected officials. Both Senator Mikulski and Congressman Gilchrest have expressed a great deal of interest in the project.

As a result of the number and severity of fatal accidents along US 113, we have expedited the project schedule. We are currently preparing a Draft Environmental Impact Statement and are planning a Public Hearing for May 29. We expect to complete planning this Winter. Early this Summer, we intend to select an alternate and immediately begin final engineering. We have been coordinating with your agency and have been receiving good cooperation from your staff.

You and your staff's continued cooperation in expediting reviews and providing required information would be greatly appreciated and is necessary to meet our scheduled commitments. If we can be of any help to you in this regard, please let me know.

Sincerely,

Parker F. Williams
Administrator

cc: The Honorable Wayne T. Gilchrest, Member, U.S. House of Representatives
The Honorable Barbara A. Mikulski, Member, U.S. Senate

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Maryland Department of Transportation
State Highway Administration

David L. W
Secretary

Parker F. \
Administratc

February 21, 1997

The Honorable Jane Nishida
Secretary
Maryland Department of the Environment
2500 Broening Highway
Baltimore MD 21224

Dear Secretary Nishida:

The US 113 corridor is experiencing a severe deterioration in safety and service, ar the State Highway Administration (SHA) is proceeding with project planning to upgrade th road from south of Snow Hill to the Delaware State line. This section of US 113 has experienced a number of serious accidents over the last few years, including three fatal accidents since mid-December, 1996. The project is receiving a high level of interest fron local citizen groups and local, State and Federal elected officials. Both Senator Mikulski a Congressman Gilchrest have expressed a great deal of interest in the project.

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Sincerely,

Parker F. Williams
Administrator

cc: The Honorable Wayne T. Gilchrest, Member, U.S. House of Representatives
The Honorable Barbara A. Mikulski, Member, U.S. Senate

My telephone number is _____

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1-800-735-2258 Statewide Toll Free

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Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

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Maryland Department of Transportation
State Highway Administration

David L. Winstead
Secretary

Parker F. Williams
Administrator

February 21, 1997

The Honorable John Griffin
Secretary
Maryland Department of Natural Resources
Tawes State Office Building
580 Taylor Avenue
Annapolis MD 21401-2397

Dear Secretary Griffin:

The US 113 corridor is experiencing a severe deterioration in safety and service, and the State Highway Administration (SHA) is proceeding with project planning to upgrade this road from south of Snow Hill to the Delaware State line. This section of US 113 has experienced a number of serious accidents over the last few years, including three fatal accidents since mid-December, 1996. The project is receiving a high level of interest from local citizen groups and local, State and Federal elected officials. Both Senator Mikulski and Congressman Gilchrest have expressed a great deal of interest in the project.

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Sincerely,

Parker F. Williams
Administrator

cc: The Honorable Wayne T. Gilchrest, Member, U.S. House of Representatives
The Honorable Barbara A. Mikulski, Member, U.S. Senate

Maryland Relay Service for Impaired Hearing or Speech
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Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Maryland Department of Transportation
State Highway Administration

David L. W
Secretary
Parker F. W
Administrator

February 21, 1997

Mr. Ronald Kreitner
Director
Maryland Office of Planning
301 West Preston Street
Baltimore MD 21201-2365

Dear Mr. Kreitner:

The US 113 corridor is experiencing a severe deterioration in safety and service, an the State Highway Administration (SHA) is proceeding with project planning to upgrade th road from south of Snow Hill to the Delaware State line. This section of US 113 has experienced a number of serious accidents over the last few years, including three fatal accidents since mid-December, 1996. The project is receiving a high level of interest from local citizen groups and local, State and Federal elected officials. Both Senator Mikulski a Congressman Gilchrest have expressed a great deal of interest in the project.

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Sincerely,

Parker F. Williams
Administrator

cc: The Honorable Wayne T. Gilchrest, Member, U.S. House of Representatives
The Honorable Barbara A. Mikulski, Member, U.S. Senate

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MARYLAND

STATE HIGHWAY ADMINISTRATION

INTERAGENCY REVIEW MEETING

May 17, 1995

State Highway Administration
211 E. Madison Street
Baltimore, Maryland 21202

SHA would begin the section 106 consultation when we start with MIS evaluation. The actual section 106 coordination, that level of detail would occu in the subsequent NEPA analysis.

QUESTION/COMMENT:

MS. CHRIS DUTCH, FHWA:

There would be some identification.

QUESTION/COMMENT:

MR. DAVE LAWTON, FHWA:

Stated that when NEPA is started, there are going to be situations where the gathering of that detailed information is going to reveal new resources that were not picked up before.

Contract No. AW 821-108-070 P
US 113: Snow Hill to Delaware
State Line in Worcester County
Status: Purpose and Need
Project Manager: Mr. Leroy Carrigan x 4582
Environmental Manager: Ms. Lorraine Strow x1184

MR. PAUL MALONEY, SHA:

US113 is a major highway on the Delmarva peninsula. Combined with US13 and US50, they form the backbone of the transportation of the lower Eastern Shore of Maryland and Sussex County, Delaware. US 113 directly links three of Worcester County's four incorporated areas: Berlin, Snow Hill, the County Seat, and Pokomoke City. Also it indirectly serves a fourth which is Ocean City.

During the vacation season, Ocean City is the second largest city in Maryland because of vacations. This facility is classified as a rural principal arterial on the federal classification system and as an intermediate arterial on the state functional classification system.

US 113 north and south of the project limits, which is the Delaware state line, and south of Snow Hill is a four lane divided highway. A 4.4 mile segment of US 113 around Berlin is already a dualized highway. In Delaware the remaining two lane undivided portion of US 113 from Millford to Georgetown is currently being reconstructed as a four lane divided highway.

The comprehensive development plan for Worcester County, Maryland, adopted in 1989, identifies US 113 as a key element of the county's regional arterial highway system. The plan recognizes the need to upgrade US 113 and recommends that Worcester County work with the state of Maryland to develop a plan of improvement for MD 90 and US 113 that meets the needs of the county. Project planning studies were conducted in the early 1970's and an alternate was selected at that time. Since no right-of-way was preserved, development occurred along the alignment.

Another study was initiated in the late 1980's to address the current environmental regulations and update the previous study which had become dated. Alternatives and their impacts were identified. An alternatives public meeting was held on November 19, 1990 in Berlin. Immediately after the hearing, the project was dropped.

No section of US113 has an overall accident rate greater than the state wide average for similar roadways. A five year (1989 to 1993) accident history study of MD 113 was broken into four sections, each a distinct segment of the highway. From Pokomoke to Snow Hill, approximately 10 miles is dualized and the accident rate is slightly lower than the state wide average, while the fatality rate is slightly higher than the statewide average.

From Snow Hill to Berlin is approximately 16 miles and is undivided highway. The accident rate is approximately half of that of the state wide average. Its fatality rate is slightly lower than the statewide average. In the Berlin area, with approximately 4 miles of dual roadway, the accident rate is lower than the state wide average rate and the fatal rate is also slightly lower than the state wide rate.

From Berlin to the Delaware line, approximately 7 1/2 miles is undivided roadway with a slightly lower accident rate than the statewide average while the fatality rate is significantly higher than the state wide average. This undivided section north of Berlin has a fatality accident rate of 6.1 accidents per 100 million vehicle miles traveled which is significantly higher than the state wide average of 2.6 accidents per 100 million vehicle miles traveled.

Due to the length of these segments, a range of values are furnished, south to north, in their range. From the Delaware line to US 50, 6,800 to 9,800 in 1994, while in the year 2015,10,300 to 15,000. In the Berlin area, 1994 ADT is 11.300 versus the year 2015, 17,000 ADT. South of Berlin to south of Snow Hill the 1994 ADT is 2,700 to 10,300 versus the 2015 ADT of 4,500 to 15,800.

SHA only has level of service analysis for the north end of the project. Most intersections operate at a level of service A presently and are expected to be in the C to E range in the PM peak in the year 2015.

The northeast section of Worcester County is experiencing continued growth around Ocean City. The development outside of Ocean City is suburban and auto dependent. This will cause an increase of traffic of 30 to 80 percent through the year 2015 on various sections of US 113 with average daily traffic

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ranging from 5,300 to 12,000 in 1995 to 9.250 to 16,000 in the year 2015.

Although the accident rate is not high compared to the state wide average, the fatality rate in the northern undivided section is higher than the statewide average. SHA would expect safety to improve with the construction of the divided highway. Access controls would provide the highest degree of safety.

US 113 does not have a continuous cross section in Maryland. Dualization of these two segments will provide a continuous 4 lane divided US 113 highway on the Delmarva peninsula.

MS. LORRAINE STROW, SHA:

The existing land use in the 113 corridor includes all usage in Worcester county with the exception of Ocean City. There are rural low density, residential, agricultural, forested and open lands.

The northeast corner of the county is expected to grow the most as a result of its proximity to Ocean City. The town of Ocean City is close to the build out condition. Most of the new tourist development will be occurring east of US 113 in the West Ocean City/Ocean Pines areas.

The southern segment of the project from south of Berlin to south of Snow Hill is more rural and agricultural. In order to preserve the natural areas and farming areas, there is a county policy to direct growth to the existing population centers including Berlin and Snow Hill.

There are two major water areas, the coastal area sub basin and the Pokomoke River. Many tributaries feed into each one of them. SHA's environmental concerns involve all of the crossings, wetlands, forest, and flood plains connected with all of those.

These streams are Class I with in stream restrictions of March 1 to June 15, which expands to February 15 to June 15 in the Pokomoke River area. The extent of flood plain impacts and wetland impacts are unknown at this time.

mid-June to mid-August

There are no threatened or endangered species. In the Cary Branch area, there is an endangered black banded sunfish and in the area of Goodhill Branch, there is a rare seaside ulder. From SHA's previous study, the area north of Berlin concluded that the St. Martins Church and cemetery were national register sites. The Lemual Shal House was national register eligible. Those sites are in the Shal area.

Several known historic and prehistoric archeological sites exist in the area. The potential for others exist within or near the project. It does not appear that SHA will approach any parklands or the Chesapeake Bay Critical Area.

QUESTION/COMMENT:

MS. BETH COLE:

Stated that St. Martins is on the wrong side of the road. Pointed out that there is a Maryland Historical Trust easement on that property and MHT will be very concerned about avoiding impact. Part of the western county is one of the few areas where historic burials have been found, so everyone should be aware of that.

QUESTION/COMMENT:

MS. CYNTHIA SIMPSON, SHA:

Asked are there special regulations for native american sites.

RESPONSE:

MS. BETH COLE:

Responded it is a separate act.

QUESTION/COMMENT:

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MS. BETH HANNOLD:

Stated they are confused as to purpose and need of this project.

RESPONSE:

MR. LEROY CARRIGAN, SHA:

Stated that basically, traffic wasn't the overriding factor of problems for the project. SHA does have some concentration at the north end where the fatalities were higher. Stated that there is a group called CRASH,- county residents action for safer highways, and they are advocating the dualization of MD113 and also MD 90.

Stated that they are basing most of their reasons for the dualization as safety. In the last 6 1/2 years from '89 through '95 there have been 18 fatalities along this roadway. From '78 to '93 in a 16 year period, there were 38 fatalities and the number killed was 45.

Stated that SHA does not have it broken down into seasons. SHA does have an accident map with which they will make up another map and list the fatalities by year. SHA has the dates by year, but not by seasons. Stated that it is not just the summer time, there have been 3 fatalities in this year.

QUESTION/COMMENT:

MR. PAUL WETTLAUFER, COE:

Asked how often are trucks involved.

RESPONSE:

MR. LEROY CARRIGAN, SHA:

Stated he is not sure.

QUESTION/COMMENT:

MR. RICHARD SPENCER, COE:

Asked about fixed object collisions. Stated that the north section had the highest fatality rate, but there is not much given for the northern section. SHA also says that resurfacing was done and that SHA super elevated portions of the highway which eliminated some accidents. Asked what portion of that did it help.

QUESTION/COMMENT:

MR. LEROY CARRIGAN, SHA:

Stated there is not data to support that but the fatalities in the north end are still occurring. SHA is working on a map of accidents of all types and another with just fatalities to show where the fatalities happened.

QUESTION/COMMENT:

MS. CYNTHIA SIMPSON, SHA:

Stated that SHA will revise the purpose and need.

QUESTION/COMMENT:

MR. ROY DENMARK:

Stated that he is curious of how the state regulation guidelines fit in with everyone's needs. If these people from CRASH weren't pushing it, would SHA have that data.

QUESTION/COMMENT:

MR. DAVE LAWTON:

Stated that he thinks SHA needs to be careful in what is being set up as the purpose and need. The solution to those problems may be very different from what the political interests are looking for. Stated there was more work to be done on purpose and need.

QUESTION/COMMENT:

MR. RICHARD SPENCER, COE:

Stated that with the data that is provided, he only sees one level of service that would be unacceptable. Whatever purpose and need is agreed to, it is going to drive what alternatives are investigated. Stated that if he was pressed, he would say there is a problem, and it may just involve an interchange or stop signal, but it would have to be studied.

QUESTION/COMMENT:

MR. LEROY CARRIGAN, SHA:

Stated he can address that. SHA had this project before and environmental traffic had to be done for the year 1995. When they did the 2015 numbers, that was build year but it was not stated.

QUESTION/COMMENT:

MS. MARYANN BOYER:

Asked if that means that the levels of service that are projected will be changed.

RESPONSE:

MR. LEROY CARRIGAN, SHA:

Stated that some will change. The A's and B's would not change, but the F

would go to D or E.

QUESTION/COMMENT:

MS. CHRIS DUTCH:

Asked if the traffic counts taken were also for the southern section.

RESPONSE:

MR. LEROY CARRIGAN, SHA:

Stated that previously it was only in the north end, but now SHA is doing the whole job.

QUESTION/COMMENT:

MR. RICHARD SPENCER, COE:

Stated that he concurs. If COE can get the documents ahead of time, they will come with concurrence to the meeting.

QUESTION/COMMENT:

MR. LEROY CARRIGAN, SHA:

Asked if anyone did not get the documents ahead of time. Stated that the documents were new.

QUESTION/COMMENT:

MR. RICHARD SPENCER, COE:

Regarding the statewide averages, asked if that is a publication that gives ranges?

RESPONSE:

MR. LEROY CARRIGAN, SHA:

Stated that he knows people in the Office of Traffic and Safety compiled that from state trooper accidents over the state.

QUESTION/COMMENT:

MR. RICHARD SPENCER, COE:

Requested statistics to see if averages are higher than normal.

QUESTION/COMMENT:

MR. DAVE LAWTON:

Stated that SHA needs to be careful how it is worded because if a loved one died in that area, it should not be called non significant.

QUESTION/COMMENT:

MS. BETH HANNOLD:

Stated that if it is tied to a range with significant stated above that, then there should not be a problem.

QUESTION/COMMENT:

MR. DAVE LAWTON:

SHA can state whether it is significantly above or below.

QUESTION/COMMENT:

MR. LEROY CARRIGAN, SHA:

Responded that if it was a significant amount, it would be on the map. To be stated would have said more if there was more to say.

RESPONSE:

MR. RICHARD SPENCER, COE:

Stated that if they say it was statistically significant, then he will know what they are saying.

QUESTION/COMMENT:

MS. MARYANN BOYER, EPA:

In general, the EPA agrees that, with regards to purpose and need, it was difficult to determine that there was a problem. Stated that she thought she read somewhere that most of the accidents were alcohol induced and if that is so, that can't be controlled. Asked why the project was dropped after the public hearing in '90.

RESPONSE:

MR. LEROY CARRIGAN, SHA:

Responded that it was dropped so Project Planning could turn it over to the district to do spot improvements. They have done some improvements such as signals and flashers and a turn lane.

QUESTION/COMMENT:

MS. MARYANN BOYER, EPA:

Stated that as far as the documentation, they liked the information, but it

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went beyond the purpose and need because it gave different information. It would be more helpful if it stated the problem, with the accident data to beef up the case, why there is a problem and how it would be addressed.

RESPONSE:

MR. LEROY CARRIGAN, SHA:

Replied that those comments would be the same on any project. SHA has an outline that they use to discuss these points and SHA has done that on every purpose and need.

QUESTION/COMMENT:

MS. CHRIS DUTCH:

Regarding the NEPA process, the purpose and need typically includes this information except for the part about dualization, which should not be addressed at this point. The background and history is a part of the process and that is the way all the purposes and needs are done.

RESPONSE:

MS. CYNTHIA SIMPSON, SHA:

Stated that it is what SHA agreed to in the NEPA/404 process. The environmental inventory that is included is not intended to be part of the purpose and need. It is to give up front information on the environmental features of the project area.

QUESTION/COMMENT:

MR. ROY DENMARK:

Asked when SHA presents something for concurrence, is there a separate

purpose and need statement that is specific and narrowed down to what the agencies are concurring?

RESPONSE:

MS. CYNTHIA SIMPSON, SHA:

Stated yes.

QUESTION/COMMENT:

MR. SUMNER CROSBY:

Stated he is curious about the traffic figures that are projected for 2015. Asked how SHA got 250,000 people in Ocean City, is it the most that is going back and forth on Route 50?

RESPONSE::

MR. LEROY CARRIGAN, SHA:

Stated that there are other routes in Ocean City, such as Route 90, Route 50, down through Delaware, and other routes. 90 is a separate project being worked on presently. With Route 90, the state is looking at putting down a guard rail or a small median with some landscaping over the next 6 years or so.

QUESTION/COMMENT:

MR. SEAN SMITH, DNR:

Asked if SHA investigated non tidal wetlands of special concern.

RESPONSE:

MS. LORRAINE STROW, SHA:

806
586

Stated SHA did not investigate non-tidal wetlands yet. SHA found none in this area.

QUESTION/COMMENT:

MR. SEAN SMITH, DNR:

Asked if there are any structures that are associated with a water way proxy?

RESPONSE:

MR. LEROY CARRIGAN, SHA:

Responded that there is one bridge by Snow Hill.

QUESTION/COMMENT:

MR. SEAN SMITH, DNR:

Asked would the proposal be to add an additional lane or change the structure?

RESPONSE:

MS. LINDA KELBAUGH, SHA:

Stated she doesn't know.

QUESTION/COMMENT:

MR. SUMNER CROSBY, EPA:

Stated that, with regards to truck traffic, it seems that is a big play with continuity. The number that was in this printed document, compared to SHA's

5

oral presentationjumped up five percent. Asked if SHA feels comfortable with 15 percent truck traffic.

RESPONSE:

MR. LEROY CARRIGAN, SHA:

Stated that was the number supplied to SHA. Added that many of the trucks aren't necessarily tractor trailers, they have to do with the poultry industry.

QUESTION/COMMENT:

MR. SUMNER CROSBY, EPA:

Asked what happens when SHA dualizes this?

RESPONSE:

MR. LEROY CARRIGAN, SHA:

Stated that the people feel differently. They think people are jumping to this road to avoid the scales. They feel that there won't be more trucks because of dualization because the trucks are already using it.

QUESTION/COMMENT:

MR. RICHARD SPENCER:

Asked were there any studies done on this?

RESPONSE:

MR. LEROY CARRIGAN, SHA:

Stated he didn't know. SHA hasn't done any on this project now. We could

QAS 588

go out and observe trucks and with the count they just did, maybe they did do a separate count for trucks.

Contract No. P 128-102-371 P
MD 223: MD 4 to Temple Hill Road
in Prince Georges County
Status: Alternates Retained for Detailed Study
Project Manager: Mr. Monty Rahman x6437
Environmental Manager: Ms. Lorraine Strow x1184

MR. MONTY RAHMAN, SHA:

The Project Planning Division has completed initial studies to evaluate feasible options to improve safety and operational characteristics along MD 223 from Temple Hill Road to MD 4.

Although MD 223 is a minor arterial that handles significant cross county traffic, the segment of MD 223 from Temple Hill Road to MD 4 is mostly a two lane roadway, much of which is substandard in its horizontal and vertical alignment. The section of MD 223 through the Clinton commercial district is a four lane curbed roadway with intermittent sidewalks along both sides of the roadway.

The planned residential and commercial development in this area will result in congestion and traffic volumes, too large for the existing roadway system to handle safely and efficiently. In addition, fixed object opposite direction and left turn collision rates are statistically significantly higher than the state wide

MARYLAND STATE

HIGHWAY ADMINISTRATION

INTERAGENCY REVIEW MEETING

September 18, 1996

State Highway Administration
211 E. Madison Street
Baltimore, Maryland 21202

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Project No. WO 720B11
U.S. 113: Snow Hill to Delaware State Line
in Worchester County
Status: Alternates Retained for Detailed Study
Project Manager: Leroy Carrigan x8525
Environmental Manager: Lorraine Strow x8527

MR. LEE CARRIGAN, SHA:

In January of 1995 US 113 was initiated for dualization from Snow Hill to Delaware line. The project consists of 2 study areas. The southern study area is from Snow Hill to just south of Berlin and that's about 16 miles and the northern study area is from North US 50 to the Delaware line and that is approximately 7 1/2 miles.

The job is in SHA's (CTP) Consolidated Transportation Plan for planning studies only. After the study was initiated in 1995, the purpose and need was presented at the interagency review meeting of May of 1995. Following that meeting we conducted an alternates public workshop in November of 1995. The purpose and need statement was revised in July of this year and SHA basically has concurrence on a purpose and need statement.

MS. LORRAINE STROW, SHA:

Land uses in the area are rural, low density residential, agricultural, forested and open lands. The southern segment is more rural in agriculture than the northern segment and the northeast corner of the county is expected to grow the most as a result of its proximity to Ocean City.

The project lies within two major watershed areas, the coastal area sub basin and the Pokomoke River. Many tributaries feed into them. Everything south of Newark flows into the Pokomoke.

The crossings, wetlands, forest and floodplains connected with them are one of SHA's main concerns. The Maryland DNR classifies all the streams as Use I for water contact and recreation purposes and would require construction restrictions from March 1 through June 15 for most streams and February 15 through June 15 for streams in the Pokomoke River area where DNR has documented yellow perch.

The approximate impact to 100 year floodplain which is shown in the bright blue on the mapping in the southern study area, that is widening of the existing US 113 we have an approximate acreage of 6 acres. In the northern study area on the widening alternate, the acreage is approximately 7 acres.

In the northern study area the relocated alternate or the alternate which is on relocation for most of the segment north of US50, the approximate wetland impact is 4 acres.

Each of the alternates would impact wetlands. Based on preliminary estimates, in the southern study area on the existing US 113 alternate approximately 8 acres of impact, for the widening of existing US 113 approximately 10 acres in the northern study area and for the relocated alternate we have approximately 29 acres of impact.

The wetlands are presently being delineated. A jurisdictional wetland review was scheduled for October 1, 2 and 3 but we will need to schedule that later.

There are no federally listed threatened or endangered species in the project. The Maryland DNR has identified four rare or endangered plant species known to occur in wetlands in close proximity to the southern study area. Only one of these, the seaside alder, which is rare, has been identified within the area of potential impact.

They have also documented an occurrence of the black banded sunfish in Carry Branch in the northern most part of the study area.

Prime farm land soils and soils of statewide importance occur throughout the project area. Residential and business displacements are another concern. Additional right-of-way will be required for each of the build alternates. In the southern study area for the widening alternate 5,

all residential relocations are apparent.

In the northern study area for the widening alternate, 17 residential and 2 business displacements and for the alternate on relocation in the northern study area, five residences and one business displacement.

SHA does not impact the minority community near Bishop, and does not impact any park or recreational area. There are some parks shown in dark green but the project does not come close to them.

Several historic standing structures are located along US 113 in the project area that are National Register or National Register eligible. SHA is still coordinating with MHT on these sites. None of the historical structures are in the southern study area. Beginning with Irma Norbert Davis farm, there is a question on the eligibility of this property. There is also question as to whether it would be impacted by alternate 3, the widening alternate. SHA has not coordinated with MHT for the boundary for it. We only have coordinated and concurred with two boundaries so far. All the boundaries shown at this meeting are not concurred with boundaries except for two.

The next is Vic's Country Store which is considered eligible for National Register. The northern widening alternate would impact this resource and again SHA has not coordinated on the boundary.

The next one, the Hale's Farm/Mariner Farm is considered National Register eligible. Both of the alternates may impact this site. The consultant is recommending a 1 acre parcel that would include the building which is significant for its architecture and then the out buildings.

Now Old St. Martin's Church is on the National Register and SHA is avoiding this with both alternates. SHA is aware of the community's sensitivity to he church and the fact that MHT holds an easement on the property. That is one of the boundaries that we have coordinated with the trust with and we have their concurrence on.

Next the Shell Store is considered eligible for the National Register and the widening alternate appears that it would impact the Shell Store. However, we have not coordinated on the boundary, so that is not a certainty.

The Beauchamp Feed Store Buildings, it appears that both alternates would impact them, they are considered eligible for the National Register.

The trans peninsula marker is considered eligible for the National Register. Both alternates would avoid this. The state line marker is also considered eligible and it is outside our study area.

There are numerous archeology sites in the project vicinity, both historic and pre-historic within or near the project limits. Others are likely to occur because of the geography of the area, the pre historic and because based on the long history of activity in the study area and the integrity of at least parts of the US 113 alignment, historic archeological sites are considered likely to occur.

Air quality and noise analysis will be required and have not yet been done. An initial site assessment for hazardous waste liability has identified 35 potential sources from industrial, commercial, municipal and residential properties.

MR. LEE CARRIGAN, SHA:

Alternates retained: SHA is going to retain the no build alternate. The no build alternate would not provide a significant improvements, minor improvements would occur as part of normal maintenance and safety, but it wouldn't reduce the capacity or accident rate. Spot improvements could continue with funding from the district level.

Besides the no build, SHA are going to keep TSM alternates. Transportation system management alternates, they would provide, it would provide improvements to the existing roadway without major alteration to enhance safety and reduce traffic congestion. The improvements would be part of an integral plan of safety and capacity improvements as well as traffic management strategies to provide relatively low refinements to the existing transportation system.

These TSM alternates include the continued short term spot improvements by the district such as signing, marking, streetlighting, warning flashers, traffic signals, intersection relocation. But they would also address longer term improvements with additional turning,

acceleration and bypass lanes. Some skid resistant paving overlays and the limit of passing through intersection areas. These improvements would be prioritized on a detailed accident and traffic analysis.

The long term improvements of the projects, we would have the dualization on the existing alignment and also the dualization on relocation, but the relocation would only be in the northern area.

The dualization on the existing alignments would involve the construction of a two new lane roadway adjacent to the existing facility with the retention of the existing roadway whether it be the north or southbound lanes in that case.

The new roadway would generally be constructed on either the east or the west side of the existing roadway to minimize impacts to the natural environment and reduce a number of residential and commercial displacements. The typical roadway section would consist of two 12 foot lanes in each direction, a 34 foot grass depressed median and 10 foot outside shoulders with 20 feet of safety grading where possible.

So on the alternates that SHA will retain along the existing roadway, the new roadway would parallel it basically on the west side for quite a distance.

The alternates would then transition on curves and then continue on all the way through the south area. SHA tried to reduce the impacts to the environment and to commercial and residential houses, on the east and west side.

On the north end SHA has also retained along the existing roadway. There are a couple areas where even though the alternate is along the existing roadway, in general, to try to add one lane SHA proposes using the two existing lanes with a median and add the other paving. In certain areas because there were quite a few residential homes and historical properties.

QUESTION/COMMENT:

MR. BRUCE GREY, SHA:

Asked could you reference the areas you are talking about?

RESPONSE:

MR. LEE CARRIGAN, SHA:

The first area where the alignment is off the existing road was south of the St. Martin's Church. Another area where we actually come off the existing road is near the Lemual Showell House and because it had the bad geometrics a little north of the Showell House, the alignment stayed on relocation here even though we are calling it the existing alignment. Basically SHA followed the existing road again and proposed the removal of a bad curve around Jarvis Road and then followed the existing road to the railroad crossing toward the north end of the project and smoothed out that crossing a little bit until we get to the Delaware state line.

That is all the alignments along the existing roadway. The alternates in the north area that SHA has dropped are called 4N, and in one area it was called 4NA. SHA has dropped that. Sha also dropped 4N in the area to the west of the St. Martin's Church between basically Shal and the graded out interchange area.

On the east side of Showell SHA has dropped Altrnate 4N option A. It would be a wider take of wetlands than what SHA decided to keep in this area and also there is quite a bit of construction happening along Shingle Landing Road in this area and the wetlands were widest around Birch Branch.

The alternates retained starting at US 50, it was 4N coming across on the west side, it would make use of the interchange area or the part that was graded out west of US 113. Then to thesouth it was basically 4N option A.

Then SHA has retained what basically what would resemble option B except it was modified and shifted, would have less relocations in this area and it would also be a crossing that would be narrower at the wetland associated with Middle Branch.

The alignment does follow along the existing road for quite a distance and then goes back off before MD 610 and because there are

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numerous relocations in this area that SHA developed an alternate that would tie back into US 113 existing right at the Delaware state line.

QUESTION/COMMENT:

MR. GREG GOLDEN, DNR:

First I want to say that for DNR, Larry Hughes would be on this project, but usually I end up coming to the meetings. Since one of these alternatives follows an existing road and one has a lot of new alignments, you could choose a combination of those I guess depending on each section?

QUESTION/COMMENT:

MR. LEE CARRIGAN, SHA:

Responded yes.

QUESTION/COMMENT:

MR. GREG GOLDEN, DNR:

The only other thing, he asked whether potentially two numbers were interchanged on this impact sheet.

RESPONSE:

MR. LEE CARRIGAN, SHA:

Asked which numbers he was talking about?

QUESTION/COMMENT:

MR. GREG GOLDEN, DNR:

Regarding the floodplain numbers on 3 and 4, he wanted to look at the maps, but I see that those have been changed somewhat.

QUESTION/COMMENT:

MR. LEE CARRIGAN, SHA:

There were a couple slight errors the brochure when SHA printed the brochure. Andy Parker has gone back and re-evaluated those numbers and now the numbers on this chart are still approximate, but they are a lot closer than what we had in the brochure in a couple of areas.

QUESTION/COMMENT:

MR. GREG GOLDEN, DNR:

Well the old one I see the wetland impacts for 3N and 4N were pretty close and now there is quite a difference.

RESPONSE:

MR. LEE CARRIGAN, SHA:

What happened on 4N as explained to me this morning, when they added up the wetland impacts on alternate 4N that as seen in the brochure or the one that was sent to the agencies in the package, they calculated all the wetlands, but forgot to include some wetlands.

