

ENVIRONMENTAL STATEMENT RESPONSES

CHECK LIST

CONTRACT NO. CH-566-151-571 F.A.P. NO. _____
 PROJECT: MD 5 Relocated; MD 5 to US 301/MD 5 in Charles Co.
 DATE CIRCULATED: 1/31/90 DATE COMMENTS DUE: 3/12/90

AGENCY	DATE REC'D.	COMMENTED ON SECTIONS	RESPONSIBLE FOR ADDRESSING COMMENTS	COMMENTS ADDRESSED ON PAGES	FEIS REQUEST
D.O.T.	3/26/90 FWS	SECT IV E 4	Env. Consultant		
EPA	10/19/90		N/A		
HUD	3/16/90	No comments	—		
NAT. MARINE FISHERIES					
DOA					
HEW					
OFF. OF ECONOMIC OPP.					
EXE. DIR. OF CIVIL WORKS					
FEA					
DEPT. OF COMMERCE					
U.S. COAST GUARD					
OF ENG. BALT. DIST.					
CORP OF ENG. DIVISION					
OE	3/12/90	SECT IV E 4	ENV. CONSULTANT		

AGENCY	DATE REC'D.	COMMENTED ON SECTIONS	RESPONSIBLE FOR ADDRESSING COMMENTS	COMMENTS ADDRESSED ON PAGES	FEIS REQUESTE
BUDGE DESIGN	3/2/90	SECT IV E 3			
LANDSCAPE ARCH.					
BURL					
REAL ESTATE					
RELOCATION					
ACQUISITION					
EEO					
GROUPS & IND.					
Plan. & Prog. Dev	3/14/90	S-1, S-3 Sect. 1 pg 2, I-1 Sect 2 pg. 1 Sect 3 pg 1/2			



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107

PROJECT
DEVELOPMENT
DIVISION

OCT 26 9 49 AM '90

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Ms. Cynthia D. Simpson, Chief
Environmental Management
Project Development Division (Room 301)
Maryland State Highway Administration
707 North Calvert Street
Baltimore, Maryland 21203-0717

OCT 19 1990

Re: Maryland Route 5 Relocated

Dear Ms. Simpson:

In accordance with the National Environmental Policy Act and Section 309 of the Clean Air Act, EPA has reviewed the Air Quality Technical Report for the above referenced project. The basic dispersion and emission models that were applied were acceptable. However, since major intersections were apparently not addressed with an appropriate intersection model, maximum Carbon monoxide (CO) concentration impacts may have been significantly underestimated. The analysis is unacceptable in that regard.

The MOBILE3 emission factor model is acceptable for this analysis. However, future analyses should utilize MOBILE4.

The CALINE4 dispersion model is acceptable for estimating concentrations due to line sources. To demonstrate compliance with the National Ambient Air Quality Standards (NAAQS) for CO, a quantitative air quality assessment must be conducted for locations where significant traffic slowdowns or queuing are possible. The highest CO concentrations typically occur in the vicinity of major at-grade intersections. If the project involves many intersections, it suffices to conduct the assessment for the intersections where the greatest traffic volumes and the poorest levels of service occur. Major intersections must be addressed by application of an appropriate intersection model for predicting potential air quality impacts.

Thank you for allowing EPA the opportunity to comment on the above referenced project. If you have any questions concerning our comments, please contact Denise Rigney of my staff at (215) 597-7336.

Sincerely,

Thomas Henkamp for
Diana Esher, Chief
Environmental Planning Section



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DEVELOPMENT
JUL 13 1 42 PM '90

William Donald Schaefer
Governor

Maryland Department of Natural Resources

Torrey C. Brown, M.D.
Secretary

Capital Programs Administration

2012 Industrial Drive
Annapolis, Maryland 21401

Michael J. Nelson
Assistant Secretary
for Capital Programs

July 11, 1990

RE: SHA No.CH566-151-571
MD 5 Relocated (Mattawoman
Beantown Road):US 301/MD 5
to MD 5
WRA File No.89-PP-0850

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

Attention: Cynthia D. Simpson

Dear Mr. Edge:

The above referenced project has been reviewed by the Maryland Scenic and Wild Rivers Program. We strongly concur with the recommendations made to your office on April 5, 1990 by the Water Resources Administration.