QUESTION/COMMENT:

MR. ANDY PARKER, RK&K:

Explained that he ended up following the 3N alternate through there instead of calculating the impacts for the relocation, we added in the impacts along the existing. So that reflects the error and that brings it back closer, but below what we were planning for the complete relocation alternatives in the brochure, they were up around 30 to 35 acres and we are a little bit below that now.

QUESTION/COMMENT:

MS. MICHELLE GOMEZ, USACE:

I didn't get a copy of this handout, the one that was sent.

QUESTION/COMMENT:

MR. LEE CARRIGAN, SHA:

It was passed it around.

QUESTION/COMMENT:

MS. MICHELLE GOMEZ, USACE:

Not this one, but the alignment one.

QUESTION/COMMENT:

MR. LEE CARRIGAN, SHA:

Stated it should have been mailed to you. Stated we will get you a copy.

QUESTION/COMMENT:

MS. BETH COLE, MHT:

Now that you retained the alternates, what is the schedule for completing the Phase I archeological survey and the reason I'm asking is as SHA mentioned in in this part of the state is an area that there have been discoveries of Native American burials, so as soon as SHA could get that Phase I survey complete, it would be really important information to get.

RESPONSE:

MR. LEE CARRIGAN, SHA:

SHA will work on that soon, with the alternates that were shown on the map. SHA is doing some profile and cross section work so that there can be exact limits.

QUESTION/COMMENT:

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MS. BETH HANNOLD, MHT:

Stated that Kim Williams of this office is handing this but I do have two questions or comments. Asked that when SHA was talking about the impacts to historic structures and the totals that are given in the chart, you are speaking of direct impacts where you would be taking from historic properties and that you haven't gotten to the point where you are assessing possibly less direct impacts such as visual impacts, is that correct?

QUESTION/COMMENT:

MS. LORRAINE STROW, SHA:

Stated yes, that is correct.

QUESTION/COMMENT:

MS. BETH HANNOLD, MHT:

Stated possibly in areas like Old St. Martin's. I don't quite understand always SHA's reasoning for the relocation rather than widening. Certainly in those areas where there is properties on both sides, but why for instance in an area where it appears that there are only things on the one side of the road, I'm not certain that from a historic standing structures point of view and certainly archeology that it is more positive to put a whole new road adjacent to an existing road leaving the existing road I believe rather than widening or putting all your widening to one side..

QUESTION/COMMENT:

MR. LEROY CARRIGAN, SHA:

Stated the one reason is what SHA came across with this particular alternate, we would have had to tie in here, it would have been a little sharper curve, but we felt just to get the whole roadway away from the historic site right here away from.....

QUESTION/COMMENT:

we are trying to get a little further from the church and it still would be pretty flat.

QUESTION/COMMENT:

MS. BETH HANNOLD, MHT:

Stated that SHA would also have two roads where there was one. If SHA's doing that solely for a historic structure standpoint, you might want to think about it really carefully.

QUESTION/COMMENT:

MR. LEE CARRIGAN, SHA:

Stated that one was the additional impact right here of this house plus a few other homes. SHA just thought the geometrics worked out better.

QUESTION/COMMENT:

MR. BILL SCHULTZ, USFW:

Stated no comments at this time.

QUESTION/COMMENT:

MR. JOHN NICHOLS, NMFS:

Stated that he hasn't had a chance to look at this. He would recommend options that are going to minimize impacts in the streams. He likes Greg Golden's idea of possibly combining alternatives to minimize impacts.

QUESTION/COMMENT:

MR. VANCE HOBBS, SHA:

Stated he defers to Michelle Gomez who is the project manager.

MS. BETH HANNOLD, MHT:

Replied it would certainly depend on a lot of details like how big is that island or buffer or whatever there. You might still be impacting the church with your relocated roadway.

RESPONSE:

MR. LEROY CARRIGAN, SHA:

What SHA is trying to do is be far enough down here before we start to swing back up to be away from the church so we thought to come down a little more to the east would be beneficial.

QUESTION/COMMENT:

MS. BETH HANNOLD, MHT:

And what would the space be between the existing roadway and the proposed relocated?

RESPONSE:

MR. LEE CARRIGAN, SHA:

Replied about 100 feet.

QUESTION/COMMENT:

MS. CYNTHIA SIMPSON, SHA:

Asked Beth if she is saying that just because there is not a direct impact that even though Sha is relocating there still could be....effects to historic site.

QUESTION/COMMENT:

MR. LEE CARRIGAN, SHA:

Stated that the terrain out there is basically flat as you all know, so

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QUESTION/COMMENT:

MS. MICHELLE GOMEZ, USACE:

I guess I would echo that SHA should look at combining different alternates.

RESPONSE:

MR. LEE CARRIGAN, SHA:

Stated that SHA can look at that. For example if the alignment was on relocation in one area, once we tie it back in instead of necessarily bypassing the town of Showell to the east, we could go on the existing road area there, but there is a fair amount of relocations associated with this and that is why we bypass Shal..

QUESTION/COMMENT:

MR. BILL SCHULTZ, USFW:

Stated he can summarize the environmental impacts, the existing location would be more beneficial in terms of minimizing the impacts as opposed to relocation and a whole new crossing just as a summary.

QUESTION/COMMENT:

MS. MICHELLE GOMEZ, USACE:

Asked if with the alternates that are studied, are you looking at improving the existing road by widening?

RESPONSE:

MR. LEE CARRIGAN, SHA:

Responded no. There will be the no build option which wouldn't do anything except a little routine maintenance. Then we have the TSM alternates that I described which would do some striping some markings, maybe no passing signs and intersection improvements, SHA could

enhance the existing roadway with some TSM improvements, so that is still in sight and that was retained.

QUESTION/COMMENT:

MS. MICHELLE GOMEZ, USACE:

And in your study I had asked that you study what you have done already as far as safety improvements. Will SHA be doing that?

QUESTION/COMMENT:

MR. LEE CARRIGAN, SHA:

Replied yes. A lot of the safety improvements when we talked to you last on that issue, a lot of them were only in for 5 and 6 and 7 months, so as another couple of months go by, they will have been in place a year and maybe a year and a half or so, so SHA definitely wants to do that study before we ever get to our public hearing.

QUESTION/COMMENT:

MS. CHRISTINE WELLS, MOP:

These alignments cross the railroad track a number of times and you haven't mentioned any significant changes in how they would cross. Are there safety issues at these crossings and would there be structures involved?

RESPONSE:

MR. LEE CARRIGAN, SHA:

Well anytime there is a railroad crossing there could be some safety issues, but we did try to do something here at the railroad crossing at the north end of the project and take the curve out of the road. We are looking into things as far as our TSM improvements as far as gates or flashing signals or something moreso than what exists there today, so we are looking at those railroad crossings under the TSM improvements.

QUESTION/COMMENT:

MS. CHRISTINE WELLS, MOP:

But they are now and would continue to be at grade crossings?

RESPONSE:

MR. LEE CARRIGAN, SHA:

Yes. If we....US 113 then we would continue the at grade crossings.

QUESTION/COMMENT:

MR. ANDY PARKER, RK & K:

Currently we have talked to the railroad and they run anywhere from an average of 3 to 5 trains a week on the tracks. It is on an as needed basis, the length of the train varies, so the traffic is not so great that it is a major issue. The biggest safety problem associated with them is actually the cars crossing the tracks and the way the road curves going over the tracks currently.

It is not so much a car versus train issue. SHA is looking at options like gates, but it is not a major pressing issue to separate the cars from the trains.

Project No. SO377B11
MD 363: Halls Curve Road to
St. Stephen in Somerset County
Status: Project Update
Project Manager: Mark Radloff x8507
Environmental Manager: Sharon Alderton x8565

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MR. MARK RADLOFF, SHA:

SHA last met with the agencies in May. SHA went to a public hearing on July 30. At that meeting, SHA presented the project to approximately 40 people, and they were all in favor of these improvements.

All of the accident rates are high including rear ends and side swipes. In the area between St. Stephens west and east of the project has been upgaded to add shoulders. SHA found that in the area with the upgraded conditions, the accident rates are less.

Subsequent to that SHA did have some concerned citizens and elected officials that requested that SHA look at containing the shoulder area through the Monie Bay/St. Stephens area. It was requested that SHA does not include this area because of the environmental impacts to the Monie Bay area.

SHA recently received CE approval for this project. What SHA did was look for safety and operational improvements such as hazards like wedging of pavement and things like that. The original section that SHA proposed from Halls Curve to east of Oriole Back Road consisted of 12 foot lanes and 8 foot shoulders, six of which was paved. There are rumble strips in place, but by the time you hit the rumble strip you are in the ditch.

The 4 foot area would provide an access for pedestrians and bicycles. Thus, SHA cut the typical section down through this area to where it comes into the improved section which was done in the 80's.

With the original limits, SHA had approximately 3 acres of wetland impacts, approximately 10 1/2 acres of floodplain impacts and approximately 4 acres of impacts to Chesapeake Bay critical area.

With the additional section, SHA came up with additional impacts. They would include approximately less than one acre more of wetland impacts, approximately 7 acres of Chesapeake Bay Critical Area impacts and approximately 2 1/2 acres of floodplain impacts.

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MARYLAND STATE

HIGHWAY ADMINISTRATION

INTERAGENCY REVIEW MEETING

February 19, 1997

State Highway Administration
211 E. Madison Street
Baltimore, Maryland 21202

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I would like to clarify though that we would like to get any comments that you have on this purpose and need within 2 weeks of today, so we can address them before the next presentation and, if you have any additional comments, we can discuss them next month. After that we will formally send out the request for concurrence on the package and will be expecting your concurrence or response within 14 days.

QUESTION/COMMENT:

MS. DANIELLE ALGAZI, EPA:

And that's how I understood the process. Unfortunately, it is unrealistic for me to pepare comments in 2 weeks, I can tell you that right now.

QUESTION/COMMENT:

MR. GREG GOLDEN, DNR:

There is Hughesville Pond which DNR owns and I'm not sure if you have that information yet. I don't have a map.

RESPONSE:

MR. DARRELL SACKS, SHA:

Stated that is outside of our study area.

QUETION/COMMENT:

MR. GREG GOLDEN, DNR:

Thank you.

Project No. WO720B11
U.S. 113: MD 394 South of
Snow Hill to Delaware State Line in
Worcester County
Status: Project Schedule and Political Concerns
Project Manager: Sueseela Rajan x 8514
Environmental Manager: Lorraine Strow x 8527

MS. SUE RAJAN, SHA:

The main issues that we want to talk about today are the concerns and issues relating to the project, then details on the alternates.

What I want to bring to your attention is that safety is a major concern with this project. Recently there have been a couple of fatal accidents that have made the local elected officials, the community, and the organization concerned. They have approached the Governor to expedite the project.

So, I am circulating a schedule. Our administrator has made a commitment to the Governor that we meet this schedule. Right now, we are still waiting for comments and concurrence from some of the agencies. I'm also going to go over the comments and our draft responses to the comments. We will be handing that out also.

I wanted to run over what these problem areas are. There have been several accidents in the project area. (this is based on data from 1980). Recently, in 1996, there were two fatal collisions in which 3 people lost their lives.

Since then, the last accident was the day after Christmas: one fatal collision occurred in the southern section; and one in the northern section;

just south of Jarvis Road. This one involved a left turn at that intersection. The car was rear ended and put in the path of a tractor trailer. The other accident involved a car skidding on the ice and resulted in a head-on collision, with one fatality.

The local community is very concerned about the safety of the roadway and they have been asking us to do something. As you know, this study actually started in the 1970's. At that time an alternate was selected and got approval. Since then, the project was shelved. In the late 80's another study was done and that was also stopped. At that time, the study was shelved because of the environmental constraints and budget constraints associated with it.

That study identified several safety improvements along this road. Some of them have already been implemented, others are under design and construction, and some are being programmed.

Now let me go over the concerns that you have and how we are going to respond to them. In your package, we included all the comments that came in, as well as a draft response. A couple of the responses have already gone out. The only concurrences that SHA received were from U.S. Fish and Wildlife and Department of Natural Resources. The other agencies sent comments. Most of the comments I summarized into a package here and I wanted to hand that out also.

One major concern of the agencies was wetland impacts. There are a lot of wetlands in the study area and since the jurisdictional determination was done, and the alternatives were presented to you for concurrence, there was a concern that, since then, the wetland acreage may have increased.

We were also asked to quantify that and include it in the document. We have completed most of the wetland determinations although I think I was informed by Michelle from Corps of Engineers that there are a couple of areas we still have to look at, including agricultural ditches and an area near MD 90. There will be a slight difference in the wetland numbers in the document.

We have prepared a preliminary draft document that we will be giving to cooperating agencies and state permitting agencies to review. Use that document for reviewing alternatives packages and give us concurrence.

In that document, we have included....wetland impacts. There will be a slight difference when we include the additional wetland areas, which will be included in the next version of the draft document.

Another issue involves historical and archeological issues where they were completed. Since that time when the alternates were presented, we have completed a Phase I archeological survey and identified historical resources in the area. Seven historical sites were identified to be either eligible or on the National Register of Historic Places. Lorraine will point them out.

MS. LORRAINE STROW, SHA

Vicks County Store is National Register eligible, this is on the east side of US 113. The Hale Mariner Farm is also on the east side. Old St. Martin's Church is on the National Register, that is on the west side. We have the Lumeal Shall House here on the west side and on the east side, the Shall Store, both of those are eligible for the National Register. Then at the far north end, outside the study area is the Maryland/Delaware state line marker. In our area of potential effect is the Transpententular Line Marker which is eligible for the National Register.

MS. SUE RAIAN, SHA:

These historic sites and associated information will be included in that preliminary document.

QUESTION/COMMENT:

MS. CYNTHIA SIMPSON, SHA:

Stated she needs to note for MHT that Berlin is not in the area of

potential effect. There are historic resources located in the Berlin area.

QUESTION/COMMENT:

MS. SUE RAIAN, SHA:

Okay. The next question that we got from EPA was, will the southern and northern sections be evaluated separately? As you see here, the southern section, as Cynthia pointed out, exits from MD 394 to Hayes Landing Road and just north of US 15 Deer Park Road to Delaware Road in the northern segment. The way we are now listing all of this in the document for the southern section, we are considering the no build, TSM, and also a dualization along the existing road alignment.

For the north we have the no build, TSM, and also 3S, that is....3N which is dualizing along the existing road. We also have 4N modified, some portion of that will be on relocation which was presented to you earlier.

Since then, we have also added a combination alignment in the northern section. That is also to address some of the comments. What that will do is, along the existing road, 4N modified would run along the relocation alignment and then it would join the existing road alignment and run on the west side. In this area, it will have a slight relocation where there was a major wetland impact.

4N modified and relocation joins the existing alignment and then it runs on the east side. From there, it shares the same alignment as 3N. In the north end, it runs on the west side of the existing road where there were major wetland impacts in that area.

What we are doing with the combination alignment is using the 4N portions of 4N and 3N combined - it will have the same alignment as 4N modified as we presented earlier. From just north of Shingle Landing Road, it will join the 3N alignment all the way to the Delaware state line.

Other comments that we received from the agencies included the

request to consider the TSM alternate. This is because the package that went out did not have a good description of the TSM alternate.

Now in the document, we have included a detailed description of the TSM alternate, what improvements will be included, what has been implemented, and what has been programmed and why.

We have been requested to evaluate the TSM based on what improvements have been done. Also, under the TSM proposed, we should do an analysis to see how safety and traffic conditions along the road will improve. That is being partly addressed in the document, and we are doing a detailed accident analysis.

The agencies' next concern was our reasons for dropping portions of alternate 4N. When we modified alternate 4N, we dropped portions of alternate 4N and incorporated option A and option B. Both of them were found to be more advantageous than alternate 4N mainly because both avoid wetland impacts. Also in the Shingle Landing Road area, there is a new development coming and the other alternative would have gone through that area.

What we did was when we modified, we brought the alignment much closer to the existing roadway. Alternate 4 would have been further up, having more environmental impacts. That is also addressed in the document.

We had talked about the combination alternates. The impacts are quantified separately so you will be able to look at combining the various alternate from south and north, that has also been addressed.

I think I covered most of the items. You have the schedule that we just distributed. If you can look through that schedule, I just wanted to go over that briefly.

The schedule was prepared last week to make sure that we meet the schedule for the location design public hearing. According to the

schedule, we actually need concurrence today, but since we are going to give you the preliminary draft document today, we are requesting you review the detail alternate portion of the document and then give us your concurrence.

We are also scheduling a meeting with you to review your comments sometime in mid-March. I would like to schedule that also. After I take the questions and all, we'll go over all that.

Federal Highway has to approve the document by 4/10 in order for us to complete the documents in time for public review 30 days prior to the hearing. Does anybody have any questions?

QUESTION/COMMENT:

MR. JOE KRESSLEIN, SHA:

Asked will you be submitting...responses to all the outstanding comments on alternates retained for detailed study by the end of the month? As Sue said, we have requested the Corps, Fish and Wildlife Service, and EPA be cooperating agencies.

I'd also like to ask anyone else, any other agencies whether they would like the opportunity to review and comment on the preliminary draft document at this time.

QUESTION/COMMENT:

MR. GREG GOLDEN, DNR:

Larry Hughes is on this project. Having that or any other questions, I should deliver it to him and I can do that.

QUESTION/COMMENT:

MR. JOE KRESSLEIN, SHA:

Ask him to get in touch with us if he would like to review the document.

QUESTION/COMMENT:

MR. GREG GOLDEN, DNR:

Asked should he call you?

RESPONSE:

MR. JOE KRESSLEIN, SHA:

Responded yes.

QUESTION/COMMENT:

MS. CHRIS WELLS, MOP:

Asked is this packet here that we have been handed, ...the pre DEIS?

RESPONSE:

MR. JOE KRESSLEIN, SHA:

Responded no. We will be passing out the pre DEIS at the end of the presentation here.

QUESTION/COMMENT:

MS. DANIELLE ALGAZI, EPA:

You said formal comments will be received by the end of the month. Responding to our comments, the alternates retained, this will come out after the pre draft that we get today? I thought they were going

to go together.

RESPONSE:

MR. JOE KRESSLEIN, SHA:

Stated the pre-draft should address the majority of the comments that we went over today. We gave you draft versions of the letters, we just haven't formalized them and sent them out. So essentially that is the information that will be provided in the formalized letters, which will be sent out by the end of the month.

QUESTION/COMMENT:

MS. BETH COLE, MHT:

The archeological survey was completed and I understand that is coming at the end of the month. At this point, do you know how many sites were found out there and how many they are recommending for Phase II work?

RESPONSE:

MS. LORRAINE STROW, SHA:

Stated yes. Eighty one sites were found. Phase I archeological survey discovered all the high probability areas as well as twenty one....low probability areas. It identified 28 potential...archeological sites, one of which is eligible for the National Register.

Based on the results of the Phase I survey, all potential and significant archeological resources that might be impacted by the project....considered for new information....

At this stage of work there is no evidence to suggest that any of the sites marked.....although confirmation must be.....

QUESTION/COMMENT:

MS. BETH COLE, MHT:

So they found 81 sites recommended for.....

RESPONSE:

MS. LORRAINE STROW, SHA:

Responded that is what I'm getting.

QUESTION/COMMENT:

MS. BETH COLE, MHT:

And I know we just got the packet. We haven't had a chance to review it yet. I think there still seems to be a little bit of discrepancy in the numbers we keep hearing in terms of eligible structures, 7 versus 10. I guess once they have had a chance to look at that, we can....

RESPONSE:

MS. LORRAINE STROW, SHA:

As for the 7 versus 10, the three additional sites were in the Berlin area, the area that....

QUESTION/COMMENT:

MR. JOHN NICHOLS, NMFS

Stated the draft document has been sent out.

RESPONSE:

MR. JOE KRESSLEIN, SHA:

Stated a preliminary draft is going to be circulated to the cooperating agencies and also to the additional agencies that would like to review that and comment on it. If you don't indicate that you want to review the preliminary version, you will still be sent a finalized version of the draft document.

QUESTION/COMMENT:

MR. JOHN NICHOLS, NMFS:

So we have yet to concur on the alternatives. Are we waiting for the final of this document to come through?

RESPONSE:

MR. JOE KRESSLEIN, SHA:

Actually, I think we did send the letter to National Marine Fisheries, didn't we? Yes. We will give you a copy today if you would like to review the document.

QUESTION/COMMENT:

MS. SUE RAJAN, SHA:

When you review the preliminary document or the information packet, if you have any questions, please feel free to call us so we can get the concurrence earlier if you have any questions or anything.

QUESTION/COMMENT:

MR. MARK DUVALL, SHA:

Stated at this time we'll hand out the preliminary document.

QUESTION/COMMENT:

MS. SUE RAJAN, SHA:

Stated we are going to schedule a meeting next month to go over the preliminary draft document. Once we get the comments, we have to revise the document....

QUESTION/COMMENT:

MS. RENEE SIGEL, FHWA:

Stated that is not sufficient time to review it. She is asking for....the 10th....technically we still can get 45 days, you are trying to shorten it to less than.....stated Sue will not get comments from them if the meeting is the week of the 10th.

QUESTION/COMMENT:

MS. LORRAINE STROW, SHA:

Sue, you had a....the 18th.....

QUESTION/COMMENT:

MS. CYNTHIA SIMPSON, SHA:

Why don't you tell her what projects are on there.

RESPONSE:

MR. MARK DUVALL, SHA:

Let me see if I've got them here.

QUESTION/COMMENT:

MS. RENEE SIGEL, FHWA:

Stated they will do their best.

QUESTION/COMMENT:

MS. SUE RAIAN, SHA:

Asked can we do it on the 17th?

QUESTION/COMMENT:

MS. DANIELLE ALGAZI, EPA:

Asked why can't we do it on the 19th?

QUESTION/COMMENT:

MR. MARK DUVALL, SHA:

The 19th we've got tentatively 3 or 4 projects and I'm sure there are others that we are going to add to this list to present on March 19.

QUESTION/COMMENT:

MS. DANIELLE ALGAZI, EPA:

Asked isn't this the priority? This is what I'm not understanding.

QUESTION/COMMENT:

MR. MARK DUVALL, SHA:

Right now we've got Hughesville that we just handed out today, we've got a US 1 Bel Air Bypass and I think that's on there for some reason and I've got a Maryland Aviation project that they wanted to present today and got bumped to March 19. I'm sure there are 2 or 3 others that will go on the schedule.

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RESPONSE:

MS. CYNTHIA SIMPSON, SHA:

Well it sounds like we could do those projects until 10 and then from 10 on we could do this. The only concern I have is US 301.

QUESTION/COMMENT:

MS. GAY OLSEN, SHA:

Can we start the interagency meeting earlier than 9:30 so we can have a little bit more time.

RESPONSE:

MS. CYNTHIA SIMPSON, SHA:

EPA isn't here.

QUESTION/COMMENT:

MS. DANIELLE ALGAZI, EPA:

I could be here by 9 if that gives you more time and then we could do 1/2 hour lunch. The only other option for EPA is if you want to do it on the 18th so that it can back to back, I'll just have to stay over night.

QUESTION/COMMENT:

MS. CYNTHIA SIMPSON, SHA:

So you have two options on the table, the 18th and the 19th?

RESPONSE:

MS. RENEE SIGEL, FHWA:

Asked isn't the 18th the managers meeting?

QUESTION/COMMENT:

MS. CYNTHIA SIMPSON, SHA:

Asked is there anyone here who is attending that?

QUESTION/COMMENT:

MR. VANCE HOBBS, COE:

It is the manager's meeting, the monthly managers meeting that has been scheduled to address issues.

QUESTION/COMMENT:

MS. CYNTHIA SIMPSON, SHA:

I don't know who would be coming from EPA anymore. You have two options on the table, let's just agree on one. If you can't make it the 18th, then say that. The 19th we are proposing to start the interagency at 9 and then the discussion on 113 would start at 10.

QUESTION/COMMENT:

MS. SUE RAJAN, SHA:

Asked how many of you would like the 18th?

QUESTION/COMMENT:

MS. CHRIS WELLS, MOP:

I'm not even sure if this involves me, I don't think it does.

QUESTION/COMMENT:

MS. SUE RAJAN, SHA:

Now you are okay with the 18th?

QUESTION/COMMENT:

MS. CHRIS WELLS, MOP:

No, I don't know if you are just talking to a few of the agencies or all the agencies?

QUESTION/COMMENT:

MS. DANIELLE ALGAZI, EPA:

Well why can't this be the first thing, at 9 o'clock and then start everything else later? Last would be tough for me because I need to leave by 2:30.

QUESTION/COMMENT:

MS. CYNTHIA SIMPSON, SHA:

I think you need a minimum of 2 hours to review that.

QUESTION/COMMENT:

MS. SUE RAJAN, SHA:

Nine to eleven.

QUETION/COMMENT:

MS. CYNTHIA SIMPSON, SHA:

Does everybody agree wit that?

QUESTION/COMMENT:

MS. SUE RAIAN, SHA:

Does anybody have a problem with the 19th from 9 to 11?

RESPONSE:

MR. JOE KRESSLEIN, SHA:

Pretty much everybody prefers the 19th.

QUESTION/COMMENT:

MS. CYNTHIA SIMPSON, SHA:

So any interagency discussions will begin at 11.

QUESTION/COMMENT:

MR. GREG GOLDEN, DNR:

I will tell Larry Hughes, I don't know if he can make it, but that seems like a reasonable approach.

QUESTION/COMMENT:

MS. MICHELLE GOMEZ, COE:

Asked since you are not responding to our comments on the alternatives retained for further study until the end of the month. Who one or several or all of the agencies agree that another alternate sho be included in this?

RESPONSE:

MS. CYNTHIA SIMPSON, SHA:

That's a risk we take.

QUESTION/COMMENT:

MS. MICHELLE GOMEZ, COE:

And that's a risk that you are willing to accept, that that is going to detain it further?

RESPONSE:

MS. CYNTHIA SIMPSON, SHA:

I don't know that it will. I mean are you telling me that it will?

QUESTION/COMMENT:

MR. JOE KRESSLEIN, SHA:

I guess we had hoped that those type of comments we would have received from you already on the alternates retained for detailed study package that was sent out and we did receive some comments that we should consider a combined alternate or TSM alternate and we have included that information in there.

RESPONSE:

MS. MICHELLE GOMEZ, COE:

But if for some reason the combined alternate or the more detailed TSM is not applicable, we feel that you should do something else.

QUESTION/COMMENT:

MR. JIM WYNN, SHA:

That is the chance we take when we go to a public hearing that a result of the public hearing there is going to be either a modification alternatives or additional alternatives we have to look at.

I think that there is a possibility that we would address any additional alternatives or combinations of alternatives and modificatic between the draft document and the final document. There will still be opportunity to incorporate any changes and modifications to the proje between the draft document and the final document.

QUESTION/COMMENT:

MR. JOE KRESSLEIN, SHA:

If you were to have any of those type of comments, I would just h that you would give us an informal call and let us know as far in advar as possible so that we can possibly be prepared to address that at the meeting on the 19th.

QUESTION/COMMENT:

MS. DANIELLE ALGAZI, EPA:

The consequences are basically that you would just revise the d EIS before it comes out and not put out another pre draft. Is that corre

RESPONSE:

MR. JOE KRESSLEIN, SHA:

Well, we would have to see what the extent of the comments are is hard to say at this time.

QUESTION/COMMENT:

MS. DANIELLE ALGAZI, EPA:

RESPONSE:

MS. DANIELLE ALGAZI, EPA:

You're saying that the public will be there?

QUESTION/COMMENT:

MS. CYNTHIA SIMPSON, SHA:

I know they will.

Project No.
Metro Access for Metro Green Line
Outer Branch Avenue Segment
Status: Pre Purpose and Need
Presented by: Monte Rahman

MR. MONTE RAHMAN, SHA:

This particular project is not on the agenda and we are trying to squeeze it in these last few minutes, so please allow us.

This is the first time we are presenting this project for your consideration and initial review of the purpose and need statement. A representative of the planning team will be making a formal presentation at next months' interagency review meeting.

So you are going to be flexible on that, is that what you are saying?

RESPONSE:

MR. JOE KRESSLEIN, SHA:

I think we're going to have to be, in light of the prospect of possible additional comments that we don't know the extent of at this time.

QUESTION/COMMENT:

MS. DANIELLE ALGAZI, EPA:

I guess jumping ahead since the public hearing is going to be the week of the 26th just to let you know, that is the week of, not that it effects me, but the week of Memorial weekend and a lot of people go on vacation and you wouldn't want people who would like to be at the public hearing and not be able to make it because of that.

RESPONSE:

MS. CYNTHIA SIMPSON, SHA:

They will be there.

QUESTION/COMMENT:

MS. SUE RAIAN, SHA:

We are looking for May 29, there is a problem with getting the schools.

QUETION/COMMENT:

MS. CYNTHIA SIMPSON, SHA:

The point is there won't be a problem in attendance.

The Washington Metropolitan Area transit authority is constructing the planned extension of the Metro Green line F route service in the vicinity of MD 5, Branch Avenue and the Capital Beltway to be open to service in the year 2001.

The purpose of this study is to examine the existing access and investigate the possibility of improving vehicular access through the proposed Metro station. Efficient vehicular and pedestrian access to transit stations is necessary to maximize ridership.

Traffic data illustrate that the expected growth in traffic will result in the deterioration of traffic operations along the surrounding intersections with MD 5. In addition, upgrading access to the Branch Avenue Metro station is recommended in the 1981 Prince Georges County sub region 7 master plan.

The master plan identifies that this Metro station is a major contributing factor for significant traffic volumes in the area. Access to and from the proposed Branch Avenue Metro station is a major issue for residents and businesses in the study area.

County and elected officials and area residents have repeatedly expressed concerns about traffic safety. Our traffic analysis for the intersection in the vicinity of the Metro station indicate that 3 out of 4 intersections will operate at level of service F during at least one peak hour when the Metro station will open which is the year 2001.

In the year 2020, traffic analysis also showed that the traffic will operate at level of service F, at least in one of the peak directions. Therefore, a project planning study is required to evaluate access improvements along the major highway facilities in this area.

Please review the purpose and need document in preparation for a formal presentation during next months interagency review meeting.

QUESTION/COMMENT:

Maryland Department of Transportation
State Highway Administration

David
Secreta

Parke
Admini

MEMORANDUM

TO: Mr. Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

FROM: R. Suseela Rajan
Project Manager

DATE: March 25, 1997

SUBJECT: US 113 Interagency Meeting

On March 19 a meeting was held with SHA and agencies involved with the development of US 113 project from South of Snow Hill to the Delaware State Line. The purpose of the me was to review agencies' comments on the Pre-Draft Environmental Impact Statement (Pre-DEIS). Those in attendance were:

Danielle Algazi	Environmental Protection Agency (EPA)
Ernie Disney	Rummel Klepper and Kahl (RK&K)
Louis H. Ege, Jr.	State Highway Administration (SHA)
John Forren	Environmental Protection Agency (EPA)
Elder Ghigiarelli	Maryland Department of the Environment (MDE)
Michele Gomez	Army Corps of Engineers (COE)
Larry Green	Dannielle Consultants
Phil Hagar	Worcester County Department of Planning
Larry Hughes	Department of Natural Resources (DNR)
Mary Huie	Federal Highway Administration (FHWA)
Kelly Hutchinson	Federal Highway Administration (FHWA)
Gary Jellick	Coastal Resources Inc.
Al Kampmeyer	Maryland Department of the Environment (MDE)
Joseph Kresslein	State Highway Administration (SHA)
Steve Kouroupis	State Highway Administration (SHA)
Steve Linhart	KCI Technologies
Todd Nichols	National Marine Fisheries Service (NMFS)
Andy Parker	A.D. Marble and Associates
Bill Schultz	U.S. Fish and Wildlife Service (USFWS)
Rob Shreeve	State Highway Administration (SHA)
Renee Sigel	Federal Highway Administration (FHWA)
Cynthia Simpson	State Highway Administration (SHA)

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Lorraine Strow	State Highway Administration (SHA)
David Sutherland	U.S. Fish and Wildlife Service (USFWS)
David Wallace	Rummel Klepper and Kahl (RK&K)
Christine Wells	Maryland Office of Planning (MOP)
Jim Wynn	State Highway Administration (SHA)
John Zanetti	State Highway Administration (SHA)
Lisa Zeimer	Rummel Klepper and Kahl (RK&K)

ecial note: As a result of a number of long discussions at this meeting, the agencies and SHA veloped an alternatives package that both could agree upon. The agencies seemed close to ncurring on these alternatives retained for detailed study, but felt it was prudent to see a scription of the alternatives in writing before giving concurrence. A package describing the ternatives was faxed to the agencies on March 21 for review in preparation for a subsequent eeting on March 25. The US 113 Description of Alternatives Retained for Detailed Study is a sult of this meeting and is attached with these minutes.

ork Progress on the Pre-DEIS

ne meeting began with an explanation of the events that have gone into developing this project.

- The concurring agencies were given a Pre-Draft Environmental impact Statement (Pre-DEIS) on February 19.
- Revisions to Chapter 2 were sent to the agencies on March 7.
- At the beginning of the meeting a revised Summary table (Table S-1) from the document was given to the agencies. This table was revised to show the addition of two new alternatives as requested during the conference call with the agencies on March 3.

oncurrence on the Alternates Retained for Detailed Study has not been received from the nvironmental Protection Agency (EPA), the Corps of Engineers (COE), and the United States arine Fisheries (USMF).

ternative 2S & 2N - Basic TSM alternative

- A more comprehensive design for this alternative was developed and presented by Mr. Larry Green
- Agencies seemed to show the most concern with small areas of additional right-of-way that may be needed especially at intersections where bypass lanes are proposed.

response to a suggestion by Ms. Michelle Gomez, SHA agreed to add rumble slots in the oulder just outside the travel lane to this alternative as a safety measure for fixed-object llisions.

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Alternative 2S&2N (6' Median)

- This alternative was developed in response to agency comments during a previous mee (March 3 conference call).
- FHWA and SHA felt that this was not a feasible alternative and should be dropped.
- This alternative with a 6 foot median and traffic barrier in the center will no longer be included in this study.

Discussion of lowering the speed limits on US 113

- Phil Hagar from Worcester County Planning expressed the county's opposition to lowe the speed of the roadway for any reason.
- It was recognized that even if the posted speed limit were lowered, many drivers would through the area at the same high rate of speed that pervades today.
- The functional classification of the roadway must be taken into account when selecting alternative. The functional classification of this roadway is intermediate arterial on the classification system and a principal arterial on the federal classification system.
- In conclusion, a lower posted speed is inconsistent with adjacent roadway sections and function of the highway and therefore is not an option.

Safety Considerations for the Alternatives

Mr. David Wallace, a licensed Professional Engineer, noted a number of engineering and s considerations throughout the meeting that must be considered in the development of the alternatives.

- Passing lanes must be at least 1 to 1.5 miles in length in order to function effectively ar safely.
- A 34 foot median or 20 foot median with barrier in the center would be acceptable alon roadway with a 60 mph design speed.
- A design speed of 60 mph is generally applicable for this corridor using either 20 feet o safety grading or guardrail at the sides of the travel lanes.
- Areas where safety has been a known problem will have to be looked at more carefully wider margin of safety may be incorporated into the design.
- SHA will have to look at drivers' expectations when considering the cross-section of th roadway.

Access to US 113 Under Each Alternative

- If Alternative 4N is selected, the current road would be converted to a service road with access to US 113 at a limited number of access points. These access points would be vi existing county roadways.

- The service roads for US 113 Alternative 4N would have a lower speed limit, would act as a local road, and would carry a significantly lower volume of traffic.
- No driveways or minor service roads would be given access to US 113 under Alternative 4N. Any property that would be denied access with Alternative 4N would be purchased by SHA.
- Current access points along the existing alignment will be consolidated where applicable to limit the number of minor access points.
- Minor access points will have access only as right-in and right-out only under Alternative 3S and 3N.

Comments on the Pre-DEIS
The agencies' comments were reviewed and discussed. EPA and FHWA submitted written comments and these were reviewed so other agencies could be a hear the comments.

EPA mentioned that since many of the interim improvements mentioned in the document have not been in place for more than three years, there are no statistics to prove that these improvements resulted in increased safety.

EPA suggests adding a discussion of indirect impacts:
- Ms. Danielle Algazi said that the Environmental Consequences Chapter should include discussion of indirect or secondary impacts.
- A discussion of the effects this project may have on county growth and land use patterns and the project's consistency with local master plans will be added.
- Some felt that roadway improvements may be a catalyst for local growth while others argued that growth will occur regardless of infrastructure. Meeting participants made strong cases for both sides. SHA agreed to present both viewpoints in the DEIS.

FHWA presented a number of their comments on the Pre-DEIS:
- It is not necessarily true that emergency access time would be increased with a median barrier. This statement will be removed.
- Also untrue is the statement that businesses would not be impacted by the barrier separation. This statement will be modified to read that the barrier could have an effect on access to some local businesses from traffic on the opposite side of the road.

- On Section 4(f) FHWA asked for more information on impacts, more discussion on Avoidance and Minimization, and a discussion of proposed mitigation sites.
- No consultation and coordination section is included in the Section 4(f).

Additional Comments on the Pre-DEIS
- MDE concurred on the Alternatives Retained for Detailed Study and agreed to have comments on the DEIS submitted by the middle of next week.

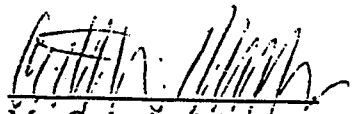
- All other agencies agreed to have their comments ready by March 26.
- John Nichols (NMFS) agreed to submit comments on the DEIS by March 27.

Alternatives Retained
The many issues raised at this meeting resulted in the development of some alternatives to be retained for detailed study. SHA is looking at a number of alternatives as described in the attached package. At this meeting the agencies agreed that SHA will not consider a two-lane cross-section north of Berlin because of the capacity problems, safety issues, and driver expectations through this portion of the corridor.

The meeting participants generally agreed that these alternatives were acceptable. The group agreed, however that they would like to see a written description of these alternatives before concurring to ensure that there are no differences in communication and that we are all agreeing to the same alternatives package. This alternatives package, developed during this meeting and written subsequent to the meeting, was faxed to the agencies on the afternoon of March 21st so that it is available for review before the next meeting. The DEIS will include a table quantifying the resources impacted by each alternative, engineering studies equal in detail to those previously completed for Alternative 3S, 3N and 4N, and avoidance and minimization alternatives in sensitive areas.

Future Meetings
The agencies agreed to hold another meeting on March 25 to discuss comments on the document and the Alternatives Retained for detailed study.

These minutes are based on the interpretation of the writer. If you have any additional questions or comments please call Mrs. Sue Rajan, Project Manager at (410) 545-8514 or Ms. Catherine Maher, Project Engineer at (410) 545-8544.

by: 
Ms. Catherine Maher
Project Engineer
Project Planning Division

cc: Attendees
Mr. Neil J. Pedersen

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Maryland Department of Transportation
State Highway Administration

David L. Winstead
Secretary

Parker F. Williams
Administrator

MEMORANDUM

TO: Mr. Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

FROM: R. Suseela Rajan
Project Manager

DATE: April 11, 1997

SUBJECT: US 113 Interagency Meeting on March 25

On March 25 a meeting was held with SHA and agencies involved with the development of the US 113 project from South of Snow Hill to the Delaware State Line. The purpose of the meeting was to review agencies' comments on the Pre-Draft Environmental Impact Statement (Pre-DEIS). Those in attendance were:

Danielle Algazi	Environmental Protection Agency (EPA)
Ernie Disney	Rummel Klepper and Kahl (RK&K)
Michele Gomez	Army Corps of Engineers (COE)
Larry Green	Dannielle Consultants
Mary Huie	Federal Highway Administration (FHWA)
Joseph Kresslein	State Highway Administration (SHA)
Steve Linhart	KCI Technologies
Lorraine Strow	State Highway Administration (SHA)
David Sutherland	U.S. Fish and Wildlife Service (USFWS)
David Wallace	Rummel Klepper and Kahl (RK&K)
John Zanetti	State Highway Administration (SHA)
Lisa Zeimer	Rummel Klepper and Kahl (RK&K)

Work Progress on the Pre-DEIS

The meeting began with an explanation of the events that have gone into developing this project.

- The concurring agencies were given a Pre-Draft Environmental Impact Statement (Pre-DEIS) on February 19.
- Revisions to Chapter 2 were sent to the agencies on March 7.
- Agencies were given a revised alternative package for their review on March 21.
- SHA is working to incorporate these additional alternatives into the DEIS.

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We were waiting concurrence on the Alternates Retained for Detailed Study from the Environmental Protection Agency (EPA), the Corps of Engineers (COE), and the United States Marine Fisheries (USMF).

Comments on the DEIS

The agencies and SHA spent a number of hours going over comments and additions to the DEIS. The agencies followed-up with written comments as well. All of these comments will be incorporated into the document. A synopsis of some of the major comments from each agency is outlined below.

USMF - John Nichols

- Expressed concerns with water quality issues and how the median will be designed to accommodate SWM.
- Wanted SHA to consider a 34' median; we told him that we will look at the 34' median as an option in design. He is concurring with the 2S Alternative (20' median) with a grass median or a crowned paved median. Concurrence was received on April 1.
- Objects to a curbed median or a jersey barrier that pools water on one side or the other.

COE - Michelle Gomez

- Suggested incorporating higher ratios for wetland replacement than that suggested in the Pre-DEIS
- Wetland classifications should be in accordance with the latest methods.

EPA - Dannielle Algazi

- SHA agreed to look at the feasibility of a reduced cross-section in the south with the development of Alternative 2S (20' Median). We are studying ways to incorporate the existing roadway into the design, studying a drainage plan and water quality issues, and looking at where to put passing lanes to reduce impacts.
- For the dualization alternatives, we will quantify impacts based on 60 mph design speed except for the 3N alternative that will look at both 50 and 60 mph design.
- EPA's comments mentioned the possibility of creating a two lane roadway in one direction along existing alignment and creating two lanes in the other direction on the new alignment. EPA has since given concurrence on Alts retained. The Alternatives considered section will contain an explanation as to why this alternative would not be prudent.

MOP - Christine Wells

- Include a much stronger discussion of land use and how the proposed improvements will have secondary or cumulative effects on the surrounding lands.
- Arguments as to whether the improvements will cause an increase in land use or whether increased development is inevitably occurring in the region will both be presented in the DEIS since there are strong arguments for both sides.

FWS - David Sutherland

- SHA will work with him on the habitats discussion.

Access to US 113 Under Each Alternative

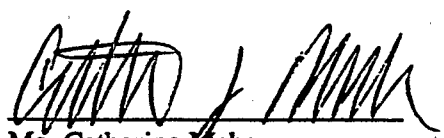
- If Alternative 4N is selected, the current road would be converted to a service road with access to US 113 at a limited number of access points. These access points would be via existing county roadways.
- The service roads for US 113 Alternative 4N would have a lower speed limit, would act as a local road, and would carry a significantly lower volume of traffic.
- No driveways or minor service roads would be given access to US 113 under Alternative 4N. Any property that would be denied access with Alternative 4N would be purchased by SHA.
- Current access points along the existing alignment will be consolidated where applicable to limit the number of minor access points.

Minor access points will have access only as right-in and right-out only under Alternative 3S

Future Meetings

SHA is meeting with the agencies on April 28 to explain to the agencies how their Pre-DEIS comments were addressed. At this meeting we will not be discussing new comments on the DEIS but only explaining how the agencies' previous comments have been addressed.

These minutes are based on the interpretation of the writer. If you have any additional questions or comments please call Mrs. Sue Rajan, Project Manager at (410) 545-8514 or Ms. Catherine Maher, Project Engineer at (410) 545-8544.

by: 

Ms. Catherine Maher
Project Engineer
Project Planning Division

cc: Attendees
Mr. Neil J. Pedersen

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DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, U.S. ARMY CORPS OF ENGINEERS
P.O. BOX 1715
BALTIMORE, MD 21203-1715

REPLY TO
ATTENTION OF

APR 03 1997

Operations Division

Subject: US 113 Transportation Study
Request for Cooperation Agency

Ms. Susan J. Binder
Division Administrator
Federal Highway Administration
The Rotunda, Suite 220
711 West 40th Street
Baltimore, Maryland 21211-2187

Dear Ms. Binder:

This is in response to your letter to Colonel Randall Inouye, dated February 10, 1997, requesting the Baltimore District, US Army Corps of Engineers to participate as a cooperating agency in the preparation of the Environmental Impact Statement for the US 113 Corridor Study in Worcester County, Maryland.

The District will be pleased to serve as a cooperating agency in the development of the document. The Draft Environmental Impact Statement will need to be coordinated with this office to ensure that sufficient information is included in the document so that it may serve as Department of the Army Section 404/Section 10 permit application. The release of the DEIS must be coordinated with this office before being released to the public, a joint public notice issued, and a joint public hearing conducted to meet our requirements as a cooperating agency.

If you have any questions on this matter, please call me or the Project Manager, Ms. Michele L. Gomez, at (410) 962-4343.

Sincerely,

Linda A. Morrison
Chief, Regulatory Branch

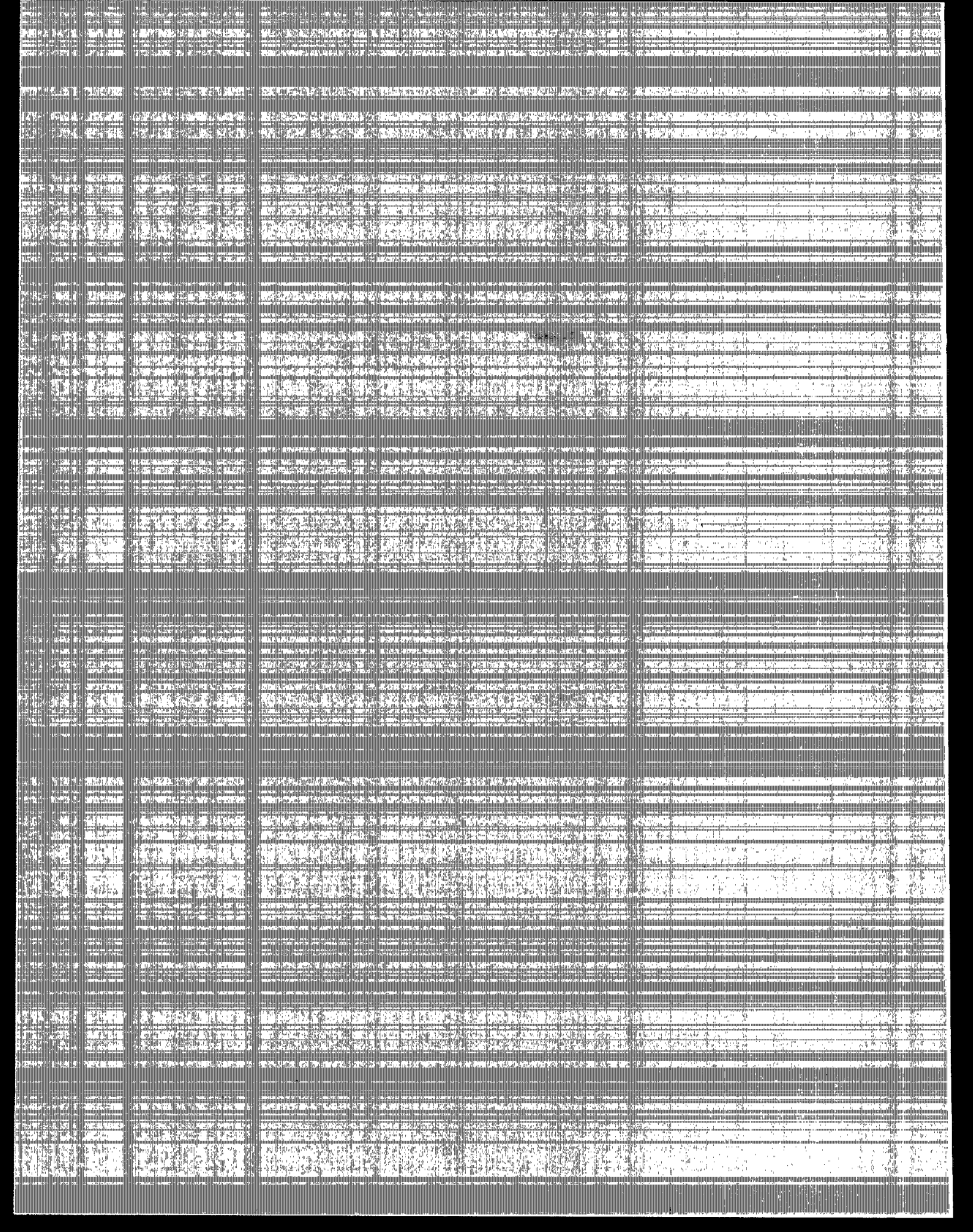
Copy Furnished:

FHWA, Renee Sigel
MD SHA, Cynthia Simpson
EPA, Danielle Algazi
FWS, David Sutherland

636

Other Agency Correspondence

US 113 Planning Study



Attachment 1 113

ARYLAND
STORICAL
RUST

William Donald Schaefer
Governor

Jacqueline H. Rogers
Secretary, DHCD

PROJECT DEVELOPMENT

JUN 21 9 00 '90

June 14, 1990

Mr. Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering
State Highway Administration
707 North Calvert Street
Baltimore, Maryland 21203-0717

Re: Contract No. W668-101-170
US 113 Relocated from North
of US 50 to Delaware State Line

Dear Mr. Ege:

Thank you for providing another map for the above referenced project area. We have reviewed our records and consulted with Mr. Paul Touart, currently under contract with the Maryland Historical Trust to survey Worcester County for historic resources, to evaluate the levels of significance for the properties in the project area. We concur with the levels of significance proposed in your August 31, 1989 letter for all properties except WO 284, the Lemuel Showell house.

We believe the Lemuel Showell house to be eligible for inclusion in the National Register of Historic Places under criteria B and C. The c. 1830 house is the oldest extant dwelling in the Showell area and one of a small number of Federal style houses in northern Worcester County. The house is also significant for its association with the Showell family, prominent in the development of the area, and particularly with Lemuel Showell III, who was instrumental in financing railroad construction across northern Worcester County and the development of Ocean City as a resort. Although the house was moved in the 1930's, we feel it is of exceptional local significance and retains sufficient integrity of setting to justify its inclusion in the Register. The move took place over 50 years ago and the house remains in the Showell community.

Maryland
Department of Housing and Community Development
Shaw House, 21 State Circle, Annapolis, Maryland 21401 (301) 974-5000

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MARYLAND HISTORICAL TRUST

PROJECT DEVELOPMENT DIVISION
Nov 9 10 54 AM '90

William Donald Schaefer
Governor

Jacqueline H. Rogers
Secretary, DHCD

November 5, 1990

Ms. Cynthia D. Simpson
Assistant Division Chief
Project Planning Division
State Highway Administration
707 North Calvert Street
Baltimore, Maryland 21203-0717

Re: U.S. 113 Relocated from North of U.S. 50 to Delaware State Line
Worcester County

Dear Ms. Simpson:

Thank you for your letter of October 4, 1990 which clarified the boundaries for the Lemuel Showell House (WO 284). As the property was moved to the site, we can concur with the proposed boundaries which are coterminous with the tax parcel on the north and west sides, but exclude Davis Electrical Supply to the south and the fields to the east.

If you should have any questions, please contact Elizabeth Hannold at (301) 974-5007.

Sincerely,

Jo Ellen Freese

Jo Ellen Freese
Project Review and
Compliance Administrator
Office of Preservation Services

JEF:EH:lcj

cc: Ms. Rita Suffness
Mrs. Howard F. Yerges
Mrs. Page Hammond

Maryland
Division of Historical and Cultural Programs
Department of Housing and Community Development
Shaw House, 21 State Circle, Annapolis, Maryland 21401 (301) 974-5007

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MARYLAND HISTORICAL TRUST

PROJECT DEVELOPMENT DIVISION
DEC 10 3 08 PM '90

William Donald Schaefer
Governor

Jacqueline H. Rogers
Secretary, DHCD

December 5, 1990

Ms. Cynthia D. Simpson
Assistant Division Chief
Project Planning Division
State Highway Administration
707 North Calvert Street
Baltimore, Maryland 21203-0717

Re: U.S. 113 Relocated from
North of U.S. 50 to
Delaware State Line
Worcester County

Dear Ms. Simpson:

Thank you for your letter of November 13, 1990 concerning the boundary for St. Martins Church (WO 23). While we understand that the boundaries indicated on the map attached to your letter encompass the one acre, the size of the nominated resource in the National Register nomination.

However, an enlarged boundary, extending further to the west, may be appropriate. Your proposed western boundary is a "line of convenience" rather than one of the tax parcel bounds. Please indicate on a map the full extent of the tax parcel. In addition, please show the location of the graveyard associated with the church which is said to include unmarked graves.

If all possible, the historic property boundary should encompass the entire historic church yard. In addition, it should provide adequate buffer to preserve the rural setting and protect the 1759 brick church from the effects of traffic.

As you may be aware, community members are deeply concerned about the possible adverse impact to St. Martins Church posed by this project.

Maryland
Division of Historical and Cultural Programs
Department of Housing and Community Development
Shaw House, 21 State Circle, Annapolis, Maryland 21401 (301) 974-5007

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Please respond to our comments regarding the St. Martins boundary and provide the project plans as soon as they are available so that we can work together to ensure that adverse effects are minimized. In addition, please forward the Phase I Archeological Report when completed.

Sincerely,

Elizabeth Hannold
Assistant Administrator
Project Review and
Compliance
Office of Preservation Services

EH:lcj

cc: Ms. Rita Suffness
Mrs. Howard Yerges
Mrs. Page Hammond

340

Maryland Department of Transportation
State Highway Administration

David L. Winstead
Secretary
Hal Kassoff
Administrator

PROJECT DEVELOPMENT
SEP 5 10 59 AM '95

RECEIVED
SEP 1995
MARYLAND HISTORICAL TRUST

July 26, 1995

RE: Contract No. AW 821-108-070
US 113: MD 394 to the
Delaware line
Worcester County, MD

Mr. J. Rodney Little
State Historic Preservation Officer
Maryland Historical Trust
100 Community Place
Crownsville MD 21032-2023

Dear Mr. Little

The Maryland State Highway Administration (SHA) is initiating Project Planning studies to increase the capacity and improve the safety of a 23 mile section of US 113 in Worcester County. For the most part, sections of existing US 113 not already dualized are proposed for dualization. North of the town of Berlin, several relocation alternates are also being studied (highlighted in red).

Due to the nature of the proposed project, topography, and land use, SHA has determined that the area of potential effect (APE) would extend approximately 500 feet east and west of the existing US 113 roadway in most of the project corridor (highlighted in green). However, in the northern portion of the study area, from the Delaware line to north of the town of Berlin, where relocation alternates are also being studied, the APE width will expand to approximately 500 feet beyond the limits of the furthermost eastern and western alternates. The APE will include the area between those relocation alternates and roughly extends to the Maryland and Delaware Railroad Corridor to the west. Location mapping with the APE demarcated is enclosed.

We seek your signature on the concurrence line below documenting your agreement with our APE determination for the proposed project. Please call Ms. Rita Suffness at (410) 333-1183 or Lorraine Strow at (410) 333-1184 should you have any questions and/or comments.

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Very truly yours,

Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

by: Cynthia D. Simpson
Cynthia D. Simpson
Deputy Division Chief
Project Planning Division

Concurrence:

J. Ellis Jones
State Historic Preservation Officer

8/30/95
Date

LHE:LES
Attachment (1)
cc: Ms. Carol Ebright
Mr. Bruce M. Grey
Dr. Charles Hall
Mr. Joseph Kresslein
Ms. Lorraine Strow
Ms. Rita Suffness

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MARYLAND HISTORICAL TRUST

Office of Preservation Services

PROJECT DEVELOPMENT DIVISION

MAR 21 3 05 PM '96

Parris N. Glendening, Governor
Patricia J. Payne, Secretary

March 12, 1996

Ms. Cynthia D. Simpson
Deputy Division Chief
Project Planning Division
State Highway Administration
707 North Calvert Street
P.O. Box 717
Baltimore, Maryland 21203-0717

RE: Contract No. WO 719-202(P)
US 113 at MD 90
Worcester County, Maryland

Dear ~~Ms.~~ Cynthia Simpson:

Thank you for your recent letter, dated 23 January 1996 and received by the Trust on 31 January 1996, requesting our comments on the above-referenced project.

We have reviewed the following draft report submitted with your letter: *Phase IB Intensive Archeological Investigations, US Route 113 at Maryland Route 90, Worcester County, Maryland.* Dr. Robert D. Wall prepared the report for SHA. The report contains succinct documentation on the survey's goals, methods, results and recommendations. The document is consistent with the reporting requirements of the *Standards and Guidelines for Archeological Investigations in Maryland* (Shaffer and Cole 1994). The survey did not locate any archeological sites within the project area. We agree that further archeological investigations are not warranted for this particular project.

We have a few minor comments on the draft itself. We ask SHA to have the consultant address the following issues, in addition to SHA's remarks, in the preparation of the final document:

1) The title page should include the full addresses of the sponsoring agency and the author.

2) The Recommendations should offer an interpretation for the negative survey results.

3) The final report should be printed double sided.

Division of Historical and Cultural Programs
100 Community Place • Crownsville, Maryland 21032 • (410) 514-_____

The Maryland Department of Housing and Community Development (DHCD) pledges to foster the letter and spirit of the law for achieving equal housing opportunity in Maryland.

OUSING
UNITY

In terms of the standing structures, we are unable to concur with your determination of no effects at this time. Your letter indicated that five historic properties have been identified, recorded and evaluated in the area of potential effect for the interchange project. These five properties were surveyed and recorded as part of a larger project involving improvements to the U.S. 113 mainline corridor and submitted to our office by a previous letter dated 4 October 1995. As the review of this latter undertaking is currently being conducted and not yet completed, we have, as you requested, given immediate attention to the five properties identified as part of the interchange project and being treated here as a separate undertaking.

As identified in your letter of 23 January 1996, the five properties are located within 1 km of the proposed project along Carey Road and include the site of the Evans House (WO-25); the Erma and Norwood Davis House (WO-471); Vic's Country Store (WO-472); the Calvin Davis House (WO-473); and the Richard J. Jr. and Ellen M. Truitt House (WO-474). As stated in your letter, the Evans House (WO-25) is no longer standing. Your letter stated that you believe the remaining four properties are not eligible for listing in the National Register and that for that reason, the project will have no effect on historic resources. We do not fully concur with this assessment.

We have based our evaluations of eligibility on the information found in the individual MHT forms prepared by KCI for SHA, staff knowledge of the area and some additional research. We concur that two of the properties are not eligible for listing on the National Register. However, we believe that one is eligible for listing and that one requires further research before a determination can be made.

We have determined that the Calvin E. Davis House (WO-473) and the Richard J. Jr. and Ellen M. Truitt House (WO-474) are not eligible for the National Register of Historic Places. We have determined that Vic's Country Store (WO-472) is eligible for listing under Criterion C. The building survives as a good, intact example of early 20th-century roadside architecture, and more specifically as a store and gas station located in a small crossroads community--once a common, but now dying building form. Although no boundary description of the property was provided in the MHT form, the form indicates the building occupies a .68-acre lot. This lot, if historically associated with this commercial property, would be considered a suitable boundary.

We were unable to evaluate the Erma and Norwood Davis House (WO-471) based upon the information provided. Although the MHT form indicates that the house was constructed in the early 20th century and stands as an example of a dwelling type sometimes referred to as "Homestead" style, a building clearly appears in this location on the West Berlin plate of *The 1877 Atlases and other Early Maps of the Eastern Shore of Maryland* (Published by the Wicomico Bicentennial Commission, Salisbury, MD, 1976). The building may be an even earlier, mid-19th-century, side-passage dwelling that was altered in the later 19th century, but which retains its original interior plan. Thus, as constructed, and even as it appears today, the dwelling is not an example of the "Homestead" style and needs to be re-examined and evaluated under its proper historic and architectural context. Further research, including a full title search, tax assessment research, and an interior site visit is required before the history and architecture of this property can be fully understood and before an evaluation can be made.

We look forward to receiving the final archeological report and NADB form, when available, and to working with SHA on the Section 106 coordination in the U.S. 113 interchange project. Further, we assure you that the package of information on historic properties submitted to our offices as part of the larger U.S. Route 113 mainline corridor from MD 394 to the Delaware line is currently being reviewed and will be commented upon as soon as possible. We apologize for the delay in our response. Also, any specific comments that we may have on any of the individual MHT forms will be presented to you at the completion of the review of this larger, mainline project.

If you have questions or require additional information, please call Ms. Elizabeth Hannold (for structures) at (410) 514-7636 or Ms. Beth Cole (for archeology) at (410) 514-7631. Thank you for your cooperation and assistance.