Any additional comments will depend on the selection of a preferred alternate. Therefore, please inform our office when you make that determination. We look forward to continued cooperation between the State Highway Administration, the Water Resources Administration, and the Scenic and Wild Rivers Program.

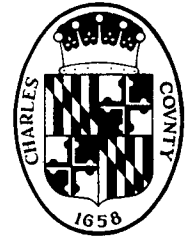
Very truly yours,

Neal R. Welch
Scenic and Wild Rivers Program

NRW
Enclosure
cc: Michele A. Hoffman, WRA

CHARLES COUNTY GOVERNMENT
Planning and Growth Management

ROY E. HANCOCK, Deputy County Administrator



April 18, 1990

Mr. Louis H. Ege, Jr.
Room 506
State Highway Administration
707 North Calvert St.
Baltimore, MD 21202

RE: MD 5 Relocated Environmental Assessment

Dear Mr. Ege:

I have reviewed the subject assessment document and offer the following comments:

- o Effective sedimentation and erosion controls should be established during construction in order to prevent the degradation of water quality in Mattawoman and Jordan Creeks. This is especially important to consider because of the acidic nature of soils in the project area.
- o Highway stormwater management should incorporate BMPs to intercept and filter pollutants out of highway runoff before the runoff enters Mattawoman or Jordan Creeks.
- o Interchange options A and Segment I Alternate 6 are preferable options from an environmental standpoint because of lower tree clearing and/or wetlands impact acreages.
- o The assessment states that noise barriers are not feasible or cost effective for Noise Sensitive Areas # 4, 5, 6, and 8. Five homes are located in these areas. Perhaps the highway department could offer noise attenuation in the form of sound insulating windows to these residences as a substitute for barriers.
- o I suggest that the highway department include figures in future impact documents that show projected noise impact contours in addition to the tables which report the spot noise impact projections.

SAY NO TO DRUGS

Post Office Box B

La Plata, Maryland 20646

(301) 645-0610 or 870-3935

EQUAL OPPORTUNITY COUNTY

Mr. Ege, SHA

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Please contact me at 645-0590 if you require further information or clarification on the comments above.

Sincerely,

A handwritten signature in cursive script that reads "George J. Maurer". The signature is written in black ink and is positioned above the typed name.

George J. Maurer
Senior Environmental Planner



Waldorf Volunteer Fire Dept., Inc.

RECEIVED

P.O. BOX 392

Waldorf, Maryland

87112
APR 11 1990

20601

January 14, 1990

Mike, Chuck

JOHNSON, MIRMIRAN & THOMPSON

Mr. Charles P. Butler
Environmental Manager
Johnson, Mirmiran and Thompson, P.A.
810 Gleneagles Court
Suite 200
Baltimore, Maryland 21204

Dear Mr. Butler:

Thank you for your letter dated January 4, 1990 requesting concurrence or comments concerning the impact on emergency vehicle accessibility by the proposed modifications to Maryland Route 205.

The congested traffic conditions in the Waldorf area are a major problem for us as providers of fire protection and emergency medical service. Our response times have steadily increased in recent years and the addition of a 1.3 million square foot regional mall and several other large shopping and commercial centers is certain to slow our response time further in the future.

We are enthusiastic about any road improvement project that will relieve congestion and reduce, or stabilize, our response times. The proposed project in your letter is a major route taken by both our EMS and fire apparatus. We are cautiously optimistic about the potential of a 4 or 6 lane "bypass" for Waldorf.

The last sentence of the third paragraph of your letter is confusing and I assume you meant to say "...actually aid emergency vehicle accessibility." We would very much like to concur with your conclusion, but until we have the actual plans for the proposed new traffic patterns at both ends of the project it will be impossible for us to evaluate accessibility. Some of the interchanges we have observed can severely restrict access to certain areas or certain directions on major roads. We are extremely concerned that the proposed project not do either of these. Any increase in our response time into the Pinefield Subdivision would be unacceptable and would severely reduce the fire and EMS protection to the citizens in that area.