Sincerely,

J. Rodney Little
State Historic Preservation Officer

JRL/EJC/KPW/EAH
9600260
cc: Dr. Charlie Hall
Ms. Rita Suffness
Mrs. Howard F. Yerges

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MARYLAND HISTORICAL TRUST

Office of Preservation Services

PROJECT DEVELOPMENT DIVISION

APR 15 10 04 AM '96

Parris N. Glendening, Gov
Patricia J. Payne, Sec

April 10, 1996

Ms. Cynthia D. Simpson
Deputy Division Chief
Project Planning Division
State Highway Administration
707 North Calvert Street
P.O. Box 717
Baltimore, Maryland 21203-0717

RE: Contract No. WO 720-101-170
US 113: MD 394 to the Delaware State Line
Worcester County, MD

Dear Cynthia Simpson:

Thank you for your letter of 4 October 1995 and 23 January 1996 regarding the above-referenced project. These letters identified and evaluated historic standing structures located in the area of potential effect (APE) for the improvement of a 23-mile section of US 113 in Worcester County, Maryland. This improvement entails the dualization of US 113 from south of Snow Hill to the Delaware State Line, in areas not already dualized. The northern section of this project area, from north of Snow Hill to the Delaware State line was previously surveyed and historic properties were identified and evaluated for National Register eligibility. As discussed in your letter, your division at the State Highway Administration (SHA) re-examined the previously surveyed area to confirm the status of identified properties, and conducted an historic sites reconnaissance survey of the newly added area. The APE for historic standing structures extended 500 feet on both sides of US 113 from US 50 to MD 394. including all properties with frontage on US 113 for the entire length of the project and all standing structures in the previously surveyed and previously identified APE north of Berlin.

Your letter identified nine historic sites which were previously identified and surveyed in June 1990 in the stretch of US 113 from north of US 50 to the Delaware State line. The letter stated that the eligibility of these nine sites was determined and agreed upon by SHA and the Maryland Historical Trust (MHT) in November 1990. According to our records, however (see letter SHA's letter to MHT 14 June 1990), the property known as Showell Store (WO-289) was not evaluated and no determination of eligibility was agreed upon. Based upon the information in our historic sites inventory, the property may be eligible to the National Register. However, we recommend that a more thorough architectural investigation be conducted to determine the evolution of the commercial structure, which apparently includes early 19th-century elements. We request that the findings of this study be documented on an amendment to the existing MHT Survey form for WO-289. The form should include current photographic documentation of the building following MHT guidelines. A determination of eligibility

Division of Historical and Cultural Programs
100 Community Place • Crownsville, Maryland 21032 • (410) 514-_____

EQUAL HOUSING OPPORTUNITY

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will be based upon the additional information provided. Further, based upon the 1994 publication of Paul Touart's book *Along the Seaboard Side*, which documents the history and architecture of Worcester County and provides a greater historic context of the county and the Eastern Shore, we have re-evaluated Hales Farm/Edward Mariner Farm (WO-283) since our 14 June 1990 letter and determined that it is eligible for listing on the National Register of Historic Places. The property, including a mid-19th-century farmhouse, a log corncrib and a smokehouse, provides an excellent representative example of an intact, mid-19th-century farmhouse and a cohesive grouping of domestic outbuildings. The building is a good example of its type and retains its integrity. The property is eligible for listing on the National Register under Criterion C.

The letter also stated that a reconnaissance-level survey of the APE for the newly added area for this project--US 50 to Maryland 394--identified three additional previously documented resources, and twenty newly identified resources. The three previously surveyed sites are listed as: Merry Sherwood property (WO-19); the Merry Sherwood Tenant House (WO-48); and the Rochester Farm (WO-317). The twenty newly identified sites are listed as Waverly (WO-81) and nineteen properties for which Maryland Historical Trust Inventory of Historic Properties forms (MHT forms) were prepared and which hold MHT Inventory numbers WO-462 through WO-480. According to our records, Waverly (WO-81) was also previously recorded; therefore, it follows that four previously recorded sites and nineteen newly identified sites are located in the APE.

All of the four previously recorded and 19 newly identified sites were thus examined, and if not previously evaluated, were then evaluated for National Register eligibility by either SHA or your consultant, KCI Technologies, Inc. Only one property, the Merry Sherwood property (WO-19) had been previously evaluated; it was listed in the National Register of Historic Places in 1991. Therefore a total of 22 properties were evaluated for National Register eligibility.

Since the submission of your 4 October 1996 letter, another letter from you dated 23 January 1996 was received by our offices regarding the interchange of US 113 at MD 90. This letter indicated that four of the 22 properties being evaluated as part of the larger US 113 mainline corridor project would potentially be affected by this interchange and should be reviewed as a separate project. Our letter dated 12 March 1996 provided our assessment of these four properties as a separate project. These four properties are as follows: the Erma and Norwood Davis House (WO-471); Vic's Country Store (WO-472); the Calvin Davis House (WO-473); and the Richard J. Jr. and Ellen M. Truitt House (WO-474). Please refer to our letter for an individual assessment of each of these properties.

For the review of the remaining eighteen properties, we have examined your October letter in detail, as well as the supporting documentation (MHT forms and photographs) and have provided our own opinions and evaluations of eligibility. We hope our response will be clearly understood in the attached list. This list addresses the eligibility, and if appropriate, the boundaries for each property. The properties are organized sequentially according to their MHT Inventory numbers.

In addition to reviewing the submitted MHT forms for the determinations of eligibility, we reviewed them for clarity and accuracy of content. We have noted several minor, and a few substantive, issues on the forms that need to be addressed. Our comments regarding these issues are included in Attachment 1. Please find enclosed the MHT forms, including photographs and site plans, which require revisions and which are listed as Attachment 2.

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Finally, noticeably absent from the review and evaluation of historic properties in the APE is the examination of groups or clusters of buildings which may be considered eligible for listing on the National Register as historic districts. Several crossroads communities and small villages are found along this stretch of US 113. Please confirm, in writing, whether any of these communities and in particular, Ironshire and Showell, are eligible for listing on the National Register as an historic district. Also, although the central core of the village of Newark falls outside the APE, potential boundaries of a proposed historic district need to be determined to confirm that such boundaries would not fall within the APE.

Thank you for providing us this opportunity to comment and for being patient with us in our delayed response. We look forward to working with SHA on the US 113 mainline corridor project, to receiving the revised documentation and to receiving the results of the Phase I archeological investigation. Should you have any questions, please contact Ms. Kim Williams (for structures) at (410) 515-7641 or Ms. Beth Cole (for archeology) at (410) 514-7628.

Sincerely,

Rodney

J. Rodney Little
State Historic Preservation Officer

JRL/EJC/EAH/KPW
9502659
Enclosures

cc: Dr. Charlie Hall
Ms. Rita Suffness
Mrs. Howard F. Yerges

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ATTACHMENT 1

US Route 113: MD 394 to the Maryland State Line
Worcester County, MD

MHT Inven #	Property Name	SHA DOE	MHT DOE
WO-48	Merry Sherwood Tenant House	Not Eligible	Eligible

We do not concur with the determination of eligibility provided by SHA. The Merry Sherwood Tenant House is a rare surviving example of a pre-Civil War-era servants/slaves quarters originally associated with the plantation known as Merry Sherwood (WO-19), and listed on the National Register. The Merry Sherwood Tenant House is eligible for listing on the National Register, either as an individual property or as a contributing resource to the National Register-listed Merry Sherwood property. In order to include it as a contributing resource, the Merry Sherwood National Register Nomination form (1991) and its boundaries need to be revised. Otherwise, National Register boundaries for the individually eligible property need to be determined. In addition, site plans, including NR boundaries and photographs of the property, which are not included in the existing documentation (prepared by Paul Touart 2/9/93), need to be submitted.

VI-272

WO-81	Waverly	Eligible	Eligible

We concur that Waverly is eligible for the National Register under Criterion C.

WO-317	Rochester Farm	Not Eligible	Not Eligible

We concur that Rochester Farm is not eligible for listing on the National Register. Although the farmhouse on Rochester Farm is a good, surviving example of a mid-19th century dwelling, the building has been significantly altered and is modest in its decoration and detail. The property lacks the distinctiveness necessary to qualify it for listing on the National Register.

WO-462	Gibbons Farm	Not Eligible	Not Eligible

We concur that Gibbons Farm is not eligible for listing on the National Register.

WO-463	Hensley/Amos Farm	Not Eligible	Not Eligible

We concur that the Hensley/Amos Farm is not eligible for listing on the National Register of Historic Places.

MHT Inven #	Property Name	SHA DOE	MHT DOE
WO-464	A.P. Bowen House	Not Eligible	Not Eligible

We concur that the A.P. Bowen House is not eligible for listing on the National Register of Historic Places.

WO-465	Parker Farm	Not Eligible	Not Eligible

We concur that Parker Farm is not eligible for listing on the National Register of Historic Places. However, the MHT form prepared by KCI for SHA indicates that the property is eligible for the National Register under Criterion C, in that it embodies the distinctive characteristics of a type of construction, and under Criterion A, for its association with broad patterns of history. The Parker Farm house is a typical and representative example of a modest-sized dwelling form having bungalow-type form and displaying Colonial Revival-style features. It is not a distinctive example of a bungalow. The MHT form needs revision, including the Statement of Significance (Section 8) and the Resource Sketch Map, which shows National Register boundaries.

WO-466	Barbely Farm	Not Eligible	Not Eligible

We concur that Barbely Farm is not eligible for listing on the National Register.

WO-467	J.T. Mumford House	Not Eligible	Not Eligible

We concur that Barbely Farm is not eligible for listing on the National Register. However, the property has a cohesive group of domestic outbuildings that are noteworthy and inadequately photographed. Please provide additional photographs of the main house, summer kitchen and privy.

WO-468	Walsh House	Not Eligible	Not Eligible

We concur that Walsh House is not eligible for listing on the National Register.

WO-469	Gabriel and Diana Purnell Store	Not Eligible	Not Eligible

We concur that Purnell Store is not eligible for listing on the National Register.

WO-470	Pennington Farm	Not Eligible	Not Eligible

We concur that Pennington Farm is not eligible for listing on the National Register.

WO-471	Erma and Norwood Davis House	Not Eligible	Unable to Evaluate

We do not concur based upon the available information. See letter from MHT to SHA dated 12 March 1996 for a full discussion of this opinion. The MHT form is being returned for revision.

MHT Inven #	Property Name	SHA DOE	MHT DOE
WO-472	Vic's Country Store	Not Eligible	Eligible

We do not concur. See letter from MHT to SHA dated 12 March 1996 for discussion of this opinion. The MHT form, including Resource Sketch Map, needs to be revised to address the building's eligibility to the National Register.

WO-473	Calvin E. Davis House	Not Eligible	Not Eligible

We concur with SHA's opinion, which differs from the opinion presented by KCI in the MHT form, that the Calvin E. Davis House is not eligible to the National Register. See letter dated 12 March 1996 for further discussion. We agree that the Calvin E. Davis House is not a good example of a "Cape Cod" house and is, as you noted, more appropriately considered a colonial style cottage--a popular dwelling style that was widely available through pattern books and catalogs and which survives in great numbers and characterizes much of the residential architecture of the period. The MHT form, including the Resource Sketch Map, needs to be revised accordingly.

WO-474	Richard J. and Ellen M. Truitt House	Not Eligible	Not Eligible

We concur. See letter dated 12 March 1996.

WO-475	Hall House	Not Eligible	Not Eligible

We concur that Hall House is not eligible to the National Register.

WO-476	Holloway House	Not Eligible	Not Eligible

We concur that Holloway House is not eligible to the National Register.

WO-477	Virgil and Sarah Webb House	Not Eligible	Not Eligible

We concur that the Virgil and Sarah Webb House is not eligible to the National Register.

WO-478	Roland W. Beauchamp Feed Storage Buildings	Not Eligible	Eligible

We do not concur. It is our opinion that the Roland W. Beauchamp Feed Storage Buildings are eligible for the National Register under Criterion A, for the property's association with the evolution of truck farming in Worcester County, and Criterion C, as an excellent example of the a mid-20th-century rural industrial community, including warehouses and housing. The boundaries of the property should include the two warehouses, the single-family dwelling, and the twelve, *contributing* cottages. The MHT form needs to be revised accordingly, including the Statement of Significance (Section 8) and the Resource Sketch Map.

MHT Inven #	Property Name	SHA DOE	MHT DOE
WO-479	**Transpeninsular Line Marker**	**Eligible**	**Eligible**

We concur that the Transpenisular Line Marker is eligible to the National Register.

WO-480	**Maryland/Delaware State Line Marker**	**Not Eligible**	**Eligible**

We do not concur with SHA's opinion, but do concur with the assessment of KCI, as presented in the MHT form that the Maryland/Delaware State Line Marker is eligible to the National Register under Criterion A. The marker is directly associated with the Worcester Railroad and is one of the few surviving resource types associated with the rail line. As many of the passenger and freight depots have been demolished, markers such as this are the only tangible reminders of the importance of the railroad line and the impact that the railroad had on the local economy and history.

ATTACHMENT 2

LIST OF ENCLOSED MHT FORMS
INCLUDING PHOTOGRAPHS AND MAPS

WO-465	Parker Farm
WO-467	J.T. Mumford House
WO-471	Erma and Norwood Davis House
WO-472	Vic's Country Store
WO-473	Calvin E. Davis House
WO-478	Roland W. Beauchamp Feed Storage Buildings

Maryland Department of Transportation
State Highway Administration

David L. Wi
Secretary
Hal Kassoff
Administrator

July 8, 1996

Re: Contract No. WO 719-202 (P)
US 113 at MD 90
Worcester County, Maryland

RECEIV

Mr. J. Rodney Little
State Historic Preservation Officer
Maryland Historical Trust
100 Community Place
Crownsville MD 21032-2023

Dear Mr. Little:

Enclosed for your library are two copies of the final report *Phase IB Intensive Archeologi Investigations, US Route 113 at Maryland Route 90, Worcester County, Maryland*, by Dr. Robert Wall, along with a completed NADB form. The final report has been modified according to comments by your office and the State Highway Administration. Thank you your assistance throughout this project, and please feel free to contact Mr. Richard Ervin 321-2213 if you have any questions.

Very truly yours,

Louis H. Ege, Jr., Deputy Director
Office of Planning and
Preliminary Engineering

by: Cynthia D. Simpson
Cynthia D. Simpson
Deputy Division Chief
Project Planning Division

Accepted by:

Elizabeth J. Cole
State Historic Preservation Office

7/31/96
Date

LHE:RGE:ejs
Enclosures (3)
cc: Mr. Lee Carrigan
Dr. Charles Hall
Ms. Lorraine Strow

My telephone number is (410) 545-8410

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

54

MARYLAND HISTORICAL TRUST

Office of Preservation Services

PROJECT DEVELOPMENT DIVISION
JUL 22 11 08 AM '96

Parris N. Glendening, Governor
Patricia J. Payne, Secretary

July 18, 1996

Ms. Cynthia D. Simpson
Deputy Division Chief
Project Planning Division
State Highway Administration
707 North Calvert Street
P.O. Box 717
Baltimore, Maryland 21203-0717

RE: Contract No. WO 719-202(P)
US 113 @ MD 90
Worcester County, MD

Dear Cynthia ~~Ms. Simpson~~:

Thank you for your letter of 20 June 1996 regarding the above-referenced project. This letter provides a modification of the Area of Potential Effect (APE) of that shown on the initial letter regarding this project and dated 23 January 1996. As we understand it, the revised APE was reduced in breadth based upon a site visit conducted by Ms. Suffness. The revised APE contains one historic resource, the Richard and Ellen Truitt house (WO-474), which SHA and the Trust concur is not considered eligible for listing on the National Register of Historic Places.

We are unable at this time to concur with the revised APE, and thus the existence of National Register eligible properties within the APE. While the reduced boundary on the eastern edge of the APE is justifiable due to the heavily wooded nature of the site (as pointed out in your letter), it is not clear why the APE does not extend south of Carey Road. Based upon the aerial view and previous map documents, it appears that this interchange would service the alternate Route US 113 designated as Alternate 4 and extending due south of Carey Road to merge with the existing US 113 south of this interchange. In order for us to complete the review of this project, please provide an explanation for the proposed southern boundary of the APE.

Thank you for providing us this opportunity to comment. I will be out of the office until the week of August 1, 1996, but look forward to your response. You may reach me at (410) 515-7637.

Sincerely,

Kimberly P. Williams

Kimberly Prothro Williams
Preservation Officer

VI- 278

Division of Historical and Cultural Programs
100 Community Place • Crownsville, Maryland 21032 • (410) 514-

HOUSING UNITY

The Maryland Department of Housing and Community Development (DHCD) pledges to foster the letter and spirit of the law for achieving equal housing opportunity in Maryland.

EJC/KPW
9602489

cc: Dr. Charlie Hall
Ms. Rita Suffness
Mrs. Howard F. Yerges

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MARYLAND HISTORICAL TRUST

Office of Preservation Services

Parris N. Glendening, Governor
Patricia J. Payne, Secretary

January 7, 1997

Ms. Cynthia D. Simpson
Deputy Division Chief
Project Planning Division
State Highway Administration
707 North Calvert Street
P.O. Box 717
Baltimore, Maryland 21203-0717

RE: Contract No. WO 720 B11
US 113: MD 394 to Delaware State Line
Worcester County, MD

Dear Cynthia Simpson:

Thank you for your letter of 11 December 1996 informing us of the status of the US Route 113 corridor study and for providing us with the revised inventory forms and other requested information asked for by our office in April 1996. We have reviewed the revised forms as well as your recommendations for National Register eligibility, and proposed National Register boundaries, as applicable, and have provided comments below.

The following revised Maryland Inventory of Historic Properties (MIHP) forms have been reviewed and accepted for inclusion into our inventory files: the Parker Farm (WO-465); the J.T. Mumford House (WO-467); Vic's Country Store (WO-472); and the Calvin E. Davis House (WO-473). We have also reviewed the other forms and have the following comments:

Hales Farm/Edward Mariner Farm (WO-283): we agree that the National Register boundaries need not include the entire 500 acres historically associated with the farm, especially given that it has been subdivided recently and includes contemporary structures. We agree that the boundaries should include at least the main house and its associated outbuildings. We feel that given the rural historic character and agricultural tradition of the property, however, that the proposed boundaries are too severely reduced and should include at least some surrounding, cultivated land. We propose that the historic resources, plus a five-acre tract of land surrounding these resources and placing them in their appropriate context amidst cultivated fields, be developed for this property. A resource sketch map, showing the NR boundaries and the resources within the boundaries should be prepared for this property, according to the Trust's *Guidelines for Completing the Maryland Inventory of Historic Properties Form* (MHT, July, 1991).

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USING
UNITY

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Should you decide to go with this latter approach, only the Resource Sketch Map needs to be revised and the whole resubmitted to our office.

In addition to the above-listed revised forms, we have reviewed the revised Resource Sketch Maps showing the National Register boundaries for the Transpenninsular Line Marker (WO-479) and the Maryland/Delaware State Marker (WO-480). The map for WO-479 is that which was submitted with the original MIHP form and which shows NR boundaries. The map for WO-480, however, does not provide National Register boundaries for the eligible property and is thus being returned for revision.

Thank you for providing us this opportunity to comment. Should you have any questions, please do not hesitate to call Ms. Kim Williams at (410) 514-7637.

Sincerely

J. Rodney Little
State Historic Preservation Officer

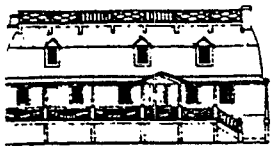
JRL/KPW/9604189

Enclosures

cc: Ms. Bruce Gray
Ms. Rita Suffness
Dr. Charles Hall
Mrs. Howard F. Yerges
Mrs. Ricks Savage

658

MARYLAND
HISTORICAL



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ice of Preservation Services

Parris N. Glendening, Governor
Patricia J. Payne, Secretary

PROJ... PLANNING DIVISION
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March 6, 1997

Ms. Cynthia D. Simpson
Deputy Division Chief
Project Planning Division
State Highway Administration
707 North Calvert Street
P.O. Box 717
Baltimore, Maryland 21203-0717

RE: Contract No. WO 720 B11
US 113: MD 394 to Delaware State Line
Worcester County, MD

Dear Ms. Simpson:

Thank you for your letter of 14 February 1997 providing us with a description of the project alternatives; an evaluation of the project impacts, as prepared by Garrow & Associates consultants; and including the revised inventory forms (or attachments) as requested by our office by letter dated 7 January 1997. We have reviewed the inventory forms and are pleased to accept them for inclusion in our library, as revised.

Based upon this last submission, and according to our records, the documentation of historic standing structures within the Area of Potential Effect (APE) for this project is almost complete. Still lacking are the negatives (labeled according to MHT Guidelines) for the black and white photographs, and the color slides (labeled, also according to MHT Guidelines) of the inventoried properties. We await receipt of these items to complete the documentation phase of this project.

We have reviewed Garrow and Associates evaluation of impacts to historic standing structures, but will reserve comment on these conclusions until we have received the results of the Phase I archeological study. Thank you for providing us this opportunity to comment. Should you have any questions, please do not hesitate to call me at (410) 514-7637.

Sincerely
Kimberly P. Will
Kimberly Prothro Williams

Division of Historical and Cultural Programs
100 Community Place • Crownsville, Maryland 21032 • (410) 514-_____

The Maryland Department of Housing and Community Development (DHCD) pledges to foster the letter and spirit of the law for achieving equal housing opportunity in Maryland.

6

KPW/9700379

cc: Ms. Bruce Gray
Ms. Rita Suffness
Dr. Charles Hall
Mrs. Howard F. Yerges
Mrs. Ricks Savage

MARYLAND HISTORICAL TRUST

ffice of Preservation Services

Parris N. Glendening, Governor
Patricia J. Payne, Secretary

March 18, 1997

Ms. Cynthia D. Simpson
Deputy Division Chief
Project Planning Division
State Highway Administration
707 North Calvert Street
P.O. Box 717
Baltimore, Maryland 21203-0717

RE: Project No. WO720B11
US 113 from MD 394 to the Delaware Line
Worcester County, Maryland

Dear Ms. ~~Simpson~~ Cynthia:

Thank you for your recent letters, dated 14 February 1997 and 7 March 1997, requesting our comments on the above-referenced project.

Based on the information provided with your correspondence, we concur with SHA's determination that the all four build alternatives (Alternate 3S, Alternate 3N, Alternate 4N - Modified, and the Combination 3N/4N Alternate - Modified) will have adverse effects on historic properties, including historic structures and archeological resources. SHA's environmental documentation for the project should accurately represent the current status of Section 106 consultation for the alternatives as a whole, as well as the specific impacts for individual resources. The Trust urges SHA to carefully examine and consider options which would avoid and minimize the project's adverse effects on historic and archeological properties. We look forward to continued coordination with SHA, FHWA, the Advisory Council on Historic Preservation, and other interested parties to resolve the project's adverse effects. The negotiation should result in the execution of a Memorandum of Agreement (MOA) for this undertaking. The MOA should include stipulations addressing the treatment of specific affected historic properties, as well as the procedures for completing archeological evaluation and treatment for the selected alternate.

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The Maryland Department of Housing and Community Development (DHCD) pledges to foster the letter and spirit of the law for achieving equal housing opportunity in Maryland.

SHA's 14 February 1997 letter included a brief description of the project alternates and an evaluation of project impacts prepared by Garrow & Associates, in January 1997. Please note that the evaluation of project impacts was based upon the alternates shown in two separate maps, one showing the Northern Study Area and the other showing the Southern Study Area. These maps indicate Alternate 3S, Alternate 3N, and Alternate 4N Modified on maps showing the historic resources. It is these maps, included in Garrow's evaluation, which the Trust has reviewed. Any other proposed modifications and new alignments, which differ from those shown on these maps, will need to be evaluated for impacts on historic properties and submitted to the Trust with the appropriate documentation for review. Attachment 1 to this letter lists our specific comments on SHA's assessment of impacts for individual architectural resources. SHA should revise its environmental documentation to reflect the specific impacts discussed.

We have reviewed the following draft archeological report, prepared by Garrow & Associates, Inc., for the project: *Phase IB Archeological Identification Survey of US 113 from MD 394 (Snow Hill) to the Delaware Line, Worcester County, Maryland.* The report provides descriptions of the survey's goals, methods, results, and recommendations. The survey identified 36 archeological sites and 47 *isolated finds* within the study area. The identified resources represent the area's span of human occupation and use from prehistoric through historic time periods. All of the build alternatives would require additional Phase II investigations to conclusively determine the sites' National Register eligibility. In addition, further Phase I survey of areas where access was denied is warranted. Agreement on the precise resources requiring additional investigation has yet to be resolved, pending review of additional information the consultant must provide.

We acknowledge that SHA has made a reasonable and good faith effort to identify archeological sites within the four proposed build alternates. While it appears that an appropriate level of effort was performed, the report does not currently provide adequate information consistent with the reporting requirements of the *Standards and Guidelines for Archeological Investigations in Maryland* (Shaffer and Cole 1994). The current draft lacks sufficient documentation on the survey and its results for the Trust to be able to concur with SHA on the adequacy of the survey efforts or to agree with SHA's assessments of National Register eligibility for the individual archeological sites and isolated finds. Attachment 2 lists our specific concerns and comments on the draft archeological report. We ask SHA to have the consultant address these issues, in addition to SHA's remarks, in the preparation of a revised draft report. Once we have received and reviewed a revised draft, we will promptly provide comments and appropriate recommendations.

We understand SHA's scheduling constraints for this undertaking. Please be assured that Trust staff will make every effort to complete the remaining reviews and coordination as expeditiously as possible. We are confident that all involved parties can satisfactorily resolve these outstanding issues through appropriate and conscientious consultation. Submittal of complete and thorough documentation will greatly facilitate completion of the Section 106 review for this undertaking.

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ATTACHMENT 1
MHT COMMENTS ON SHA'S ASSESSMENT OF IMPACTS FOR ARCHITECTURAL RESOURCES

1) No-Build Options:

The no-build alternate would be limited to minor modifications during maintenance and safety operations. The Trust concurs with Garrow & Associates assessment that the no-build alternate will not impact historic (standing) structures.

2) TSM Improvements:

As we understand it, the TSM improvements provide upgrades along the existing roadway to alleviate congestion and enhance traffic safety, without major alteration to the existing two-lane highway. They would be part of an integrated plan of phased safety and capacity improvements, and include short-term spot improvements. We concur with Garrow & Associates assessment that the TSM improvements will not impact historic (standing) structures.

3) Alternate 3S:

Alternate 3S involves the dualization of the existing alignment of US 113, in the Southern Study Area of the project. Dualization involves construction of a new two-lane roadway adjacent to the existing facility, and retention of the existing facility as the northbound or southbound roadway to the extent possible. We concur with Garrow & Associates that Alternate 3S will not impact historic standing structures in the APE.

4) Alternate 3N:

Alternate 3N involves the dualization of the existing alignment of US 113, in the Northern Study Area of the project. Dualization involves construction of a new two-lane roadway adjacent to the existing facility, and retention of the existing facility as the northbound or southbound roadway to the extent possible. Garrow & Associates determined that Alternate 3N will adversely impact four historic structures (Hale/Mariner Farm; Vic's Country Store, the Showell Store, and the Lemuel Showell House). Garrow & Associates determined that Alternate 3N would not adversely impact St. Martin's Church. In our opinion, Alternate 3N will cause a change in the historic setting of St. Martin's Church, listed on the National Register of Historic Places, and will thus have an adverse impact on the historic property. Presently, the church faces US 113, near the intersection with Racetrack Road. The church is set back from the intersection and is buffered from US 113 by a row of coniferous trees. The chapel retains its rural setting despite the intersection; however, the dualization of the highway here will increase traffic loads, increase noise and generally detract from the rural setting of the church--one of the characteristics which qualifies the church for inclusion in the

National Register of Historic Places. In our opinion, Alternate 3N will thus have adverse impacts on five historic structures.

5) **Alternate 4N (Modified):**

Alternate 4N involves the construction of a new, four-lane divided highway away from the existing facility. Garrow & Associates determined that Alternate 4N would not adversely impact historic structures. In our opinion, Alternate 4N will have an adverse impact on St. Martin's Church. The church presently fronts US 113, but overlooks flat, cultivated fields beyond. The construction of a new, four-lane divided highway here will eliminate the present view from the church and will alter the rural character of the small chapel. Alternate 4N will thus adversely impact one historic structure.

6) **Combination Alternate:**

The Combination Alternate is based on parts of Alternate 3N and Alternate 4N Modified. Garrow & Associates determined that the Combination Alternate will not adversely impact any historic structures. We concur with their determination that the Combination Alternate will not adversely impact historic structures.

ATTACHMENT 2
MHT COMMENTS ON DRAFT PHASE I ARCHEOLOGICAL REPORT

The first four items include general overriding comments regarding the draft, which must be corrected for the report to provide adequate documentation on which to base decisions of National Register eligibility, sites requiring additional investigation, and the adequacy of the survey coverage. The remaining comments reflect specific corrections needed to the draft.

1) The report does not provide adequate integration of archeological and architectural resources issues. (The recent work SHA conducted for the ICC project is a useful model of effective integration.)

2) The report lacks sufficient description and documentation of all the survey methods and results (including negative results). The Results only present discussion of identified sites and isolated finds. The report contains no discussion or interpretation of those survey areas where nothing was found. The report has no maps illustrating the designated high and low probability areas. Without this additional documentation, it is difficult for the Trust to assess and concur with the adequacy of the survey efforts as a whole.

3) The discussion of identified sites does not offer interpretation for site stratigraphy or discuss analysis of recovered materials (beyond basic artifact type and counts). This omission contributes to a general lack of justification supporting the recommendations for specific resources. Based on the information presented, the Trust is not yet able to concur with the assessments of National Register eligibility for the identified sites.

4) The report does not provide sufficient justification to explain and support all of its designations of sites versus isolated finds, particularly for resources that correspond with structures illustrated on the historic atlases.

5) The Abstract, as well as the remaining chapters should address sites - not individual components within sites. While a site may include multiple components, the site as a whole either requires additional work to determine its National Register eligibility or is ineligible.

6) The report should include a detailed description of the currently proposed alternates, consistent with SHA's descriptions in its environmental documents for the project.

7) The report should contain a figure illustrating the location and limits of the project alternatives, with appropriate labels. We are concerned to note that the survey corridors illustrated in the report do not entirely coincide with the alternates mapping SHA recently provided to the Trust. SHA should carefully examine the corridors to determine whether or not the Phase I survey adequately covered the alignments as currently proposed.

8) The Historic Overview should be organized following the Trust's historic context outline, presented in the *Maryland Comprehensive Historic Preservation Plan* (1986).

9) The Previous Investigations section should be expanded to include discussion of pertinent prior studies conducted in the project vicinity. The current draft only discusses previously inventoried archeological sites in a 2 mile corridor.

10) Page 35: The report states - *The former locations of 33 structures located within the tested areas of the project corridor were identified from historic maps (Table 3).* The current Table 3 is a listing of National Register eligible historic structures along the corridor. Where is the table listing the 33 structures identified from the historic maps?

11) Page 35: The discussion of historic structures in the corridor area should address all inventoried structures, not just those resources determined eligible for the National Register. National Register status of structures is not a deciding factor for assessing archeological potential of a property. Table 3 should be revised to include all of the inventoried structures, noting: inventory number, name, National Register status, archeological survey status, relation to structures on historic maps, and any associated sites/isolated find resources.

12) Page 37: Why did the background research emphasize examination of National Register eligible structures only? Certainly the presence of any structure older than 50 years, regardless of its National Register status, would contribute to the archeological potential of a given area.

13) The report should include maps illustrating the designated areas of archeological sensitivity, or sensitivity information should be added to existing figures.

14) Page 38: Paragraph four states that *A list of each identified survey segment is included in Table 4.* The current Table 4 does not match the description provided in the text, nor does the report appear to contain the table discussed, which would be a valuable addition to the draft.

15) Page 38: The report should provide a more detailed description of the surface survey methods employed. We question the adequacy of surface inspection alone for those areas exhibiting 25% surface visibility. Was the surface collection systematic? What is meant where the Results discuss surface collections of *locations*?

16) Pages 38-39: We are somewhat unclear how the percentages of survey access were produced. Are the properties where no response was received included in these figures and Table 5? Doesn't a no response essentially equal an access denial, since the no response parcels were not surveyed?

17) As noted above, Chapter V must discuss the survey results for all of the survey transects, not just for identified resources. For each transect, or group of contiguous transects, the report must include: transect descriptions, designation of high versus low potential, access issues, soils, methods of testing, and results (including negative results). The results should discuss the number of initial and supplemental shovel tests excavated per survey transect, site, or isolated find. Were adequate supplement shovel tests employed to better define the nature and

extent of identified resources? The report should provide interpretations for any negative results. If a transect was designated as high potential (for instance a structure illustrated on historic maps) and nothing was found, what is the explanation?

18) It would be useful if the report sequentially organized its discussion by survey transect, incorporating identified sites and isolated finds as they occur along the survey corridor.

19) The report text should reference the pertinent figures in Appendix 1 which illustrate the survey transect, site, or isolated find under discussion.

20) Site descriptions should correlate between the outline format, narrative, and recommendations regarding historic period associations. The current draft is not consistent in its reference to 18th, 19th, or 20th c. components.

21) The report should present justification for site boundaries, particularly when those boundaries are coterminous with the proposed right of way.

22) The report must present interpretations for the identified soil stratigraphy (plowzone, fill, subsoil, buried A horizon, disturbed, etc.), in addition to the basic soils descriptions.

23) In general, the report does not present justification to support its claims that sites do not contain intact cultural deposits. For instance, page 79 states that *Though structures on both the 1877 West Berlin map and Martenet's 1885 map correspond to this location, the site stratigraphy indicates the absence of intact cultural deposits.* The report makes numerous, similar, unsubstantiated statements, such as - *the site stratigraphy indicates that no intact cultural deposits are likely to exist.* Given the limited extent of testing, we are unclear how such statements may confidently be made, particularly for historic sites which are likely to contain subsurface architectural remains, pits, and shaft features.

24) The report maps and illustrations should note any inventoried structures (with inventory number and name) illustrated on the figures.

25) Figures 12a through 12i should name the appropriate quadrangle illustrated.

26) Figures 18, 19, 20, and 36 must contain keys for the artifacts illustrated. The key should list the artifacts with appropriate site and lot numbers.

27) Page 64: The consultant should complete an official Trust archeological site inventory form for the 19th c. Nelson family cemetery.

28) Page 97: What is the historic structure prominently illustrated in the photo? Why is there no discussion of this structure and its possible association with the identified archeological site 18WO196?

29) Pages 123 - 124: What is the basis for the extremely linear and narrow boundary of site 18WO208?

30) Page 130: Why does the report dismiss site 18WO212, a high density artifact scatter (18th - 20th c.), with an extensive variety of artifact types, because *the site could not be matched to any structures depicted on the historic* [maps]? In Chapter III, the report notes that *1877 maps do not necessarily show all of the houses in the corridor, but were weighted toward the dwellings of prominent citizens, many of whom paid subscription fees to have their names placed on the map. Tenant houses and the homes of black farmers are undoubtedly underrepresented. These houses are likely to have been located closer to the road.*

31) The consultant should carefully examine and justify the designations of sites and isolated finds. Isolated finds should be compared with the locations of inventoried historic structures and structures illustrated on historic maps. Better explanations must be provided for why the consultant determined that certain isolated finds represent roadside trash or field manuring, particularly in light of the issue raised in the previous comment.

32) Where is the discussion of the results of the project's artifact analyses?

33) As noted above, the Recommendations must discuss and evaluate the National Register eligibility of the sites as individual resources, not as components within sites. The eligibility evaluations must be more detailed and provide supporting justification. In our opinion, insufficient data exists to demonstrate that certain sites are in fact eligible for the National Register. The level of Phase I survey was not sufficient to demonstrate eligibility. The survey was likely adequate to determine that certain sites are ineligible for the National Register, but the report must provide better justification to support its recommendations of ineligibility. As you know, the Trust is uncomfortable with the term *potentially eligible.* Additional Phase II investigations is warranted to conclusively determine the eligibility or ineligibility of certain sites for the National Register.

34) The report should discuss the project's potential effects on identified resources.

35) The Summary and Conclusions should provide greater discussion and interpretation of the survey results, with particular attention to the general research questions identified in Chapter IV.

36) Page 165: The report should describe the previously identified resources, 18WO110 and 18WO124, located in transects where access was denied.

37) Appendix 2 must include the official MHT Lot numbers in the artifact inventory.

38) Appendix 3 is a very useful addition to the report.

39) The final report should be printed double sided.

If you have questions or require additional information, please call Ms. Kim Williams (for structures) at (410) 514-7637 or Ms. Beth Cole (for archeology) at (410) 514-7631. Thank you for your continued cooperation and assistance.

Sincerely,

Rodney

J. Rodney Little
Director/State Historic
Preservation Officer

JRL/EJC/KPW
9700606
Attachment

cc: Mr. Bruce Grey (SHA)
Dr. Charles Hall (SHA)
Ms. Renee Sigel (FHWA)
Mr. Don Klima (ACHP)
Mr. Vance Hobbs (COE)
Mr. John Forren (EPA)
Mr. Robert Zepp (USFWS)
Mr. John Nichols (NMFS)
Ms. Cynthia Wilkerson (NPS)
Mr. Ray Dintaman (DNR)
Mr. James Noonan (MOP)
Mr. Elder Ghigiarelli (MDE)
Mrs. Howard F. Yerges
Mrs. Ricks Savage

MARYLAND HISTORICAL TRUST

Office of Preservation Services

Parris N. Glendening, Gove
Patricia J. Payne, Secre

April 23, 1997

Ms. Cynthia D. Simpson
Deputy Division Chief
Project Planning Division
State Highway Administration
707 North Calvert Street
P.O. Box 717
Baltimore, Maryland 21203-0717

RE: Project No. WO720B11
US 113: MD 394 to the Delaware Line
Worcester County, Maryland

Dear Cynthia Simpson:

Thank you for your recent letter, received by the Trust on 11 April 1997, requesting confirmation of SHA's determination of effect for the proposed alternatives and seeking comments on the revised draft archeological report prepared for the above-referenced project.

Determination of Effect: Based on the documentation provided by SHA and summarized in the Eligibility/Effects table dated 10 April 1997, the Trust concurs with SHA's determination of effect for the various project alternatives, as outlined below:

Alternative	Effect
Alternative 1S & 1N (No Build)	No Effect
Alternative 2S and 2N (TSM)	No Effect
Alternative 2S (20' Median)	No Effect
Alternative 3S & 3N (20' Median)	Adverse Effect
Alternative 3S & 3N (34' Median)	Adverse Effect
Alternative 4N Modified (20' Median)	Adverse Effect
Alternative 4N Modified (34' Median)	Adverse Effect
Combined Alt. 3N & 4N Modified (20' Median)	Adverse Effect
Combined Alt. 3N & 4N Modified (34' Median)	Adverse Effect.

In addition to addressing these new alternatives and submitting our determinations of effect, we have re-examined the potential impact that Alternative 4N Modified and the Combination Alternative will have on St. Martin's Church. As noted in telephone conversations from you and in your letter, the alignments of Alternative 4N Modified and Combination Alternative in the vicinity of St. Martin's Church are identical, and therefore, should have the same impact on the church. We agree that both alternatives will adversely impact historic properties. The determination of Adverse

Division of Historical and Cultural Programs
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EQUAL HOUSING OPPORTUNITY

The Maryland Department of Housing and Community Development (DHCD) pledges to foster the letter and spirit of the law for achieving equal housing opportunity in Maryland.

Effect for both of these alternatives remains as stated in our 18 March 1997 letter.

Archeology Report: We have carefully reviewed the following revised draft report, prepared for SHA by Garrow & Associates, Inc.: *Phase IB Archeological Identification Survey of US113 from MD394 (Snow Hill) at the Delaware Line, Worcester County, Maryland.* The revised draft successfully incorporates the comments the Trust made on the original version and constitutes a notable improvement over the earlier report. The document meets reporting requirements of the *Standards and Guidelines for Archeological Investigations in Maryland* (Shaffer and Cole 1994).

The survey identified 39 archeological sites and 45 isolated artifact finds in the study area. The identified resources reflect the study area's broad range of occupation and use from prehistoric throughout historic time periods. We agree that the 45 isolated finds/refuse disposal areas warrant no further consideration. Based on the documentation presented in the report, we agree that the following 19 sites do not meet the criteria for eligibility in the National Register of Historic Places due to their lack of integrity and inability to yield important information: 18WO62, 18WO182, 18WO186, 18WO187, 18WO188, 18WO189, 18WO192, 18WO198, 18WO199, 18WO200, 18WO205, 18WO206, 18WO207, 18WO208, 18WO210, 18WO211, 18WO213, 18WO217, and 18WO218.

The remaining 20 sites warrant Phase II level archeological evaluation to conclusively determine their National Register eligibility: 18WO181, 18WO183, 18WO184, 18WO185, 18WO190, 18WO191, 18WO193, 18WO194, 18WO195, 18WO196, 18WO197, 18WO201, 18WO202, 18WO203, 18WO204, 18WO209, 18WO212, 18WO214, 18WO215, and 18WO216. We understand that SHA plans to implement a programmatic approach to the Phase II research, since many of the resources represent similar site types (rural farmsteads dating from the 18th and 19th centuries). We thoroughly support such an approach and will be happy to work with SHA in developing a meaningful and cost effective Phase II program. We note that sites 18WO215 and 18WO216 are situated outside the area of potential effects for this undertaking, as currently planned. Thus, SHA is not responsible for conducting Phase II investigation of these two resources. The Effects/Eligibility table incorrectly states that 18WO216 is ineligible; SHA should revise the table to list the site as ND (not determined) and located outside the APE.

We agree that additional Phase I archeological survey is warranted to examine those high potential segments of the project area to which access was denied. The attachment lists our specific comments on the draft itself. We ask SHA to have the consultant address these issues, in addition to SHA's remarks, in the preparation of the final report.

These investigations have generated important information regarding the study area's history, settlement, and archeology. The survey results have greatly expanded the Trust's archeological database for Worcester County. The study is particularly useful since few professional archeological investigations have been conducted within Worcester County. We appreciate SHA's contributions to Maryland archeology as a result of this undertaking.

Completion of Section 106 Consultation: We look forward to continued consultation with SHA, FHWA, the ACHP, and other interested parties to resolve the project's effects on historic properties. The consultation should invite participation of legitimate interested parties who may have concerns about the various historic properties impacted by the project. In addition, the Trust will coordinate with its Easement Committee concerning the project's effects on St. Martins Church.

Finally, we offer the following suggestions for enhancing the documentation SHA submits to the Trust for review. It would be useful to have all the resources which are listed on the Eligibility/Effects table illustrated and labeled with inventory numbers on the project alternates mapping (enclosure 5 to SHA's recent submittal). In addition, it would be helpful for the Eligibility/Effects table to note remaining acreage to be surveyed for each alternative. These items would help facilitate our review of the submitted materials, particularly for large projects of this scope.

If you have questions or require additional information, please call Ms. Kim Williams (for structures) at (410) 514-7637 or me (for archeology) at (410) 514-7631. Thank you for your cooperation and assistance.

Sincerely,

Rodney

J. Rodney Little
Director/State Historic Preservation Officer

EJC/KPW
9700952
cc: Mr. Bruce Grey (SHA)
Dr. Charles Hall (SHA)
Ms. Rita Suffness (SHA)
Ms. Renee Sigel (FHWA)
Mr. Don Klima (ACHP)
SHA Interagency Review Group
Mrs. Howard F. Yerges
Mrs. Ricks Savage

MHT COMMENTS ON REVISED DRAFT REPORT
PHASE I SURVEY - US 133 FROM MD 394 TO THE DELAWARE LINE

1) The Abstract is still awkward in its discussion of sites and site components. We suggest inserting the last paragraph on page 1, which specifies by site number which sites are recommended as ineligible and which are recommended for Phase II work, in the Abstract.

2) It would be useful if Figure 13 included an identifying key or symbol for the inventoried historic structures illustrated, since it is not possible to distinguish archeological sites from structures on the basis of inventory numbers alone (both use a *WO* prefix).

3) We do not agree that sufficient information exists to determine the National Register eligibility of 18WO216, the Nelson Cemetery. The report should recommend the site for Phase II evaluation. As noted above, 18WO 216 is currently located outside the APE for the project.

4) For site 18WO197, the report presents varying recommendations for those portions of the site within and outside the right-of-way. Based on the Phase I testing alone, we do not agree that such differing recommendations are appropriate. Phase II investigation of the site as a whole is warranted to determine its National Register eligibility.

5) The report should discuss the project's potential effects on the identified archeological resources.

6) The report should note the acreage remaining to be surveyed for the various alternates (for access denial properties).

7) The revised report provides better explanation for its designation of archeological sites and isolated finds; however, we are concerned that the site and find designations are inconsistent and problematic. These problems are partly due to the nature of the resources (i.e. - scatters of historic artifacts). We would like to work with SHA to address these concerns through a well directed program of Phase II research for the project.

8) The final report should be printed double sided.

Maryland Department of Natural Resources
Tidewater Administration
Tawes State Office Building
580 Taylor Avenue
Annapolis, Maryland 21401

PROJECT DEVELOPMENT
JUL 10 9 47 AM '89

William Donald Schaefer
Governor

Torrey C. Brown, M
Secretary

July 6, 1989

Cynthia D. Simpson
Environment Management
Project Development Division
Maryland Department of Transportation
State Highway Administration
707 North Calvert Street
Baltimore, Md. 21203-0717

Dear Ms. Simpson:

This letter is in response to your letter of request, dated June 15, 1989, for fisheries information on streams within the project area of Contract No. WO 668-101-170, U.S. 113 Berlin Dover Road north of U.S. 50 to the Delaware State Line.

Table 1 lists fish species common to freshwater streams within the subject study area. Although not specifically documented, white perch and herring probably utilize Church Branch, Middle Branch, Birch Branch and Carey Branch for spawning. No sampling for anadromous fish has been conducted on these streams.

The Blackbanded sunfish (Enneaconthus chaetadon) has been documented in Carey Branch one-half mile downstream from Rt. 113 crossing (Al Weshe, MD. D.N.R., Fisheries Division, personal communication). This fish is considered rare and possibly endangered in Maryland.

Any instream work to be conducted within the subject project area should be restricted from March 1 through June 15 to provide protection for these species during there spawning period.

If you have any questions concerning these comments, please contact me at 974-2788.

Sincerely,

Ray C. Dintaman

Ray C. Dintaman
Natural Resources Planner

RCD:swp

Telephone: _____
DNR TTY for Deaf: 301-974-3683

Table 1

Fish Species Common To Coastal Freshwater Streams.

1. American eel
2. Pirate perch
3. Bluespotted sunfish
4. Banded sunfish
5. Creek chubsucker
6. Redfin pickerel
7. Mosquitofish
8. Yellow bullhead
9. Brown bullhead
10. Pumpkinseed
11. Golden shiner
12. Bridle shiner
13. Eastern mudminnow
14. Margined madtom
15. Green sunfish
*16. Blackbanded sunfish.
17. White perch
18. Herring (alewife and blueback)

* Considered rare and possible endangered in Maryland.

Source: Tidewater Administration, Fisheries Division - in-house data.

Maryland Department of Natural Resources

Tidewater Administration
Tawes State Office Building
580 Taylor Avenue
Annapolis, Maryland 21401

DEVELOPMENT DIVISION
JAN 23 2 28 PM '90

William Donald Schaefer
Governor

Torrey C. Brown, M
Secretary

January 17, 1990

Mr. Louis H. Ege, Jr.
Deputy Director
Office of Planning and Preliminary Engineering
State Highway Administration
707 North Calvert Street
Baltimore, Maryland 21203-0717

Re: US 113 from north of US 50 to the Delaware State Line.

Dear Mr. Ege:

This is in response to your letter dated 20 November 1989 for finfish information related to the additional study area for the above referenced project. In our 6 July 1989 response to the original request, it was stated that the blackbanded sunfish (Enneaconthus chaetadon) was documented for Carey Branch, one of the tributaries which will be affected by the proposed project. The occurrance of this fish species is considered highly rare in Maryland and is listed as "...In Need of Conservation..." by the Maryland Natural Heritage Program in DNR, Forest Parks, and Wildlife Service.

I recommend that you contact the Natural Heritage Program at (301) 974-2870 or write the agency to receive more detailed information concerning the distribution of this species.

As stated in the 6 July 1989 memo, any instream work will be restricted from 1 March through 15 June to protect this and other resident fish species during their spawning period.

If you have any questions, please call me or Ms. Mary Ellen Dore of my staff at (301) 974-2788.

Sincerely,

Elder A. Ghigiarelli, Jr.
Chief, Project Evaluation/Federal
Consistency Review

EAG/MED/mpd

VI- 295

Telephone: (301) 974-2788
DNR TTY for Deaf: 301-974-3683

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PROJECT
DEVELOPMENT
DIVISION
4 3 33 PM '95

is N. Glendening
Governor

Maryland Department of Natural Resources
Fish, Heritage and Wildlife Administration
Tawes State Office Building
Annapolis, Maryland 21401

John R. Griffin
Secretary

Ronald N. Young
Deputy Secretary

April 25, 1995

Mr. Louis H. Ege, Jr.
STATE HIGHWAY ADMINISTRATION
707 North Calvert Street
Baltimore, Maryland 21202

Attn: Mr. Joseph R. Kresslein

RE: Contract No. AW 821-108-070, US 113: MD 394 to Delaware Line - Worcester County, Maryland

Dear Mr. Louis H. Ege, Jr.:

The Maryland Natural Heritage Program database contains a record for Seaside Alder (*Alnus maritima*) as occurring along Rt. 113, approximately 1000 feet south of the Goody Hill Branch crossing. Although this rare plant species is not listed in Maryland, its protection is requested through minimizing impacts to wetlands in this area. If you have any questions regarding this information, please call Lynn Davidson at (410) 974-2870.

Sincerely,

Robert L. Miller

Robert L. Miller, Coordinator
FHWA Environmental Review

RLM:dec

cc: Lynn Davidson

ER# 95366.WO

Telephone: (410) 974-3195
DNR TTY for the Deaf: 301-974-3683

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PROJECT DEVELOPMENT DIVISION
MAY 12 1 45 PM '95

Parris N. Glendening
Governor

Maryland Department of Natural Resources

Tidewater Administration
Power Plant and Environmental Review Division
Tawes State Office Building, B-3
Annapolis, Maryland 21401

John R. Griffin
Secretary

Ronald N. Young
Deputy Secretary

Peter M. Dunbar, Pl
Director

May 9, 1995

Joseph R. Kresslein
Project Planning Division
Maryland Department of Transportation
State Highway Administration
707 North Calvert Street
Baltimore, Maryland 21203-0717

Dear Mr. Kresslein:

This letter is in response to your letter of request, dated March 13, 1995, for information or the presence of finfish species in the vicinity of Contract No. AW 821-108-070; US 113: MD 394 tc Delaware line; Worcester County.

The northern segment of your project, from north of the town of Berlin to the Delaware state line, crosses the following streams:

Turville Creek and tributaries
Church Branch and tributaries
Middle Branch
Birch Branch and tributaries
Carey Branch

All of the streams listed above are in the Coastal Area sub-basin and are designated as Use I waters. The fisheries concerns for these streams, including the presence in Carey Branch of the blackbanded sunfish (Enneaconthus chaetadon), a species in need of conservation, other residen warmwater fish species, and anadromous fish species have been previously described in our letter to your office (dated July 6, 1989 and January 17, 1990). This information is still applicable for this project.

Telephone: (410) 974-2788
DNR TTY for the Deaf: (410) 974-3683

The southern segment of your project, from south of Berlin to MD 394, crosses the following streams:

Pocomoke River Area:

Patty Branch
Purnell Branch
Campground Branch
Poorhouse Branch
Fivemile Branch
Coonfoot Branch

Coastal Area:

Marshall Creek tributaries
Massey Branch
Porter Creek
Goody Hill Branch
Catbird Creek
tributary to Beaverdam Creek
Poplartown Branch

All of the streams in the southern segment area of your project are designated as Use I streams. Generally, no instream work is permitted in Use I streams during the period of March 1 through June 15, inclusive, during any year. When spawning by yellow perch may occur near a project site, no instream work should be conducted during the period of February 15 through June 15, inclusive, during any year.

Anadromous fish survey data is not available for the coastal area streams in the southern segment area. White perch (Marone americana) and herring (Alosa sp.) could potentially spawn in those streams. White perch, herring, and yellow perch (Perca flavescens) have been documented spawning in or near the listed streams in the Pocomoke River Area.

The Pocomoke River area streams could potentially support largemouth bass (Micropterus salmoides), chain pickerel (Esox niger), sunfish (Lepomis sp.), and other warmwater gamefish species.

Our files do not contain data on the resident fish populations which exist in the streams along the southern segment of your project. It is expected that the perennial reaches of these streams support resident populations of several warmwater fish species typically found in this region. The spawning periods for the fish species likely to reside and spawn near your project site will be

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protected by the Use I instream work restriction period (expanded for the presence of yellow perch in the Pocomoke River Area) referenced above.

If you have any questions concerning these comments, you may contact Greg Golden of my staff at (410) 974-2788.

Sincerely,

Ray C. Dintaman, Jr.

Ray C. Dintaman, Jr., Chief
Environmental Review Program

RCD:GJG

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endening
or

Maryland Department of Natural Resources
Tawes State Office Building
Annapolis, Maryland 21401

John R. Griffin
Secretary

Ronald N. Young
Deputy Secretary

June 3, 1996

Mr. Kenneth E. McCabe
Rummel, Klepper & Kahl
81 Mosher Street
Baltimore, MD 21217-4250

RE: US 113 Roadway Improvements

Dear Mr. McCabe:

The Wildlife and Heritage Division's database contains no records for rare species within 1 mile of the northern section of the US 113 roadway study area (the section north of Berlin). Records for rare species occurring within 1 mile of the southern section of the US 113 roadway study area (from north to south) include:

Area / Scientific Name	Common Name	State status	Last reported
Hays Landing Road Area -			
Bidens discoidea	Swamp beggar-ticks	rare	198?
Myriophyllum humile	Low water-milfoil	endangered	1987
Ironshire Area -			
Alnus maritima	Seaside alder	rare	1977
Bidens discoidea	Swamp beggar-ticks	rare	198?
Carex gigantea	Giant sedge	endangered	198?
Carex joorii	Cypress-swamp sedge	threatened	198?
Porter Creek Area -			
Cleistes divaricata	Spreading pogonia	endangered	1982
Ludwigia lanceolata	Hairy ludwigia	endangered	198?
Carex gigantea	Giant sedge	endangered	1987
Massey Branch Area -			
Antennaria solitaria	Single-headed pussytoes	threatened	1991
Fuirena pumila	Smooth fuirena	endangered	199?
Triglochin striatum	Three-ribbed arrow-grass	endangered	199?

Telephone:

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Poorhouse Branch Area -			
Rhynchosia tomentosa	Hairy snoutbean	endangered	1987
Lupinus perennis	Wild lupine	threatened	1987
Galactia volubilis	Downy milk pea	endangered	1987
Centrosema virginianum	Spurred butterfly-pea	rare	1987
Alnus maritima	Seaside alder	rare	1992
Cardamine longii	Long's bittercress	endangered	1987
Campground Branch (within the east limit of corridor as marked on map) -			
Bidens discoidea	Swamp beggar-ticks	rare	1987
Purnell Branch Area -			
Carex joorii	Cypress-swamp sedge	threatened	1939*
Potemogeton pusillus	Slender pondweed	highly rare	1900*
Utricularia inflata	Swollen bladderwort	endangered	1927*
Platanthera flava	Pale green orchid	threatened	1993
Leptoloma cognatum	Fall witchgrass	endangered	1940
Castle Hill Road Area -			
Myriophyllum humile	Low water-milfoil	endangered	1993
Xyris difformis	Variable yelloweyed-grass	rare	1993

Located directly along Rt. 113 within about 0.5 mile of Goody Hill Branch crossing.
*These historical records are recorded from "Purnell Pond, 1 mile northeast of Snow Hill."

Surveys should be conducted within appropriate habitats in the corridor area and during the proper flowering / fruiting period for each species. Please send a copy of the survey results to Scott Smith at the address above. The database contains no information regarding black-banded sunfish anywhere in this entire area, as SHA had indicated to you. For further information, please contact Scott Smith of the Wildlife & Heritage Division at (410) 827-8612.

Sincerely,

Lynn Davidson

Lynn Davidson
Database Manager
Wildlife & Heritage Division

cc: Jonathan McKnight
Scott Smith
Wayne Tyndall

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PROJECT DEVELOPMENT DIVISION
JUL 16 10 37 AM '96

N. Glendening
Governor

Maryland Department of Natural Resources
Tawes State Office Building
Annapolis, Maryland 21401

John R. Griffin
Secretary

Ronald N. Young
Deputy Secretary

July 8, 1996

Mr. Kenneth E. McCabe
Rummel, Klepper & Kahl
81 Mosher Street
Baltimore, MD 21217-4250

RE: Further information regarding US 113 Roadway Improvements

Dear Mr. McCabe:

I was asked to clarify my comments sent to you on June 3 in response to your request for information regarding rare species near US 113. The numerous rare species listed in the June 3 letter have been recorded from within a mile of the project corridor and may occur within a 500 ft radius of US 113, in the areas indicated previously, if the habitat is appropriate in those areas within the corridor.

Otherwise, the Wildlife and Heritage Division database contains records for the following four species occurring within a 500 ft radius of US 113:

Area / Scientific Name	Common Name	State status	Last reported
Goody Hill Branch (along US 113 within about 0.5 mi of crossing)			
Alnus maritima	Seaside alder	rare	1977
Campground Branch (near the eastern limit of corridor)			
Bidens discoidea	Swamp beggar-ticks	rare	1987
Castle Hill Road Area (at old borrow pit east of Castle Hill Rd and south of US 113)			
Myriophyllum humile	Low water-milfoil	endangered	1992
Xyris difformis	Variable yelloweyed-grass	rare	1993

Surveys should be conducted within appropriate habitats in the corridor area and during the proper flowering / fruiting period for each species. Please send a copy of the survey results to Scott Smith at the address above.

Telephone: _____
DNR TTY for the Deaf: (410) 974-3683

In our April 25, 1995 letter to Mr. Joseph Kresslein of the State Highway Administration, we reported only the Seaside Alder (Alnus maritima) recorded for this area. The locations for the other three plant species have been added to our database in the year since our initial response to SHA's inquiry.

Regarding the Black-banded Sunfish (Enneacanthus chaetodon), this information came from Ray Dintaman of DNR's Environmental Review Program. Please contact him or Greg Golden of his staff at 410-974-2788 for more information about this species at Carey Branch.

If you have any questions about this information, please feel free to call me at 410-974-3195.

Sincerely,

Lynn Davidson
Database Manager
Wildlife & Heritage Division

cc: Scott Smith
Wayne Tyndall
✓ Lorraine Strow

MARYLAND DEPARTMENT OF THE ENVIRONMENT
2500 Broening Highway • Baltimore, Maryland 21224
(410) 631-3000

ris N. Glendening
vernor

Jane T. Nishida
Secretary

N. Pederson

Mr. Parker F. Williams
Administrator
Maryland State Highway Administration
707 North Calvert Street
Baltimore MD 21202

Dear Mr. Williams:

Secretary Jane Nishida received your recent letter regarding the US 113 corridor in Worcester County, Maryland, and asked that I respond directly to you. Thank you for also informing us of your agency's plans to expedite a project schedule, develop a draft environmental impact statement, and convene a public hearing on this project on May 29, 1997.

The Maryland Department of the Environment (MDE) looks forward to reviewing documentation developed for this project and providing additional assistance to your agency. If you have any questions or need additional information, please do not hesitate to contact me at (410) 631-3680, or have a member of your staff contact Mr. Nathaniel Brown at (410) 631-3902.

Sincerely,

for MSH

Michael S. Haire
Director
Technical and Regulatory Services Administration

MSH:nkb

cc: Jane T. Nishida, Secretary, Maryland Department of the Environment

KCI TECHNOLOGIES

10 North Park Drive
Hunt Valley, MD 21030
(410) 316-7800

Direct Dial Number

(410) 316-7865

April 16, 1997

Mr. Bruce Nichols
US Department of Agriculture
Natural Resources Conservation Service
304 Commerce Street, Suite C
Snow Hill, MD 21863

Dear Mr. Nichols:

Subject: Farmland Conversion Impact Rating Form Evaluation
for proposed US 113 roadway improvements
KCI Job Order No. 01-96116D

The Maryland State Highway Administration (MSHA) is proposing roadway improvements for US 113 in Worcester County between Snow Hill, Maryland and the Delaware state line. In February 1997, your office evaluated five of the proposed build alternatives for farmland impacts for this project. I am enclosing for your records a copy of the completed Form AD-1006 for those alternatives. Since that time, the federal resource agencies (US Environmental Protection Agency, US Army Corps of Engineers and US Fish and Wildlife Service) requested the MSHA to evaluate additional alternatives in an effort to minimize environmental impacts. These new alternatives are variations of the alternatives for which you have already evaluated farmland impacts. Most of the new alternatives have reduced right-of-way limits and design speeds. Additional improvements have been incorporated into the TSM Alternative (Alternatives 2S/2N). As one of the MSHA's consultants for this project, I am forwarding to you a description of these alternatives, a two-page Form AD-1006 for your review of the additional alternatives impacting farmland and a rationale for evaluation of the site assessment criteria.