Member:

NATIONAL FIRE PROTECTION ASSOCIATION
MARYLAND STATE FIREMEN'S ASSOCIATION
SOUTHERN MARYLAND VOLUNTEER FIREMEN'S ASSOCIATION
CHARLES COUNTY VOLUNTEER FIREMEN'S ASSOCIATION

Page 2

Mr. Charles P. Butler

Please consider this a formal request for details of the proposed traffic flow for the entire project. We CAN NOT concur with the conclusion that the project will "aid accessibility" until we have had a chance to review the detailed plans. We also formally request an opportunity to suggest changes or modifications after we have reviewed the requested plans.

We look forward to hearing from you on this matter.

Sincerely,



Daniel J. Stevens
Chief

CC: Charles County Commissioners



PROJECT
DEVELOPMENT
10
MAY 10 1990

William Donald Schaefer
Governor

Maryland Department of Natural Resources

Water Resources Administration

Tawes State Office Building
Annapolis, Maryland 21401

Torrey C. Brown, M.D.
Secretary

Catherine P. Stevenson
Director

April 5, 1990

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

Attention: Barbara Allera-Bohlen

Re: WRA File No. 89-PP-0850
SHA No. CH566-151-571
Environmental Assessment: MD
Route 5 relocated (MD 205)- From MD
5 to U.S. 301/MD 5 and the
interchange at U.S. 301/MD 5, Charles
County

Dear Mr. Ege, Jr.:

The above referenced Environmental Assessment has received the necessary review. Activities proposed by the project include the upgrade of existing MD 205, thereby impacting wetland and floodplain areas associated with Mattawoman Creek and Zekiah Swamp.

Mattawoman Creek and Zekiah Swamp are under increasingly intense pressures from development activities and road construction in their corresponding watersheds. These activities have resulted in significant cumulative impacts to existing aquatic resources, largely through wetland fill activities. Because wetland areas typically provide unique habitat and a variety of water quality benefits to downstream areas, the protection of these resources is essential to the maintenance of the integrity of the aquatic system.

Zekiah Swamp is designated as a Non-tidal Wetland of Special State Concern in the adopted Non-tidal Wetlands Regulations.

The Mattawoman Creek has been designated as an area of critical state concern (see figure 2). This creek is "among the most important of the Potomac Basin spawning waters" and has "the largest concentration of nesting wood duck in Maryland...", according to the Areas of Critical State Concern Designation Report, Maryland Department of State Planning, January 1981, p. 1-68. Development and its associated sedimentation endangers the ecosystem of Mattawoman Creek (p. 1-70).

Jordan Swamp Run is part of the Wicomico Drainage Basin, therefore any anticipated impacts must be coordinated with the Maryland Wild and Scenic Rivers Program. That coordination can be

Telephone: _____
DNR TTY for the Deaf: 301-974-3683

conducted through this agency.

The proposed fill of wetlands and waterways and the disturbances to floodplain areas are likely to result in the loss of wildlife habitat and in the reduction of critical water quality benefits including sediment trapping, flood storage, nutrient uptake, and pollutant removal. In addition, sulfur-bearing subsurface soils which can promote low pH conditions when oxidized are believed to occur in the project area. Disturbance of these subsurface soils may be conducive to pH reductions in receiving waterways during storm runoff events. These impacts, combined with the increased pollutant loadings from the created impervious surfaces may significantly contribute to reductions in water quality and habitat in the Mattawoman Creek and Zekiah Swamp aquatic systems.

To assure that the impacts to existing aquatic resources are avoided, then minimized to the greatest extent possible, the following concerns and recommendations should be addressed into the design of this project:

1. The fill of wetlands and waterways and the disturbance of floodplain areas associated with Jordan Swamp Run required by Alternate 6 in Segment I appear to be excessive. Alternate 5 is preferred over Alternate 6 in Segment I because the impacts to Wetland #8 are significantly minimized. In addition, the impacts proposed by Alternate 5 are in close proximity to the existing alignment of Mattawoman Beantown Road. Therefore, overall potential impacts to the Zekiah Swamp aquatic system, Alternate 6 will be closely investigated by this Division if selected by the State Highway Administration.
2. Interchange options A and B are preferred because they would result in the least impact to wetlands, both within the 100 year floodplain and overall. The potential secondary impacts to wetland 2A caused by fragmentation of the riparian corridor should be further evaluated to determine which option is preferable.
3. Option 1 for the proposed Relocated Sub-station Road is undesirable because of the required wetland fill. The excessive impacts to existing upland forest areas required by this option is also likely to result in a greater disturbance to the soils in this area, which may promote the impacts from low pH.
4. Increased efforts should be directed at minimizing disturbances throughout the alignment to reduce the opportunities for sedimentation and acid runoff in the subject watershed. The potential for impacts from sulfur-bearing soils are not addressed in this environmental assessment and should be investigated. In areas where impacts to sulfur-bearing soils are unavoidable, methods to reduce the associated impacts should be investigated.
5. Mattawoman Creek has wetlands with anadromous fish spawning areas; therefore, construction within the stream and its floodplain and accompanying wetlands is prohibited from March 1 through June 15, inclusive, of any year.
6. In relation to all the wetlands, it is suggested that: temporary influences on non-tidal wetlands be remedied; post-construction elevations be the same as originally found; heavy equipment in wetlands be placed on mats or be suitably designed to prevent damage to wetlands; and construction material be removed to an upland disposal area.

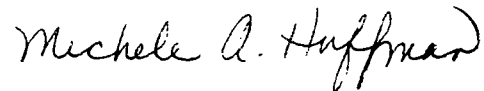
Page 3
Mr. Ege, Jr.
April 5, 1990

- 7. Quality stormwater management must be implemented for all created impervious surfaces. If infiltration is not feasible, alternative strategies such as retention facilities should be investigated.

Enclosed for your use is a copy of the "Emergency Regulations for Nontidal Wetlands: Addendum to the Waterway Construction Permit Regulations".

If you have any questions or comments, please do not hesitate to contact me at (301) 974-2265.

Very truly yours,



Michele A. Huffman
Project Engineer
Waterway Permits Division

MAH

Enclosures

cc: Renata Steffey, Nontidal Wetlands Division
Sean Smith, PPER
Gene Cheers, CPA

EMERGENCY REGULATIONS FOR NONTIDAL WETLANDS:

Addendum to the Waterway Construction Permit Regulations

.14 Requirements for Regulated Activities in Nontidal Wetlands.

A. Definitions. The following definitions describe the meaning of terms used in this regulation and Regulation .15.

- (1) "Adverse impact" means causing any diminishment of nontidal wetland acreage or function.
- (2) "Avoid" means to refrain from conducting an activity that may adversely impact a nontidal wetland.
- (3) "Bog" means a nontidal wetland characterized by organic soils, accumulated peat, and soils saturated to the surface throughout the year with minimal fluctuation in water level.
- (4) "Buffer" means a regulated area, 25 feet in width surrounding a nontidal wetland, measured from the outer edge of the nontidal wetland.
- (5) "Delmarva bay" means a nontidal wetland characterized by an elliptical or oval shape and centripetal drainage, usually bordered by a distinct rim, that is:
 - (a) Located in a depression with seasonal surface water that is absent in summer;
 - (b) Generally located on the Delmarva Peninsula; and
 - (c) Thinly forested or unforested with abundant herbaceous vegetation that may be apparent only after surface water recedes in the summer.
- (6) "Federal Manual" means the "Federal Manual for Identifying and Delineating Jurisdictional Wetlands", 1989, promulgated by the Federal Interagency Committee for Wetland Delineation, which is incorporated by reference.
- (7) "Function" means roles nontidal wetlands serve through:
 - (a) Reduction of pollutant loadings, including excess nutrients, sediment, and toxics;
 - (b) Attenuation of floodwaters and stormwaters;

- (c) Shoreline stabilization and erosion control;
- (d) Breeding grounds and habitat for many species of plants and wildlife including fish, game, and nongame birds and mammals, including threatened and endangered species and species in need of conservation;
- (e) Food chain support; and
- (f) Timber production.

(8) "General Area" means the geographic or market vicinity that has desired characteristics for fulfilling the basic project purpose.

(9) "Initial planning phase" means the period of time in which the feasibility of a project is evaluated before committing resources necessary for its implementation.

(10) "Minimize" means to reduce adverse impact to nontidal wetlands to the least practicable and reasonable degree.