The acreages listed in Part III.C. "Total Acres in Site" of the Form AD-1006 for the dualized alternatives were derived from MSHA calculations which do not include currently owned MSHA right-of-way. The farmland impact calculations do incorporate farmland located within existing MSHA right-of-way.

Using our geographic information systems (GIS) capabilities, our staff digitized the prime farmland soils and soils of statewide importance from the USDA *Soil Survey for Worcester County, Maryland* (issued May, 1973) and calculated the amount of impacted acreage by each alternative. Shown on the following page are the results for each alternative:

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KCI TECHNOLOGIES

Mr. Bruce Nichols
April 16, 1997
KCI Job Order No. 01-96116D
Page No. 2

Alternative	Prime Farmland Soils Impacted (Acres)	Soils of Statewide Importance Impacted (Acres)
Alternative 2S/2N (TSM Alternative)	0.2	0.0
Alternative 2S-20' Median/60 MPH	20.0	10.0
Alternative 3S-20' Median/60 MPH	39.4	19.4
Alternative 3N-20' Median/50 MPH	42.6	31.5
Alternative 3N-20' Median/60 MPH	47.9	35.5
Alternative 3N-34' Median/50 MPH	47.9	35.5
Alternative 4N-20' Median/60 MPH	103.4	81.1
Alternative 3N/4N-20' Median/60 MPH (Combination Alternative)	107.1	68.4

Thank you in advance for your assistance. Please return the evaluated form to me at the above address. If you have any questions, please call me at (410) 316-7865.

Sincerely,

Steve Linhart

Steve Linhart
Environmental Planner

pc: Don Sparklin, MSHA
Sue Rajan, MSHA
Lorraine Strow, MSHA

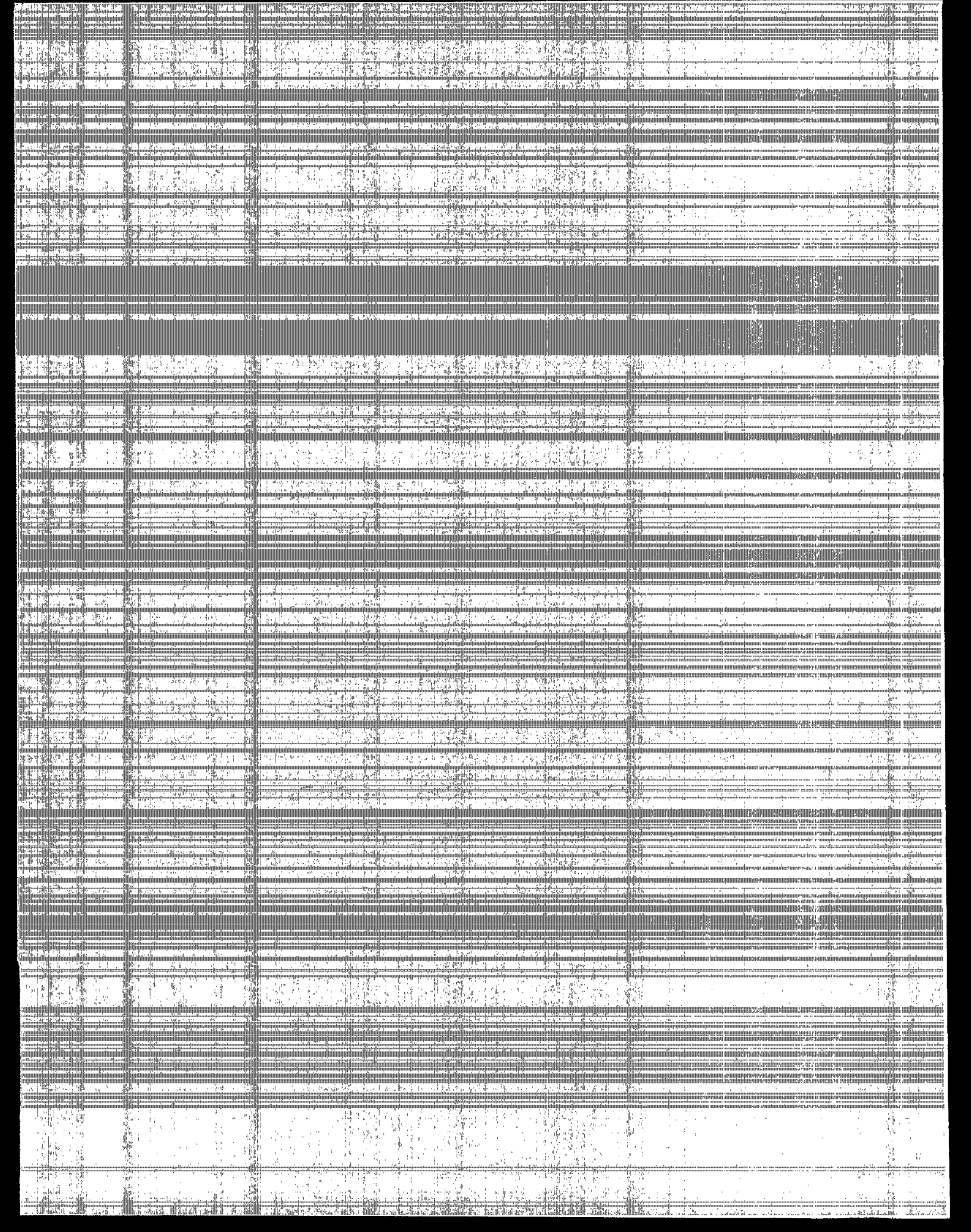
enclosures

658X (65)

VII.
LIST OF PREPARERS

US 113 Planning Study
Snow Hill, Maryland to Delaware State Line

Office of Planning and Preliminary Engineering
Maryland State Highway Administration



7II. LIST OF PREPARERS

ı. Federal Highway Administration

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Planning, Research and Environmental Team Leader

Mary Huie
Environmental Protection Specialist

Kelly Hutchinson
Area Engineer

. Maryland State Highway Administration

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Deputy Director of Planning and Preliminary Engineering

Cynthia Simpson
Deputy Division Chief for Project Planning

James Wynn
Assistant Division Chief Project Management

Joseph Kresslein
Assistant Division Chief Environmental Management

Sue Rajan
Project Manager

Lorraine Strow
Environmental Manager

Catherine Maher
Project Engineer

Richard Ervin
Archeologist

Rita Suffness
Architectural Historian

659

C. Rummel, Klepper and Kahl Team

1. Rummel Klepper and Kahl

David W. Wallace, PE
Partner - Transportation Planning

Andrew C. Parker (1995, 1996)
Project Manager

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Project Planner

Ernest G. Disney
Designer

Robert L. Shaffer
Designer

Kevin P. Hughes
Noise Analyst

Barry L. Brandt, PE
Noise Analyst

James A. Burnett
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Jennifer L. Harrington
Soils/Geotechnical Engineer

Kenneth E. McCabe, RLA
Environmental Scientist

2. Coastal Resources, Inc.

Betsy Weinkam
President

Charles Weinkam
Environmental Scientist

Gary Jellick
Environmental Scientist

Sarah Williamson
Environmental Specialist

3. **Daniel Consultants, Inc.**

Larry Green, PE
Project Engineer

4. **A.D. Marble & Associates**

Andrew C. Parker (1997)
Environmental Scientist

Other Consultants to SHA

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(Socio-Economic Analyses)

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Environmental Planner

Steven Linhart
Environmental Planner

Nicholas S. Blendy
Environmental Planner

Richard A. Geidel
Cultural Resources Director

Margaret Bishop Parker
Senior Architectural Historian

Stuart P. Dixon
Senior Historian

2. **The Wilson T. Ballard Company**
(Air Quality Analyses)

Michael K. Kelly, PE
Air Quality Manager

3. **Garrow & Associates, Inc.**
(Cultural Resources)

Paul Webb
Senior Archeologist

Todd Cleveland
Architectural Historian

Thomas Lilly
Field Director

4. **Gannet Fleming, Inc.**
(Residual Waste Analyses)

Aaron M. Keel
Environmental Scientist

Scott J. Beeman
Environmental Engineer

David B. Smyth, P.E.
Environmental Engineer

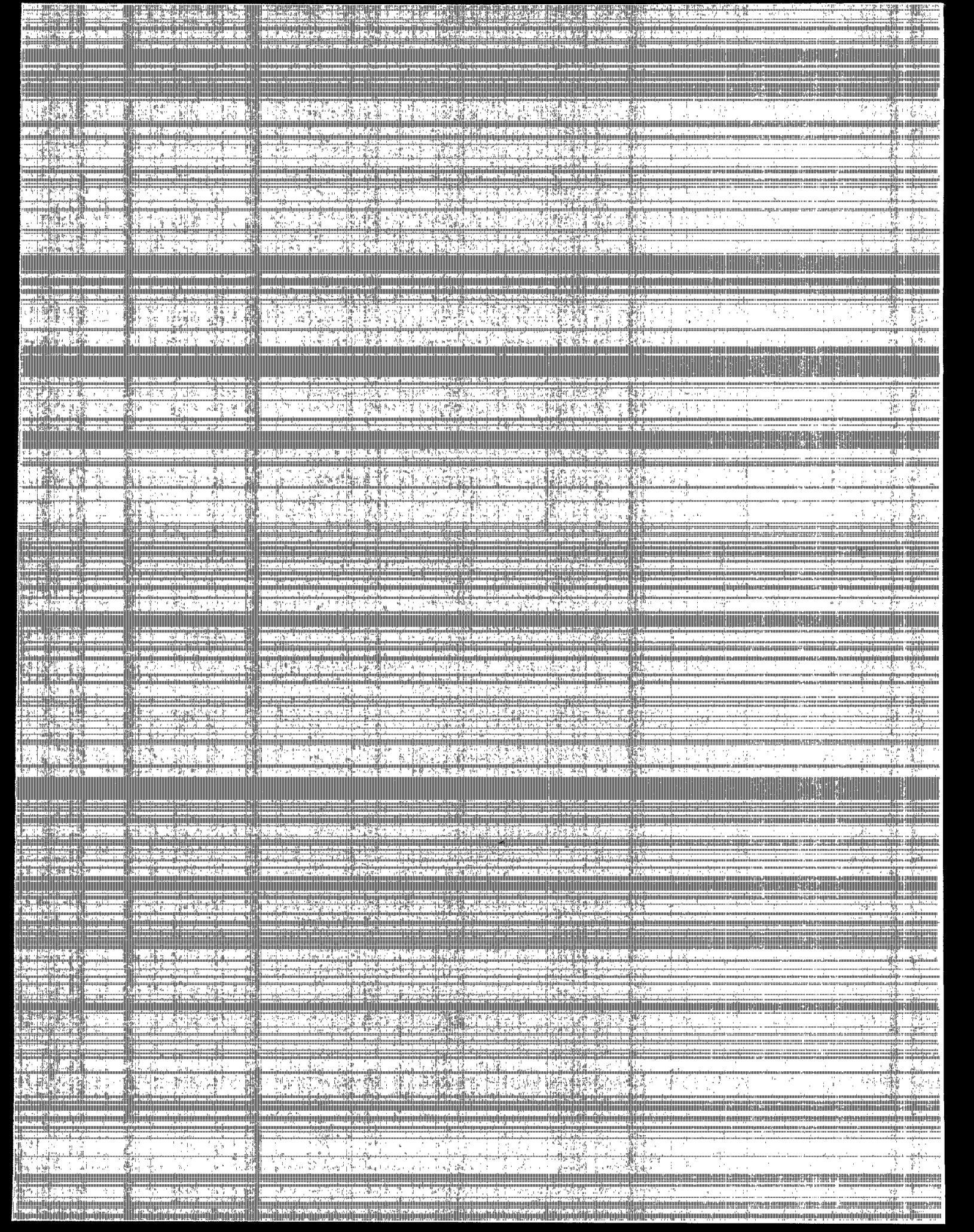
Chen Y. Yen, Ph.D., P.E., CHMM
Senior Chemist/Manager

Richard A. Pugh, C.E.
Environmental Manager

VIII.
DISTRIBUTION LIST

US 113 Planning Study
Snow Hill, Maryland to Delaware State Line

Office of Planning and Preliminary Engineering
Maryland State Highway Administration



VIII. DISTRIBUTION LIST

◆ **Federal Agencies**

Mr. Robert J. Klumpe
State Conservationist
NRCS
U.S. Department of Agriculture
339 Revell Highway, Suite 301
Annapolis, MD 21401

Mr. Jonathan Deason, Director
Office of Environmental Policy and Compliance
U.S. Department of the Interior
Main Interior Building, MS 2340
18th and C Streets, N.W.
Washington, D.C. 20240

U.S. Environmental Protection Agency
ATTN: **Ms. Danielle Agazzi**
Region III
Mr. Roy Denmark
NEPA Program Manager (3EP30)
841 Chestnut Street
Philadelphia, PA 19107

Mr. John Nichols
Habitat and Protected Resources
904 South Morris Street
Oxford, MD 21654

Mr. Donald Klima
Chief, Eastern Division of Project Review
Advisory Council on Historic Preservation
The Old Post Office Building
1100 Pennsylvania Avenue, N.W., Suite 809
Washington, D.C. 20004

Mr. John Wolflin
U.S. Fish and Wildlife Service
Delmarva Office
177 Admiral Cochrane Drive
Annapolis, MD 21401
ATTN: David Sutherland

Director
NOAA/CS/EC/Room 6222
Department of Commerce
14th and Constitution Avenue, N.W.
Washington, D.C. 20230

662

Commander
U.S. Army Corps of Engineers
P.O. Box 1715
10 S. Howard Street
Baltimore, MD 21201
Attn: NABPO-F
Ms. Michelle Gomez

Mr. Steven Graham
Federal Railroad Administration
Office of Economic Analysis
(RRP-32)
400 Seventh Street, S.W.
Washington, D.C. 20590

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

◆ **State Agencies**

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

Local Governments
Maryland Office of Planning
Department of Natural Resources
Department of Budget and Fiscal Planning
Department of General Services
Department of Housing and Community Development
Department of Education
Department of Health and Mental Hygiene
Interagency Committee for School Construction
Maryland Historical Trust
Department of Public Safety and Correctional Services

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

Mr. Ray Dintaman
Maryland Department of Natural Resources
Environmental Review Unit
Tawes State Office Building, B-3
Annapolis, MD 21401

Mr. Elder Ghigiarelli
Water Management Administration
Maryland Department of the Environment
2500 Broening Highway
Baltimore, MD 21224

Mr. Steve Dawson
Non-Tidal Wetlands & Waterways Division
Water Management Administration
Maryland Department of the Environment
District Court/Multiservice Center
201 Baptist Street #22
Salisbury, MD 21801

Director
Public Affairs
Maryland Department of Transportation
BWI Airport

Mr. Fred Rappe, Director
Office of Systems Planning
and Evaluation
Maryland Department of Transportation
BWI Airport

Office of General Counsel
Maryland Department of Transportation

Maryland State Law Library
Upper Level Court of Appeal Building
361 Rowe Boulevard
Annapolis, MD 21401

Ms. Lynda Davis, Director
Library and Information Services Division
Department of Legislative Reference
90 State Circle
Annapolis, MD 21401-1991

◆ **County / Local Government**

Worcester Planning Department
1 West Market Street
Room 1116 Court House
Snow Hill MD 21863-1070

Worcester Police/Fire/Emergency
1 West Market Street
Room L14 Court House
Snow Hill MD 21863

Worcester Department of Public Works
c/o Worcester County Commissioners
1 West Market Street
Court House
Snow Hill, MD 21863

Worcester Department of Parks and Recreation
6022 Public Landing Road
Snow Hill, MD 21863

Worcester Department of Economic Development
105 Pearl Street
Snow Hill, MD 21863

The Honorable James Barrett
President
Worcester County Commissioners
Courthouse
Snow Hill, MD 21863

The Honorable Robert Cowger, Jr.
Commissioner
Worcester County Commissioners
Courthouse
Snow Hill, MD 21863

The Honorable Jeanne Lynch
Commissioner
Worcester County Commissioners
Courthouse
Snow Hill, MD 21863

The Honorable James Purnell
Commissioner
Worcester County Commissioners
Courthouse
Snow Hill, MD 21863

The Honorable Granville Trimper
Vice President
Commissioner
Worcester County Commissioners
Courthouse
Snow Hill, MD 21863

- **Citizens Groups**

Mr. Robert G. Hulburd, President
CRASH
3122 Ocean Pines
Berlin, MD 21811

Mr. Michael Pennington, President
Friendship Community Association
10143 Three Penny Lane
Berlin, MD 21811

Mr. H. Clay Reister, IV, Vice President
Friendship Community Association
10577 Worcester Highway
Berlin, MD 21811

Mr. David H. Vomacka, Ph.D.
Woolpert LLP
409 East Monument Avenue
Dayton, OH 45402-1261

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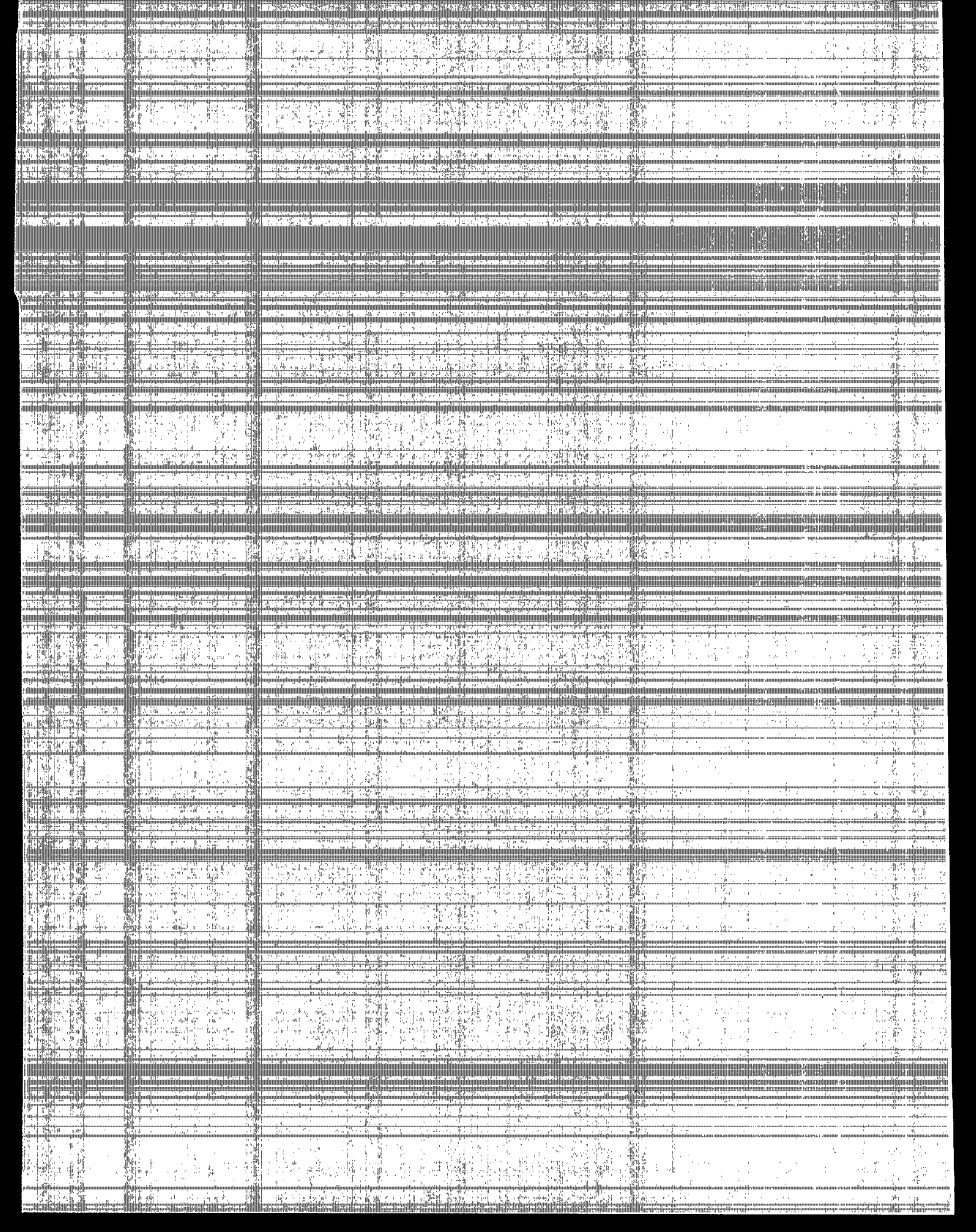
(66)

IX.
REFERENCES

US 113 Planning Study
Snow Hill, Maryland to Delaware State Line

Office of Planning and Preliminary Engineering
Maryland State Highway Administration



IX. REFERENCES

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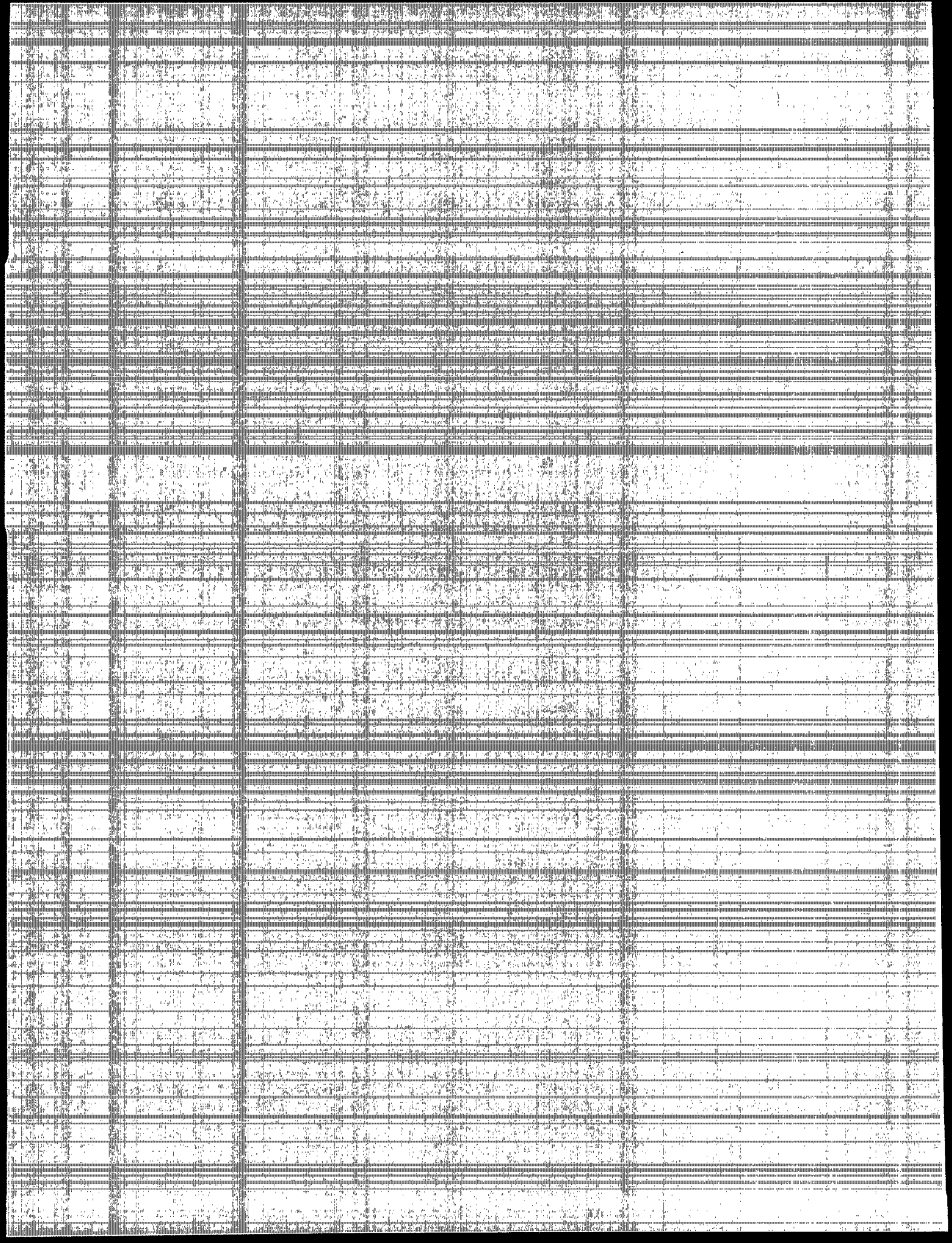
X.
APPENDICES

US 113 Planning Study
Snow Hill, Maryland to Delaware State Line

Office of Planning and Preliminary Engineering
Maryland State Highway Administration



X. APPENDICES

Appendix A

Project Alternative Plates, at 1" = 400' Scale

Key Map - **Alternative 2S-20' Median**

Figure 1 **Alternative 2S-20' Median**
from south of MD 394 (Market Street)
to south of MD 12 (Snow Hill Road)

Figure 2 **Alternative 2S-20' Median**
from south of MD 12 (Snow Hill Road)
to north of MD 394 (Market Street)

Figure 3 **Alternative 2S-20' Median**
from north of MD 394 (Market Street)
to north of Porters Crossing Road

Figure 4 **Alternative 2S-20' Median**
from north of Porters Crossing Road
to north of Basket Switch Road

Figure 5 **Alternative 2S-20' Median**
from north of Basket Switch Road
to south of Newark Road. - Gunning Club Lane

Figure 6 **Alternative 2S-20' Median**
from south of Newark Road. - Gunning Club Lane
to south of Ironshire Station Road - Mason Road

Figure 7 **Alternative 2S-20' Median**
from south of Ironshire Station Road - Mason Road
to south of MD 818 (Main Street) - Germantown Road

Key Map - **Dualization Alternatives**

Figure 8 **Alternative 3S**
from south of MD 394 (Market Street)
to south of MD 12 (Snow Hill Road)

Figure 9 **Alternative 3S**
from south of MD 12 (Snow Hill Road)
to north of MD 394 (Market Street)

Figure 10 **Alternative 3S**
from north of MD 394 (Market Street)
to north of Porters Crossing Road

Figure 11 **Alternative 3S**
from north of Porters Crossing Road
to north of Basket Switch Road

Figure 12 **Alternative 3S**
from north of Basket Switch Road
to south of Newark Road - Gunning Club Lane

Figure 13 **Alternative 3S**
from south of Newark Road. - Gunning Club Lane
to south of Ironshire Station Road - Mason Road

Figure 14 **Alternative 3S**
from south of Ironshire Station Road - Mason Road
to south of MD 818 (Main Street) - Germantown Road

Figure 15 **Alternatives 3N & 4N Modified**
from north of MD 818 (Main Street) - Georgetown Road
to north of MD 90 (Ocean Expressway)

Figure 16 **Alternatives 3N & 4N Modified**
from north of MD 90 (Ocean Expressway)
to south of Kepler Lane

Figure 17 **Alternatives 3N & 4N Modified**
from south of Kepler Lane
to Delaware State Line

Appendix B

Farmland Conversion Impact Rating Form

Appendix C

Relocation Act

Appendix D

Index

678X

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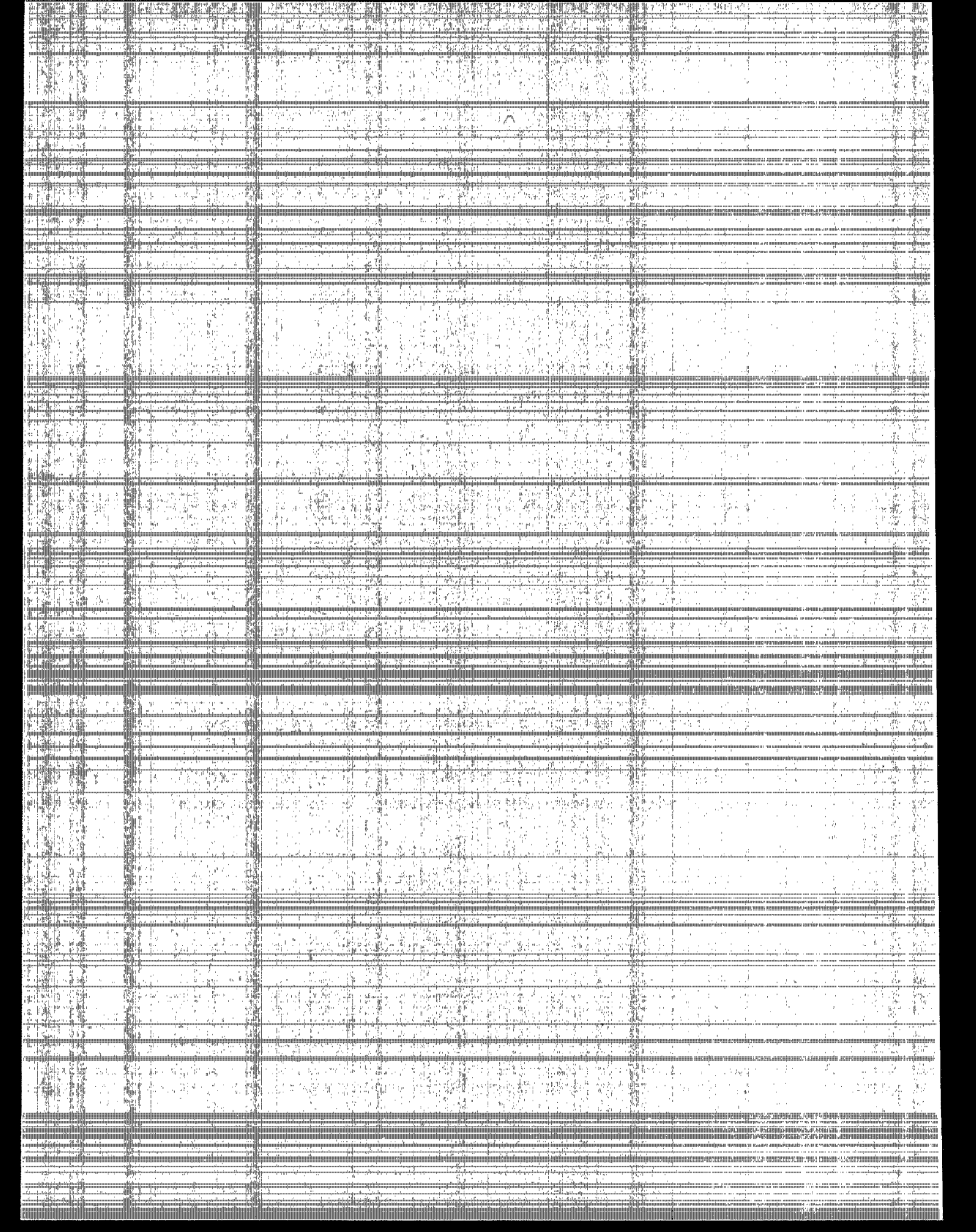
Appendix A

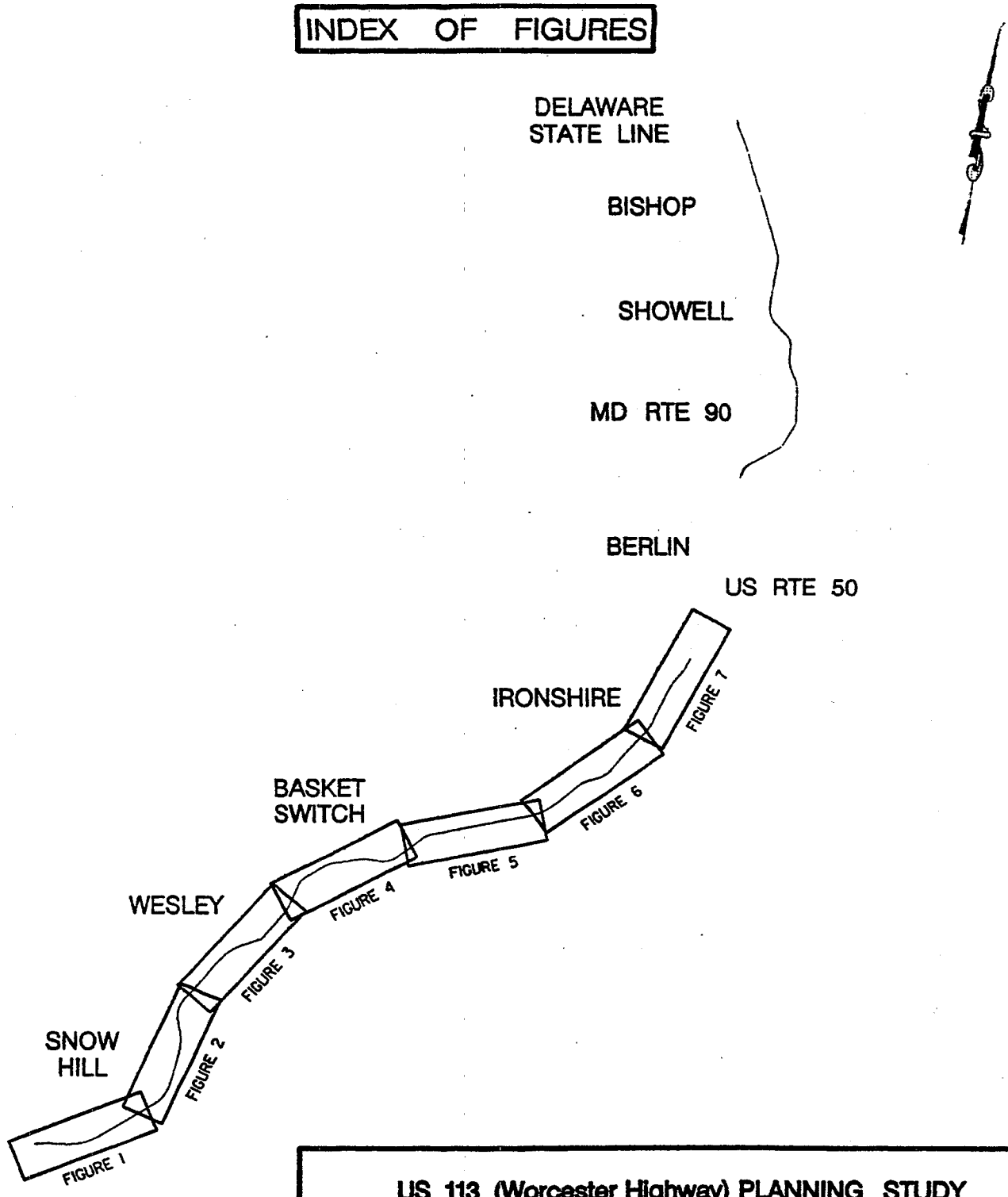
Project Alternative Plates, 400-Scale

Key Map + Alternative 2S-20' Median
Figures 1 through 7

Key Map + Dualization Alternatives
Figures 8 through 17



INDEX OF FIGURES



US 113 (Worcester Highway) PLANNING STUDY
From MD 394 (Market Street) Split to the Delaware State Line

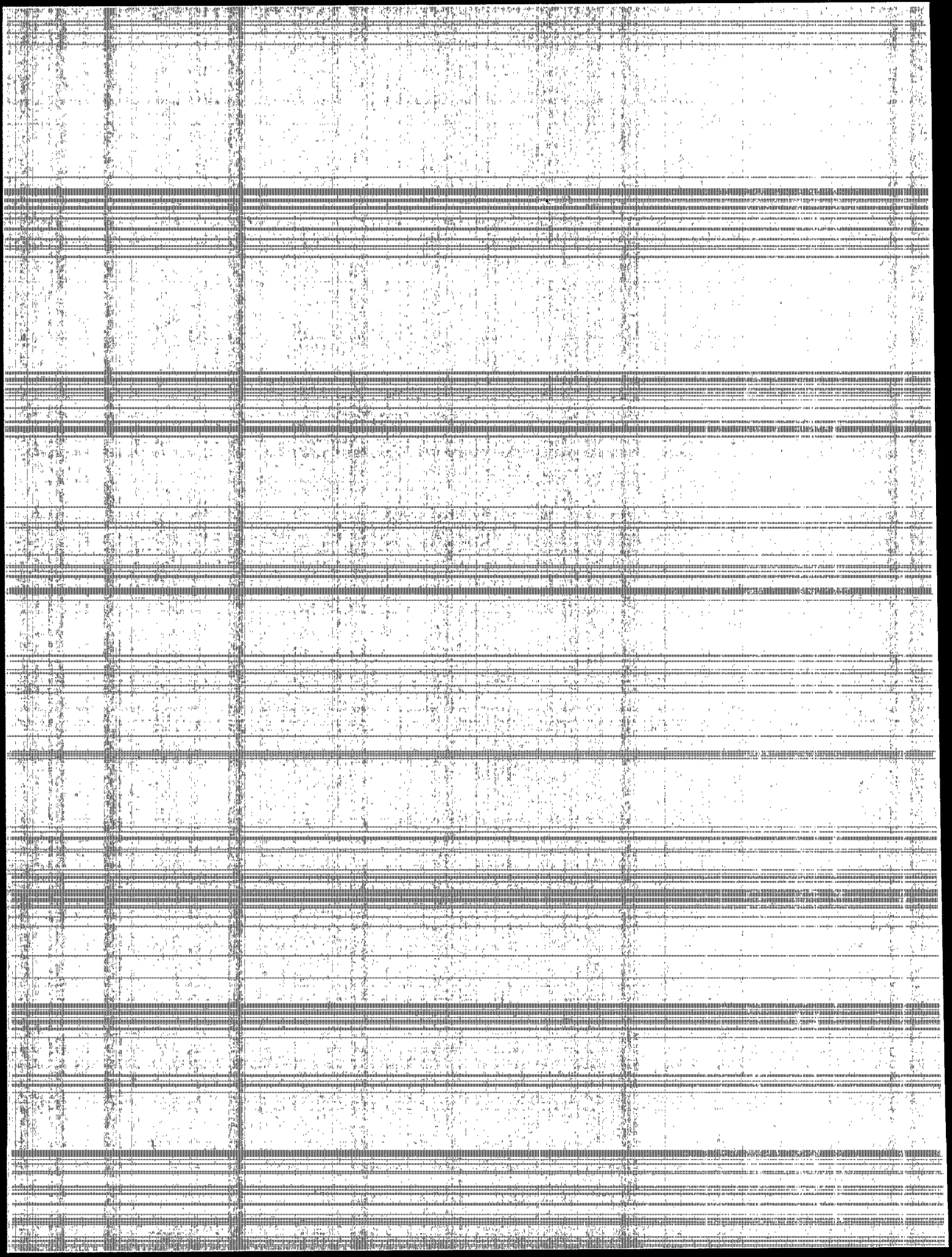
KEYMAP FOR ALTERNATIVE 2S-20' MEDIAN

From South Of MD 394 (Market Street)
To Delaware State Line

State Highway Administration	Scale : 1" = 15,000'	KEY MAP
	April, 1997	

680 X 16

Appendix B
Farmland Conversion Impact Rating Form



APPENDIX B
FARMLAND CONVERSION IMPACT RATING FORM

A Farmland Conversion Impact Rating form (Form AD-1006) and rationale for evaluation of site assessment criteria were completed for and evaluated by the Worcester County Natural Resources Conservation Service (NRCS) in February 1997 for the five build alternatives under consideration at that time (TSM, 3S-34' Median, 3N-34' Median, 3N/4N Modified - 34' Median, 4N Modified). Since then, additional alternatives have been added to the planning study and the number of improvements associated with the TSM alternative have ben increased. This appendix includes a copy of the evaluated February 1997 AD-1006 form and rationale for the original build alternatives and the evaluated April 1997 AD-1006 form and rationale for the additional alternatives that would impact farmland.

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*	Date Of Land Evaluation Request: February, 18, 1997
Name Of Project: US 113 Improvement Study (Snow Hill-DE line)	Federal Agency Involved: Federal Highway Administration
Proposed Land Use: Highway	County And State: Worcester; MD
PART II *(To be completed by SCS)*	Date Request Received By SCS

Does the site contain prime, unique, statewide or local important farmland? *(If no, the FPPA does not apply — do not complete additional parts of this form).*	Yes ☒	No ☐	Acres Irrigated	Average Farm Siz: 176 a
Major Crop(s): Corn, Soybean Wheat Barley	Farmable Land In Govt. Jurisdiction Acres: 86,000 % 27			Amount Of Farmland As Defined i Acres: 232 562 %
Name Of Land Evaluation System Used: LESA	Name Of Local Site Assessment System			Date Land Evaluation Returned By: 2/26/9

PART III *(To be completed by Federal Agency)*	Alternative Site Rating: Site A	Site B	Site C	
A. Total Acres To Be Converted Directly	115.0	43.6	61.1	
B. Total Acres To Be Converted Indirectly	0.0	0.0	40.9	
C. Total Acres In Site (Add'l ROW required outside of MSHA ROW)	73.4	135.4	122.7	1
PART IV *(To be completed by SCS)* Land Evaluation Information				
A. Total Acres Prime And Unique Farmland	43.8	53.2	114.9	
B. Total Acres Statewide And Local Important Farmland	21.6	39.4	90.1	
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted	.07	.1	.2	
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value	23	23	23	
PART V *(To be completed by SCS)* Land Evaluation Criterion (Project) Relative Value Of Farmland To Be Converted *(Scale of 0 to 100 Points)*	30	60	80	

PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(These criteria are explained in 7 CFR 658.5(b)*	Maximum Points	Alt. 3S	Alt. 3N	Alt. 4N Modified	Co Al
1. Area In Nonurban Use	15	14	14	14	1
2. Perimeter In Nonurban Use	10	8	8	10	1
3. Percent Of Site Being Farmed	20	20	20	20	2
4. Protection Provided By State And Local Government	20	0	0	0	
5. Distance From Urban Builtup Area	n/a	n/a	n/a	n/a	n
6. Distance To Urban Support Services	n/a	n/a	n/a	n/a	n
7. Size Of Present Farm Unit Compared To Average	10	2	1	0	
8. Creation Of Nonfarmable Farmland	25	0	0	25	2
9. Availability Of Farm Support Services	5	5	5	5	
10. On-Farm Investments	20	14	14	14	1
11. Effects Of Conversion On Farm Support Services	25	0	0	0	
12. Compatibility With Existing Agricultural Use	10	3	3	5	
TOTAL SITE ASSESSMENT POINTS	160	66	65	93	9
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland *(From Part V)*	100	30	60	80	8
Total Site Assessment *(From Part VI above or a local site assessment)*	160	66	65	93	9
TOTAL POINTS *(Total of above 2 lines)*	260	96	125	173	17

Site Selected: | Date Of Selection | Was A Local Site Assessment Used? Yes ☐ No ☐

Reason For Selection:

(See Instructions on reverse side) Form AD-

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U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

(To be completed by Federal Agency)	Date Of Land Evaluation Request: February 18, 1997
Of Project: 3 Improvement Study (Snow Hill-DE Line)	Federal Agency Involved: Federal Highway Administration
sed Land Use: way	County And State: Worcester; MD
(To be completed by SCS)	Date Request Received By SCS

the site contain prime, unique, statewide or local important farmland? Yes ☒ No ☐ , the FPPA does not apply – do not complete additional parts of this form).	Acres Irrigated	Average Farm Size: 176 ac
Crop(s): Soybean Wheat Barley	Farmable Land In Govt. Jurisdiction Acres: 86,000 %	Amount Of Farmland As Defined in FPPA Acres: 232562 % 73
Of Land Evaluation System Used: LESA	Name Of Local Site Assessment System	Date Land Evaluation Returned By SCS: 2/26/97

I (To be completed by Federal Agency)	Alternative Site Rating: Site A	Site B	Site C	Site D
otal Acres To Be Converted Directly	0.5			
otal Acres To Be Converted Indirectly	0.0			
otal Acres In Site (derived from planimeter calculation)	3.0			
I (To be completed by SCS) Land Evaluation Information				
otal Acres Prime And Unique Farmland	.5			
otal Acres Statewide And Local Important Farmland	0			
ercentage Of Farmland In County Or Local Govt. Unit To Be Converted	.0006			
ercentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value	73			
(To be completed by SCS) Land Evaluation Criterion Relative Value Of Farmland To Be Converted (Scale of 0 to 100 Points)	10			

I (To be completed by Federal Agency) sment Criteria (These criteria are explained in 7 CFR 658.5(b))	Maximum Points	TSM Alt.			
rea In Nonurban Use	15	14			
erimeter In Nonurban Use	10	8			
ercent Of Site Being Farmed	20	0			
rotection Provided By State And Local Government	20	0			
istance From Urban Builtup Area	n/a	n/a			
istance To Urban Support Services	n/a	n/a			
ize Of Present Farm Unit Compared To Average	10	0			
reation Of Nonfarmable Farmland	25	0			
vailability Of Farm Support Services	5	5			
n-Farm Investments	20	14			
ffects Of Conversion On Farm Support Services	25	0			
ompatibility With Existing Agricultural Use	10	1			
L SITE ASSESSMENT POINTS	160	42			
II (To be completed by Federal Agency)					
ve Value Of Farmland (From Part V)	100	10			
Site Assessment (From Part VI above or a local sessment)	160	42			
L POINTS (Total of above 2 lines)	260	52			

cted: Date Of Selection: Was A Local Site Assessment Used? Yes ☐ No ☐

or Selection:

XB-3

FARMLAND CONVERSION IMPACT RATING FORM AD-1006
RATIONALE FOR EVALUATION OF SITE ASSESSMENT CRITERIA
7 CFR 658.5 (b)
US 113-SNOW HILL, MARYLAND TO DELAWARE STATE LINE
February 1997

1. How much land is in nonurban use within a radius of 1 mile from where the project is intended?

   More than 90 percent-15 points
   90 to 20 percent-14 to 1 point(s)
   Less than 20 percent-0 points

   Aerial photography and land use maps were reviewed and a field review of the site was conducted to determine nonurban use within a 1 mile radius of the project area. It was estimated that 90 percent of the land is in nonurban use for all of the alternatives.

   Rating: Alternative 3S-34' Median/60MPH-14 points; Alternative 3N-34' Median/60 MPH-14 points; Alternative 4N-34' Median/60 MPH-14 points; Alternative 3N/4N-34' Median/60 MPH-14 points; TSM Alternative-14 points

2. How much of the perimeter of the site borders on land in nonurban use?

   More than 90 percent-10 points
   90 to 20 percent-9 to 1 point(s)
   Less than 20 percent-0 points

   Aerial photography and land use maps were reviewed and a field review of the site was conducted to determine nonurban use bordering on the site. It was estimated that 85 percent of Alternatives 3S-34' Median/60 MPH and 3N-34' Median/60 MPH and the TSM alternative border on land in nonurban use and more than 90 percent of Alternatives 4N-34' Median and 3N/4N-34' Median/60 MPH border on nonurban use.

   Rating: Alternative 3S-34' Median/60 MPH-8 points; Alternative 3N-34' Median /60 MPH-8 points; Alternative 4N-34' Median /60 MPH-10 points; Alternative 3N/4N-34' Median/60 MPH-10 points; TSM Alternative-8 points

3. How much of the site has been farmed (managed for a scheduled harvest or timber activity) more than five of the last 10 years?

   More than 90 percent-20 points
   90 to 20 percent-19 to 1 point(s)
   Less than 20 percent-0 points

   Historically, much of Worcester County land has been used for agricultural activities. Based on a review of aerial photographs and land use maps, it is estimated that more than 90 percent of the land area for each of the build alternatives has been farmed more than five of the last 10 years.

   Rating: Alternative 3S-34' Median/60 MPH-20 points; Alternative 3N-34' Median/60 MPH-20 points; Alternative 4N-34' Median /60 MPH-20 points; Alternative 3N/4N-34' Median/60 MPH-20 points; TSM Alternative-0 points

4. Is the site subject to state or unit of local government policies or programs to protect farmland or covered by private programs to protect farmland or covered by private programs to protect farmland?

   Site is protected-20 points
   Site is not protected-0 points

The Maryland Department of Agriculture has an Agricultural Land Preservation Program to preserve sufficient agricultural land in order to maintain a viable local base of food and fiber production for the citizens of Maryland. According to the Worcester County Office of Planning, Permits and Inspections, there are no agricultural land preservation districts located within the right-of-way limits of the project build alternatives.

Rating: Alternative 3S-34' Median/60 MPH- 0 points; Alternative 3N-34' Median/60 MPH- 0 points; Alternative 4N-34' Median/60 MPH- 0 points; Alternative 3N/4N-34' Median/60 MPH-0 points; TSM Alternative-0 points

5. Criterion 5 is not considered applicable for corridor-type projects.

6. Criterion 6 is not considered applicable for corridor-type projects.

7. Is the farm unit(s) containing the site (before the project) as large as the average-size farming unit in the county?

As large or larger-10 points
Below average-deduct 1 point for each 5 percent below the average, down to 0 points if 50 percent or more below average-9 to 0 points

According to the Worcester County Natural Resource Conservation Service, the average farm size in Worcester County is 176 acres. Alternative 3N-34' Median/60 MPH impacts 24 properties engaged in agricultural activity. Only two of these properties are equal to or greater than the county average. Except for one property, each of the remaining farm parcels is less than the county average. Alternative 4N-34' Median/60 MPH impacts 19 properties engaged in agricultural activity. Except for one property, each of the remaining farm parcels is less than the county average. Alternative 3N/4N-34' Median/60 MPH impacts 20 properties engaged in agricultural activity. Along this Alternative, one farm is greater than the county average and one farm is less than 170 acres, but greater than 85 acres (half of the county average). Alternative 3S-34' Median/60 MPH impacts 48 properties engaged in agricultural activity. Six of these parcels are equal to or greater than the county average. Six of the remaining 42 parcels are less than 170 acres, but greater than 85 acres (half of the county average). The remaining parcels are less than the county average. To arrive at the rating, the scores of the impacted farm properties were added and then divided by the number of farm properties impacted by the alternative.

Rating: Alternative 3S-34' Median/60 MPH- 2 points; Alternative 3N-34' Median/60 MPH-1 point; Alternative 4N-34' Median/60 MPH-0 points; Alternative 3N/4N-34' Median/60 MPH-1 point; TSM Alternative-0 points

8. If this site is chosen for the project, how much of the remaining land on the farm will become non-farmable because of interference with land patterns?

Acreage equal to more than 25 percent of acres directly converted by the project-25 points
Acreage equal to between 25 and 5 percent of the acres directly converted by the project-24 to 1 point(s)
Acreage equal to less than 5 percent of the acres directly converted by the project-0 points

Alternative 3S-34' Median/60 MPH is designed to parallel existing US 113 in the southern study area. Farmland will be impacted in the parcels adjacent to existing US 113. Accessibility to remaining farmland is expected to remain intact with this alternative. For most of its length, Alternative 3N-34' Median/60 MPH also parallels existing US 113. Most of the farmland impacts associated with this alternative will occur on the parcels adjacent to the existing roadway. Alternatives 4N-34' Median/60 MPH and 3N/4N-34' Median/60 MPH are the only alternatives that will bisect farmland parcels. The design of these alternatives (four lanes w/ a median) will create accessibility problems on six properties for the current property owners. These parcels (tax parcel numbers 109, 122, 118, 123, 52 and 41) are located between Showell and southern study area limits of these alternatives. Approximately 40.9 acres are indirectly impacted.

Rating: Alternative 3S-34' Median/60 MPH- 0 points; Alternative 3N-34' Median/60 MPH-0 points; Alternative 4N-34' Median/60 MPH-25 points; Alternative 3N/4N-34' Median/60 MPH-25 points; TSM Alternative-0 points

9. Does the site have available adequate supply of farm support services and markets, i.e. farm suppliers, equipment dealers, processing and storage facilities and farmer's markets?

   All required services are available-5 points
   Some required services are available-4 to 1 point(s)
   No required services are available-0 points

   All required services are available to the farms in the area for each alternative. Agricultural services are located in Berlin, Salisbury and Snow Hill.

   Rating: Alternative 3S-34' Median/60 MPH-5 points; Alternative 3N-34' Median/60 MPH-5 points; Alternative 4N-34' Median/60 MPH-5 points; Alternative 3N/4N-34' Median/60 MPH-5 points; TSM Alternative-5 points

10. Does the site have substantial and well-maintained on-farm investments such as barns, other storage building, fruit trees and vines, field terraces, drainage, irrigation waterways or other soil and water conservation measures?

    High amount of on-farm investment-20 points
    Moderate amount of on-farm investment-19 to 1 point(s)
    No on-farm investment-0 points

    Farms within the study area range from having a high amount of on-farm investment to no on-farm investment. Most of the farms appeared to have a moderate amount of on-farm investment in the form of chicken houses, irrigation drainageways, barns and other outbuildings.

    Rating: Alternative 3S-34' Median/60 MPH-14 points; Alternative 3N-34' Median/60 MPH-14 points; Alternative 4N-34' Median/60 MPH-14 points; Alternative 3N/4N-34' Median/60 MPH-14 points; TSM Alternative-14 points

11. Would the project at this site, by converting farmland to non-agricultural use, reduce the demand for farm support services so as to jeopardize the continued existence of these support services and thus, the viability of the farms remaining in the area?

    Substantial reduction in demand for support services if the site is converted-10 points
    Some reduction in demand for support services if the site is converted-9 to 1 point(s)
    No significant reduction in demand for support services if the site is converted-0 points

    None of the alternatives will reduce the demand for farmland support services. Many of the support services are located in Berlin, Snow Hill and Salisbury.

    Rating: Alternative 3S-34' Median/60 MPH-0 points; Alternative 3N-34' Median/60 MPH-0 points; Alternative 4N-34' Median/60 MPH-0 points; Alternative 3N/4N-34' Median/60 MPH-0 points; TSM Alternative-0 points

12. Is the kind and intensity of the proposed use of the site sufficiently incompatible with agriculture that it is likely to contribute to the eventual conversion of surrounding farmland to non-agricultural use?

    Proposed project is incompatible with existing agricultural use of surrounding farmland-10 points
    Proposed project is tolerable to existing agricultural use of surrounding farmland-9 to 1 point(s)
    Proposed project is fully compatible with existing agricultural use of surrounding farmland-0 points

    Secondary development around the US 113/MD Route 90 interchange associated with Alternatives 4N-34' Median and 3N/4N-34' Median/60 MPH could be an ideal location for secondary development. However, this area is currently zoned for agriculture use, as is much of the study area, and would require a zoning change. Alternatives 3S-34' Median/60 MPH, 3N-34' Median/60 MPH and the TSM Alternative are designed along the existing US 113 which already has limited development. It is the intent of Worcester County to 1)"Encourage new development projects to locate in or near the existing population centers and service centers (where planned) but also discourage development

of the rural areas of the county" and 2) "Maintain the rural character of Worcester County and its existing population centers, small towns and villages (Worcester County Comprehensive Plan, 1989).

Rating: Alternative 3S-34' Median/60 MPH-3 points; Alternative 3N-34' Median/60 MPH-3 points; Alternative 4N-34' Median/60 MPH-5 points; Alternative 3N/4N-34' Median/60 MPH-4 points; TSM Alternative-1 point

Total Rating: Alternative 3S-34' Median- 66 points
Alternative 3N-34' Median-65 points
Alternative 4N-34' Median- 93 points
Alternative 3N/4N-34' Median/60 MPH-93 points
TSM Alternative- 42 points

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I (To be completed by Federal Agency)	Date Of Land Evaluation Request: April 16, 1997
Name Of Project: U313 Improvement Study (Snow Hill to DE state line)	Federal Agency Involved: Federal Highway Administration
Proposed Land Use: Highway	County And State: Worcester; MD
PART II (To be completed by SCS)	Date Request Received By SCS:

Does the site contain prime, unique, statewide or local important farmland? (If no, the FPPA does not apply -- do not complete additional parts of this form)	Yes ☒	No ☐	Acres Irrigated	Average Farm
				176

Major Crop(s): Corn, Soybean, Wheat, Barley	Farmable Land In Govt. Jurisdiction: Acres: 86 000 27	Amount Of Farmland As Defined: Acres: 232 362
Name Of Land Evaluation System Used: LESA	Name Of Local Site Assessment System:	Date Land Evaluation Returned: 4/22/97

PART III (To be completed by Federal Agency)	Alternative Site Rating: Site A	Site B	Site C
A. Total Acres To Be Converted Directly	19.8	103.5	0.2
B. Total Acres To Be Converted Indirectly	0.0	0.0	0.0
C. Total Acres In Site (Add'l Right of Way required outside of MSHA right of way)	31.0	67.0	45.0
PART IV (To be completed by SCS) Land Evaluation Information			
A. Total Acres Prime And Unique Farmland	20.0	39.4	0.2
B. Total Acres Statewide And Local Important Farmland	10.0	19.4	0.0
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted	.03	.06	.0002
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value	73	73	73
PART V (To be completed by SCS) Land Evaluation Criterion Relative Value Of Farmland To Be Converted (Scale of 0 to 100 Points)	16	31	0

PART VI (To be completed by Federal Agency) Site Assessment Criteria (These criteria are explained in 7 CFR 658.5(b))	Maximum Points	Alt. 2S - 20' Median	Alt 3S - 20' Median	Alt 2S/ 2N	A N
1. Area In Nonurban Use	15	14	14	14	
2. Perimeter In Nonurban Use	10	8	8	8	
3. Percent Of Site Being Farmed	20	20	20	0	
4. Protection Provided By State And Local Government	20	0	0	0	
5. Distance From Urban Builtup Area	n/a	n/a	n/a	n/a	
6. Distance To Urban Support Services	n/a	n/a	n/a	n/a	
7. Size Of Present Farm Unit Compared To Average	10	3	2	3	
8. Creation Of Nonfarmable Farmland	25	0	0	0	
9. Availability Of Farm Support Services	5	5	5	5	
10. On-Farm Investments	20	14	14	14	
11. Effects Of Conversion On Farm Support Services	25	0	0	0	
12. Compatibility With Existing Agricultural Use	10	3	3	1	
TOTAL SITE ASSESSMENT POINTS	160	67	66	45	
PART VII (To be completed by Federal Agency)					
Relative Value Of Farmland (From Part V)	100	16	31	0	
Total Site Assessment (From Part VI above or a local site assessment)	160	67	66	45	
TOTAL POINTS (Total of above 2 lines)	260	83	97	45	

Site Selected:	Date Of Selection	Was A Local Site Assessment Used? Yes ☐ No

Reason For Selection:

(See Instructions on reverse side)

Form AD

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U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

I (To be completed by Federal Agency)		Date Of Land Evaluation Request: April 16, 1997
Name Of Project: 113 Improvement Study (Snow Hill to DE line)		Federal Agency Involved: Federal Highway Administration
Proposed Land Use: Highway		County And State: Worcester, MD
II (To be completed by SCS)		Date Request Received By SCS
Does the site contain prime, unique, statewide or local important farmland? (If no, the FPPA does not apply – do not complete additional parts of this form)	Yes ☒ No ☐	Acres Irrigated:	Average Farm Size: 176 ac
Major Crop(s): Soybean, Wheat, Barley	Farmable Land In Govt. Jurisdiction: Acres: 86,000 % 27	Amount Of Farmland As Defined in FPPA: Acres: 232,562 % 7
Name Of Land Evaluation System Used: LESA	Name Of Local Site Assessment System:	Date Land Evaluation Returned By SCS: 4/22/97

III (To be completed by Federal Agency)	Alternative Site Rating			
	Site A	Site B	Site C	Site D
Total Acres To Be Converted Directly	39.2	39.2	55.0	55.
Total Acres To Be Converted Indirectly	0.0	0.0	47.0	47.
Total Acres In Site (Add'l right-of-way required outside of MSHA right of way)	78.0	122.0	111.0	102.
IV (To be completed by SCS) Land Evaluation Information				
Total Acres Prime And Unique Farmland	47.9	47.9	103.4	107.
Total Acres Statewide And Local Important Farmland	35.5	35.5	81.1	68.
Percentage Of Farmland In County Or Local Govt. Unit To Be Converted	.09	.09	.21	.2
Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value	73	73	73	73
V (To be completed by SCS) Land Evaluation Criterion Relative Value Of Farmland To Be Converted (Scale of 0 to 100 Points)	83	83	100	95

VI (To be completed by Federal Agency) Assessment Criteria (These criteria are explained in 7 CFR 658.5(b))	Maximum Points	Alt 3N-34' Median/50 MPH	Alt 3N-20' Median/60 MPH	Alt 4N-20' Median	Alt 3N/20' Medi
Area In Nonurban Use	15	14	14	14	14
Perimeter In Nonurban Use	10	8	8	10	10
Percent Of Site Being Farmed	20	20	20	20	20
Protection Provided By State And Local Government	20	0	0	0	0
Distance From Urban Builtup Area	n/a	n/a	n/a	n/a	n/a
Distance To Urban Support Services	n/a	n/a	n/a	n/a	n/a
Size Of Present Farm Unit Compared To Average	10	1	1	0	1
Creation Of Nonfarmable Farmland	25	0	0	25	25
Availability Of Farm Support Services	5	5	5	5	5
On-Farm Investments	20	14	14	14	14
Effects Of Conversion On Farm Support Services	25	0	0	0	0
Compatibility With Existing Agricultural Use	10	3	3	5	4
TAL SITE ASSESSMENT POINTS	160	65	65	93	93
VII (To be completed by Federal Agency)					
tive Value Of Farmland (From Part V)	100	83	83	100	95
l Site Assessment (From Part VI above or a local assessment)	160	65	65	93	93
TAL POINTS (Total of above 2 lines)	260	148	148	193	188

ected:	Date Of Selection	Was A Local Site Assessment Used? Yes ☐ No ☐

For Selection:

FARMLAND CONVERSION IMPACT RATING FORM AD-1006
RATIONALE FOR EVALUATION OF SITE ASSESSMENT CRITERIA
7 CFR 658.5 (b)
US 113-SNOW HILL, MARYLAND TO DELAWARE STATE LINE
April 1997

1. How much land is in nonurban use within a radius of 1 mile from where the project is intended?

   More than 90 percent-15 points
   90 to 20 percent-14 to 1 point(s)
   Less than 20 percent-0 points

   Aerial photography and land use maps were reviewed and a field review of the site was conducted to determine nonurban use within a 1 mile radius of the project area. It was estimated that 90 percent of the land is in nonurban use for all of the alternatives.

   Rating: Alternative 2S/2N-14 points; Alternative 2S-20' Median/60 MPH-14 points; Alternative 3S-20' Median/60MPH-14 points; Alternative 3N-20' Median/50 MPH-14 points; Alternative 3N-34' Median/50MPH-14 points; Alternative 3N-20' Median/60 MPH-14 points; Alternative 4N-20' Median/60 MPH-14 points; Alternative 3N/4N-20' Median/60 MPH-14 points

2. How much of the perimeter of the site borders on land in nonurban use?

   More than 90 percent-10 points
   90 to 20 percent-9 to 1 point(s)
   Less than 20 percent-0 points

   Aerial photography and land use maps were reviewed and a field review of the site was conducted to determine nonurban use bordering on the site. It was estimated that 85 percent of Alternatives 2S/2N, 2S-20' Median/60 MPH, 3S-20' Median/60 MPH and 3N-20' Median/50 MPH, 3N-34' Median/60 MPH, 3N-20' Median/60 MPH border on land in nonurban use and more than 90 percent of Alternatives 4N-20' Median/60 MPH and 3N/4N-20' Median/60 MPH border on nonurban use.

   Rating: Alternative 2S/2N-8 points; Alternative 2S-20' Median/60 MPH-8 points; Alternative 3S-20' Median/60MPH-8 points; Alternative 3N-20' Median/50 MPH-8 points; Alternative 3N-34' Median/50MPH-8 points; Alternative 3N-20' Median/60 MPH-8 points; Alternative 4N-20' Median/60 MPH-10 points; Alternative 3N/4N-20' Median/60 MPH-10 points

3. How much of the site has been farmed (managed for a scheduled harvest or timber activity) more than five of the last 10 years?

   More than 90 percent-20 points
   90 to 20 percent-19 to 1 point(s)
   Less than 20 percent-0 points

   Historically, much of Worcester County land has been used for agricultural activities. Based on a review of aerial photographs and land use maps, it is estimated that more than 90 percent of the land area for each of the dualization alternatives and Alternative 2S-20' Median/60 MPH has been farmed more than five of the last 10 years. The majority of the improvements associated with the 2S/2N Alternatives would occur within existing SHA right-of-way.

   Rating: Alternative 2S/2N-0 points; Alternative 2S-20' Median/60 MPH-20 points; Alternative 3S-20' Median/60MPH-20 points; Alternative 3N-20' Median/50 MPH-20 points; Alternative 3N-34' Median/50MPH-20 points; Alternative 3N-20' Median/60 MPH-20 points; Alternative 4N-20' Median/60 MPH-20 points; Alternative 3N/4N-20' Median/60 MPH-20

90

points

4. Is the site subject to state or unit of local government policies or programs to protect farmland or covered by private programs to protect farmland or covered by private programs to protect farmland?

   Site is protected-20 points
   Site is not protected-0 points

   The Maryland Department of Agriculture has an Agricultural Land Preservation Program to preserve sufficient agricultural land in order to maintain a viable local base of food and fiber production for the citizens of Maryland. According to the Worcester County Office of Planning, Permits and Inspections, there are no agricultural land preservation districts located within the right-of-way limits of the project build alternatives.

   Rating: Alternative 2S/2N-0 points; Alternative 2S-20' Median/60 MPH-0 points; Alternative 3S-20' Median/60MPH-0 points; Alternative 3N-20' Median/50 MPH-0 points; Alternative 3N-34' Median/50MPH-0 points; Alternative 3N-20' Median/60 MPH-0 points; Alternative 4N-20' Median/60 MPH-0 points; Alternative 3N/4N-20' Median/60 MPH-0 points

5. Criterion 5 is not considered applicable for corridor-type projects.

6. Criterion 6 is not considered applicable for corridor-type projects.

7. Is the farm unit(s) containing the site (before the project) as large as the average-size farming unit in the county?

   As large or larger-10 points
   Below average-deduct 1 point for each 5 percent below the average, down to 0 points if 50 percent or more below average-9 to 0 points

   According to the Worcester County Natural Resource Conservation Service, the average farm size in Worcester County is 176 acres. Alternatives 3N-20' Median/50 MPH, 3N-34' Median/50 MPH and 3N-20' Median/60 MPH impact 24 properties engaged in agricultural activity. Only two of these properties are equal to or greater than thecounty average. Except for one property, each of the remaining farm parcels is less than the county average. Alternative 4N-20' Median/60 MPH impacts 19 properties engaged in agricultural activity. Except for one property, each of the remaining farm parcels is less than the county average. Alternative 3N/4N-20' Median/60 MPH impacts 20 properties engaged in agricultural activity. Along this Alternative, one farm is greater than the county average and one farm is less than 176 acres, but greater than 88 acres (half of the county average). Alternative 3S-20' Median/60 MPH impacts 48 properties engaged in agricultural activity. Six of these parcels are equal to or greater than the county average. Six of the remaining 42 parcels are less than 170 acres, but greater than 88 acres (half of the county average). The remaining parcels are less than the county average. Alternative 2S-20' Median/60 MPH impacts 20 farmland parcels. Four of the parcels are greater than 176 acres. Three of the parcels are less than 176 acres but greater than 88 acres. Thirteen of the parcels are less than 88 acres in size. Alternative 2S/2N impacts 3 parcels, all of which are located in the southern study area. One parcel is greater than 176 acres. Two parcels are less than 88 acres. To arrive at the rating, the scores of the impacted farm properties were added and then divided by the number of farm properties impacted by the alternative.

   Rating: Alternative 2S/2N-3 points; Alternative 2S-20' Median/60 MPH-3 points; Alternative 3S-20' Median/60MPH-2 points; Alternative 3N-20' Median/50 MPH-1 point; Alternative 3N-34' Median/50MPH-1 point; Alternative 3N-20' Median/60 MPH-1 point; Alternative 4N-20' Median/60 MPH-0 points; Alternative 3N/4N-20' Median/60 MPH-1 point

8. If this site is chosen for the project, how much of the remaining land on the farm will become non-farmable because of interference with land patterns?

   Acreage equal to more than 25 percent of acres directly converted by the project-25 points
   Acreage equal to between 25 and 5 percent of the acres directly converted by the project-24 to 1 point(s)
   Acreage equal to less than 5 percent of the acres directly converted by the project-0 points

   Alternatives 2S-20' Median and 3S-20' Median/60 MPH are designed to parallel existing US 113 in the southern study area. Farmland will be impacted in the parcels adjacent to existing US 113. Accessibility to remaining farmland is expected to remain intact with these alternatives. Alternatives 3N-20' Median/50 MPH, 3N-34' Median/50 MPH and 3N-20' Median/60 MPH also parallel existing US 113. The farmland impacts associated with these alternatives will also occur on the parcels adjacent to the existing roadway. Alternatives 4N-20' Median/60 MPH and 3N/4N-20' Median/60 MPH are the only alternatives that will bisect farmland parcels. The design of these alternatives (four lanes w/ a median) will create accessibility difficulties on six properties for the current property owners. These parcels (tax parcel numbers 109, 122, 118, 123, 52 and 41) are located between Showell and southern study area limits of these alternatives. Approximately 47 acres are indirectly impacted by these alternatives. Improvements incorporated into Alternative 2S/2N will occur mostly within the existing US 113 right-of-way.

   Rating: Alternative 2S/2N-0 points; Alternative 2S-20' Median/60 MPH-0 points; Alternative 3S-20' Median/60MPH-0 points; Alternative 3N-20' Median/50 MPH-0 points; Alternative 3N-34' Median/50MPH-0 points; Alternative 3N-20' Median/60 MPH-0 points; Alternative 4N-20' Median/60 MPH-25 points; Alternative 3N/4N-20' Median/60 MPH-25 points

9. Does the site have available an adequate supply of farm support services and markets, i.e. farm suppliers, equipment dealers, processing and storage facilities and farmer's markets?

   All required services are available-5 points
   Some required services are available-4 to 1 point(s)
   No required services are available-0 points

   All required services are available to the farms in the area for each alternative. Agricultural services are located in Berlin, Salisbury and Snow Hill.

   Rating: Alternative 2S/2N-5 points; Alternative 2S-20' Median/60 MPH-5 points; Alternative 3S-20' Median/60MPH-5 points; Alternative 3N-20' Median/50 MPH-5 points; Alternative 3N-34' Median/50MPH-5 points; Alternative 3N-20' Median/60 MPH-5 points; Alternative 4N-20' Median/60 MPH-5 points; Alternative 3N/4N-20' Median/60 MPH-5 points

10. Does the site have substantial and well-maintained on-farm investments such as barns, other storage building, fruit trees and vines, field terraces, drainage, irrigation waterways or other soil and water conservation measures?

    High amount of on-farm investment-20 points
    Moderate amount of on-farm investment-19 to 1 point(s)
    No on-farm investment-0 points

    Farms within the study area range from having a high amount of on-farm investment to no on-farm investment. Most of the farms appeared to have a moderate amount of on-farm investment in the form of chicken houses, irrigation drainageways, barns and other outbuildings.

    Rating: Alternative 2S/2N-14 points; Alternative 2S-20' Median/60 MPH-14 points; Alternative 3S-20' Median/60MPH-14 points; Alternative 3N-20' Median/50 MPH-14 points; Alternative 3N-34' Median/50MPH-14 points; Alternative 3N-20' Median/60 MPH-14 points; Alternative 4N-20' Median/60 MPH-14 points; Alternative 3N/4N-20' Median/60 MPH-14 points

11. Would the project at this site, by converting farmland to non-agricultural use, reduce the demand for farm support services so as to jeopardize the continued existence of these support services and thus, the viability of the farms

remaining in the area?

Substantial reduction in demand for support services if the site is converted-10 points
Some reduction in demand for support services if the site is converted-9 to 1 point(s)
No significant reduction in demand for support services if the site is converted-0 points

None of the alternatives will reduce the demand for farmland support services. Many of the support services are located in Berlin, Snow Hill and Salisbury.

Rating: Alternative 2S/2N-0 points; Alternative 2S-20' Median/60 MPH-0 points; Alternative 3S-20' Median/60MPH-0 points; Alternative 3N-20' Median/50 MPH-0 points; Alternative 3N-34' Median/50MPH-0 points; Aternative 3N-20' Median/60 MPH-0 points; Alternative 4N-20' Median/60 MPH-0 points; Alternative 3N/4N-20' Median/60 MPH-0 points

12. Is the kind and intensity of the proposed use of the site sufficiently incompatible with agriculture that it is likely to contribute to the eventual conversion of surrounding farmland to non-agricultural use?

Proposed project is incompatible with existing agricultural use of surrounding farmland-10 points
Proposed project is tolerable to existing agricultural use of surrounding farmland-9 to 1 point(s)
Proposed project is fully compatible with existing agricultural use of surrounding farmland-0 points

The purpose of the roadway is to improve the safety for motorists. The potential for secondary development as a result of the proposed roadway improvements exists; however, land use controls, questionable soil suitability characteristics for development and the absence of public sewerage and sewer disposal facilities limit the potential for development in the study area . Minor subdivisions of five dwelling units per property are allowed in land zoned agriculture (A-1). It is the intent of Worcester County to 1)"Encourage new development projects to locate in or near the existing population centers and service centers (where planned) but also discourage development of the rural areas of the county" and 2) "Maintain the rural character of Worcester County and its existing population centers, small towns and villages (Worcester County Comprehensive Plan, 1989).

Rating: Alternative 2S/2N-1 point; Alternative 2S-20' Median/60 MPH-3 points; Alternative 3S-20' Median/60MPH-3 points; Alternative 3N-20' Median/50 MPH-3 points; Alternative 3N-34' Median/50MPH-3 points; Alternative 3N-20' Median/60 MPH-3 points; Alternative 4N-20' Median/60 MPH-5 points; Alternative 3N/4N-20' Median/60 MPH-4 points

Total Rating:
Alternative 2S/2N-45 points
Alternative 2S-20' Median/60 MPH-67 points
Alternative 3S-20' Median/60 MPH-66 points
Alternative 3N-20' Median/50 MPH-65 points
Alternative 3N-34' Median/50 MPH-65 points
Alternative 3N-20' Median/60 MPH-65 points
Alternative 4N-20' Median/60 MPH-93 points
Alternative 3N/4N 20' Median/60 MPH-93 points

United States Department of Agriculture
Natural Resources Conservation Service
301 Bank Street
Snow Hill, Maryland 21863
(410)632-0939

SOILS OF STATEWIDE IMPORTANCE
FOR
WORCESTER COUNTY MARYLAND

ACRES	SOIL MAPPING UNIT
9,655	Fallsington Loam Fg
31,135	Fallsington Sandy Loam Fa
1,285	Fort Mott Loamy Sand, 0 to 2 percent slopes FmA
7,085	Fort Mott Loamy Sand, 2 to 5 percent slopes FmB
6,815	Klej Loamy Sand, 0 to 2 percent slopes KsA
1,920	Klej Loamy Sand, 2 to 5 percent slopes KsB
7,760	Lakeland Loamy Sand Clayey Substratum, 0 to 5 percent slope
4,790	Lakeland Sand Clayey Substratum, 0 to 5 percent slopes
867	Lakeland-Fort Mott Loamy Sands, 0 to 5 percent slopes LoB
505	Matapeake Fine Sandy Loam, 5 to 10 percent slopes MdC
275	Matapeake Silt Loam, 5 to 10 percent slopes MeC
50,135	Othello Silt Loam Ot
16,260	Pocomoke Loam, drained Pm
10,185	Pocomoke Sandy Loam, drained Pk
905	Portsmouth Sandy Loam Pr
6,825	Portsmouth Silt Loam Pt
950	Sassafras Sandy Loam, 5 to 10 percent slopes, moderately er
2,620	St Johns Loamy Sand St
530	St Johns Mucky Loamy Sand Su

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The Natural Resources Conservation Service is an agency of the Department of Agriculture

AN EQUAL OPPORTUNITY EMPLOYER

United States Department of Agriculture
Soil Conservation Service
301 Bank Street
Snow Hill, Maryland 21863
(301) 632-0939

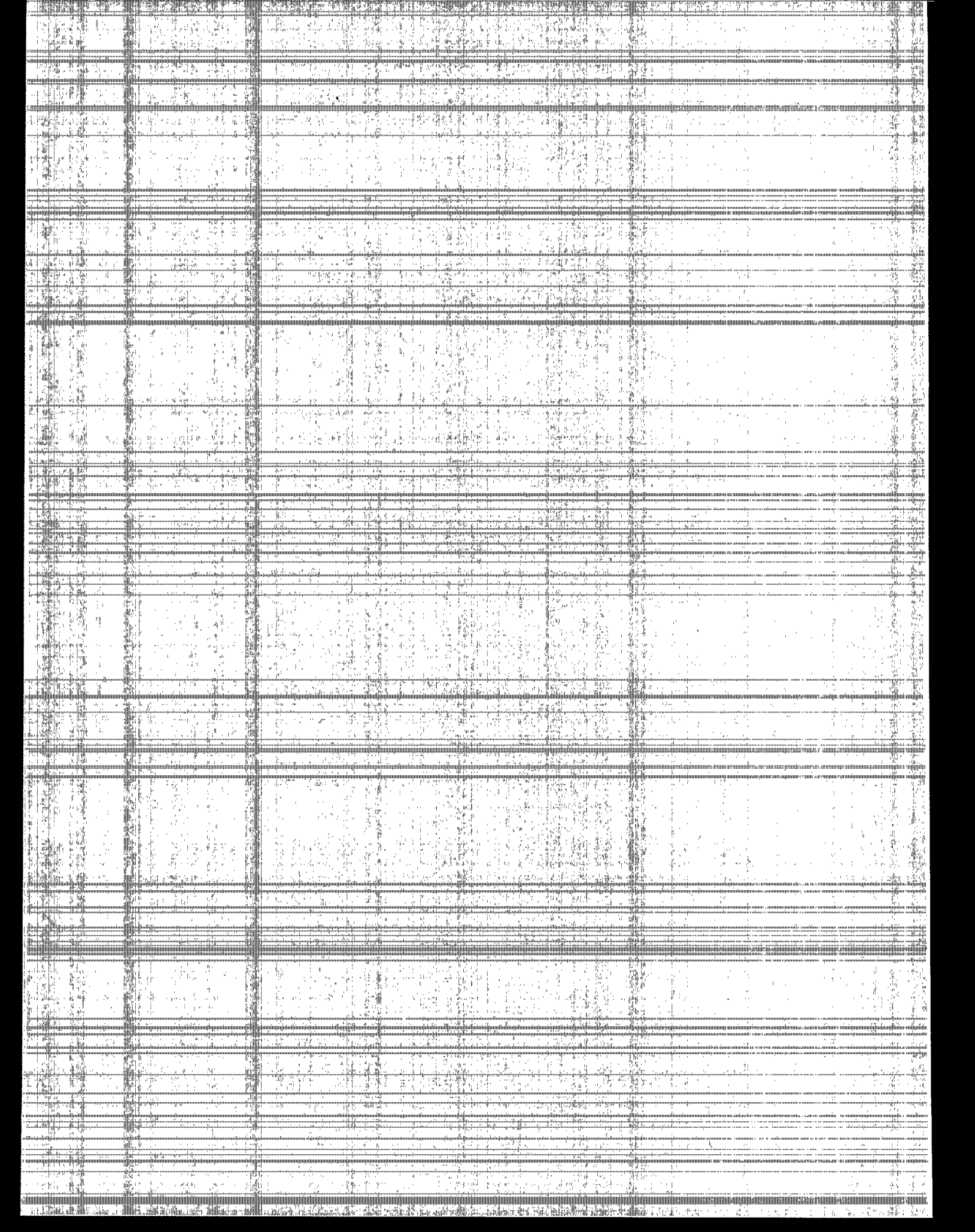
PRIME FARMLAND SOILS FOR WORCESTER COUNTY MARYLAND

MdA	3,645	Matapeake Fine Sandy Loam, 0 to 2 percent slopes
MdB	5,505	Matapeake Fine Sandy Loam, 2 to 5 percent slopes
MeA	3,275	Matapeake Silt Loam, 0 to 2 percent slopes
MeB	2,010	Matapeake Silt Loam, 2 to 5 percent slopes
MoA	1,630	Mattapex Fine Sandy Loam, 0 to 2 percent slopes
MoB	615	Mattapex Fine Sandy Loam, 2 to 5 percent slopes
MpA	3,855	Mattapex Loam, 0 to 2 percent slopes
MpB	865	Mattapex Loam, 2 to 5 percent slopes
MtA	4,560	Mattapex Silt Loam, 0 to 2 percent slopes
MtB	995	Mattapex Silt Loam, 2 to 5 percent slopes
SmA	505	Sassafras Loam, 0 to 2 percent slopes
SmB_2	385	Sassafras Loam 2 to 5 percent slopes, moderately eroded
SaA	7,435	Sassafras Sandy Loam, 0 to 2 percent slopes
SaB_2	13,560	Sassafras Sandy Loam, 2 to 5 percent slopes, moderately eroded
WoA	2,310	Woodstown Loam, 0 to 2 percent slopes
WoB	515	Woodstown Loam, 2 to 5 percent slopes
WdA	16,385	Woodstown Sandy Loam, 0 to 2 percent slopes
WdB	4,010	Woodstown Sandy Loam, 2 to 5 percent slopes

The Soil Conservation Service is an agency of the United States Department of Agriculture

696X

Appendix C
Relocation Act



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

All State Highway Administration projects must comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 USC 4601) as amended by Title IV of the Surface Transportation & Uniform Relocation Assistance Act of 1987 (P.L. 100-17), the Annotated Code of Maryland entitled "Real Property Article" Section 12-112 and Subtitle 2, Sections 12-201 to 12-212. The Maryland Department of Transportation, State Highway Administration, Office of Real Estate administers the Transportation Relocation Assistance Program in the State of Maryland.

The provisions of the Federal and State laws require the State Highway Administration to provide payments and services to persons displaced by a public project. The payments include replacement housing payments and moving costs. The maximum limits of the replacement housing payments are $22,500 for owner-occupants and $5,250 for tenant-occupants. Certain payments may also be made for increased mortgage interest costs and other incidental expenses. In order to receive these payments, the displaced person must occupy decent, safe and sanitary replacement housing. In addition to these payments, there are also moving expense payments to persons, businesses, farms and non-profit organizations. Actual but reasonable moving expenses for residences are reimbursed for a move of up to 50 miles or a schedule moving payment of up to $1,300 may be used.

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

The moving cost payments to businesses are broken down into several categories, which include actual moving expense payments, reestablishment expenses limited to $10,000 or fixed payments "in lieu of" actual moving expenses of $1,000 to $20,000. Actual moving expenses may also include actual direct losses of tangible personal property and expenses for searching for a replacement site up to $1,000.

The actual reasonable moving expenses may be paid for a move by a commercial mover or for a self-move. Payments for the actual reasonable expenses are limited to a 50-mile radius unless the State determines a longer distance is necessary. The expenses claimed for actual cost moves must be supported by firm bids and receipted bills. An inventory of the items to be moved must be prepared in all cases. In self-moves, the State will negotiate an amount for payment, usually lower than the lowest acceptable bid. The allowable expenses of a self-move may include amounts paid for equipment hired, the cost of using the business vehicles or equipment, wages paid to persons who participate in the move, the cost of actual supervision of the move, replacement insurance for the personal property moved, costs of licenses or permits required and other related expenses.

In addition to the actual moving expenses mentioned above, the displaced business is entitled to receive a payment for the actual direct losses of tangible personal property that the business is entitled to relocate but elects not to move. These payments may only be made after an effort by the owner to sell the personal property involved. The costs of the sale are also reimbursable moving expenses.

If the business elects not to move or to discontinue the use of an item, the payment shall consist of the lesser of: the fair market value of the item for continued use at the displacement site, less the proceeds from its sale; or the estimated cost of moving the item.

If an item of personal property which is used as part of a business or farm operation is not moved and is promptly replaced with a substitute item that performs a comparable function at the replacement site, payment shall be of the lesser of: the cost of the substitute item, including installation costs at the replacement site, minus any proceeds from the sale or trade-in of the replaced item; or the estimated cost of moving and reinstalling the replaced item.

In addition to the moving payments described above, a business may be eligible for a payment up to $10,000 for the actual reasonable and necessary expenses of reestablishing at the replacement site. Generally, reestablishment expenses include certain repairs and improvements to the replacement site, increased operating costs, exterior signing, advertising the replacement location and other fees paid to reestablish. Receipted bills and other evidence of these expenses are required for payment. The total maximum reestablishment payment eligibility is $10,000.

In lieu of all moving payments described above, a business may elect to receive a fixed payment equal to the average annual net earnings of the business. This payment shall not be less than $1,000 nor more than $20,000. In order to be entitled to this payment, the State must determine that the business cannot be relocated without a substantial loss of its existing patronage; the business is not part of a commercial enterprise having more than three other establishments in the same or similar business that are not being acquired; and the business contributes materially to the income of a displaced owner during the two taxable years prior to the year of the displacement. A business operated at the displacement site solely for the purpose of renting to others is not eligible. Considerations in the State's determination of loss of existing patronage are the type of business conducted by the displaced business and the nature of the clientele. The relative importance of the present and proposed locations to the displaced business and the availability of suitable replacement sites are also factors.

In order to determine the amount of the "in lieu of" moving expenses payment, the average annual net earnings of the business is to b/e one-half of the net earnings, before taxes during the two taxable years immediately preceding the taxable year in which the business is relocated. If the two taxable years are not representative, the State may use another two-year period that would be more representative. Average annual net earnings include any compensation paid by the business to the owner, owner's spouse, or dependents during the period. Should a business be in operation less than

two years, the owner of the business may still be eligible to receive the "in lieu of" payment. In all cases, the owner of the business must provide information to support its net earnings, such as income tax returns, or certified financial statements, for the tax years in question.

Displaced farms and non-profit organizations are also eligible for actual reasonable moving costs up to 50 miles, actual direct losses of tangible personal property, search costs up to $1,000 and reestablishment expenses up to $10,000 or a fixed payment "in lieu of actual moving expenses of $1,000 to $20,000. The State may determine that a displaced farm may be paid a minimum of $1,000 to a maximum of $20,000, based upon the net income of the farm, provided that the farm has been relocated or the partial acquisition caused a substantial change in the nature of the farm. In some cases, payments "in lieu of" actual moving costs may be made to farm operations that are affected by a partial acquisition. A non-profit organization is eligible to receive a fixed payment or an "in lieu of" actual moving cost payment, in the amount of $1,000 to $20,000 based on gross annual revenues less administrative expenses.

A more detailed explanation of the benefits and payments available to displaced persons, businesses, farms and non-profit organizations is available in the "Relocation Assistance" brochure that will be distributed at the public hearing for this project and be given to displaced persons.

Federal and state laws require that the State Highway Administration shall not proceed with any phase of a project which will cause the relocation of any persons, or proceed with any construction project, until it has furnished satisfactory assurances that the above payments will be provided, and that all displaced persons will be satisfactorily relocated to comparable decent, safe and sanitary housing within their financial means, or that such housing is in place and has been made available to the displaced person.

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Appendix D
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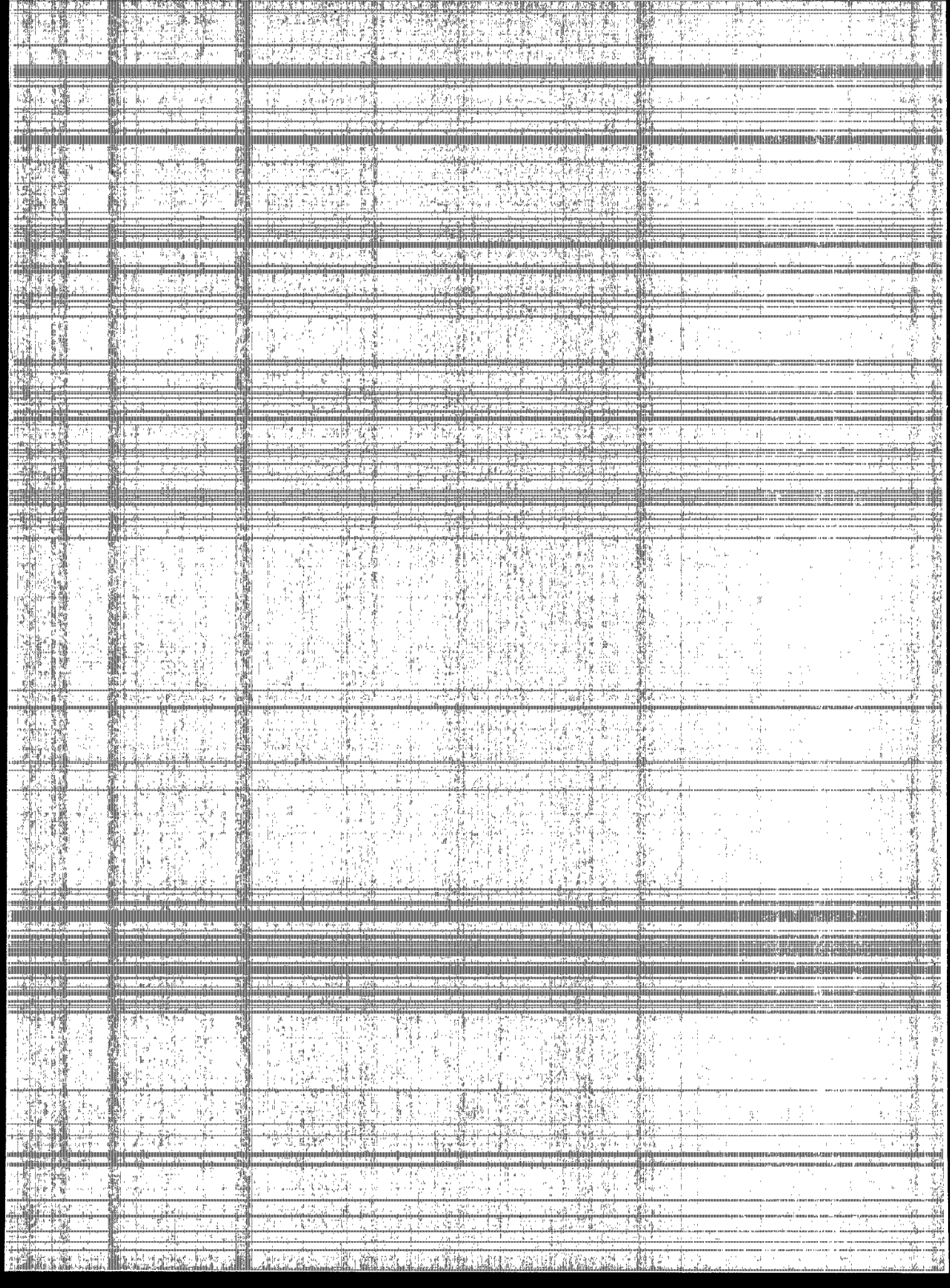

APPENDIX D

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