(11) "Nontidal wetland":

(a) Means an area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known as hydrophytic vegetation;

(b) Is determined according to the Federal Manual;

(c) Does not include tidal wetlands regulated under Natural Resources Article, Title 9, Annotated Code of Maryland; and

(d) Does not include nontidal wetlands located within the Chesapeake Bay Critical Area.

(12) "Practicable" means available and capable of being done after taking into consideration costs, existing technology, and logistics in light of overall project purposes.

(13) "Project" means the entire activity on a parcel of land, of which all regulated nontidal wetland activities conducted in a nontidal wetland and the buffer are a part.

(14) "Project purpose" means the principal reason for conducting all regulated nontidal wetland activities and other activities on a project site.

(15) "Rectify" or "rectification" means actions performed to nontidal wetlands which have been temporarily impacted by regulated nontidal wetland activities to return them to previous conditions with at least the same nontidal wetland acreage and equivalent function.

(16) "Regulated nontidal wetland activity" means any of the following activities which are directly undertaken in a nontidal wetland or its buffer:

(a) Removal, excavation, or dredging of soil, sand, gravel, minerals, organic matter, or materials of any kind;

(b) Changing of existing drainage characteristics, sedimentation patterns, flow patterns, or flood retention characteristics;

(c) Disturbance of the water level or water table by drainage, impoundment, or other means;

(d) Dumping, discharging of material, or filling with material, including the driving of piles, and placing of obstructions;

(e) Grading or removal of material that would alter existing topography; and

(f) Destruction or removal of plant life that would alter the character of a nontidal wetland.

(17) "Repair" and "maintenance" means an activity that restores the scope, size, and design of a serviceable fill area, structure, or land use to its previously authorized and undamaged condition. Activities that change the size, or scope of a project beyond the original design so as to drain, dredge, fill, flood, or otherwise convert nontidal wetlands that were not previously adversely impacted by the project are not included in this definition.

(18) "Serviceable" means presently usable or currently fulfilling its basic, original purpose.

(19) "Significant plant or wildlife value" means a nontidal wetland:

(a) Of the following unusual or unique community types:

(i) Bogs,

(ii) Areas with bald cypress or Atlantic white cedar that

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contain at least 20 percent of these species in any strata as determined by the Federal Manual; or

(iii) Delmarva bays;

(b) With ground water discharge, including springs, that is connected through surface water flow to a stream, or that maintains minimum base flow important for maintaining plant and wildlife species;

(c) With threatened or endangered species, or species in need of conservation;

(d) Adjacent to a class III or class IV waters defined in COMAR 26.08.02;

or

(e) Supporting vernal pools.

(20) "Utility line" means any underground or overhead transmission line, pipe, cable, or wire for the conveyance of public or private water or sewer, natural gas, or the transmission of electrical, radio, or telecommunications service.

(21) "Vernal pool" means a forested nontidal wetland in a depression characterized by seasonal surface water, a layer of poorly decomposed peat over a layer of organic soil, and a size usually less than 1 acre.

(22) "Water dependent activity" means requiring the use of and access to surface water that would be essential to fulfill the basic purpose of the proposed project.

B. After July 1, 1989, a person who is required to obtain a permit under this chapter may not conduct a regulated nontidal wetland activity within the 100 year floodplain unless the Department has issued a permit under this chapter. However, an application for a waterway construction permit that was filed on the Department's form before July 1, 1989 will not be subject to the requirements of this regulation and Regulation .15.

C. The activities listed in this section may be exempted from the requirements of this regulation and Regulation .15, provided that the conditions listed for each activity in this section are all met:

(1) The Repair and Maintenance of Serviceable Structures or Fills. A serviceable structure or fill includes utilities and underground utilities, rights of way, railroad beds, road beds,

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dams, dikes, levees, water control structures, facilities designed for stormwater management, and bridges whose use is impaired. The following conditions apply:

(a) Repair and maintenance may not result in a deviation from the plans or specifications of the original structure or fill;

(b) If the structure or fill has been put to uses other than the use originally intended or authorized for original construction and the repair or maintenance activity will alter or impair any additional nontidal wetland area, the repair or maintenance of the structure may not be exempted;

(c) Repair and maintenance to be made more than 3 years after damage occurs or is first identified does not qualify for an exemption; and

(d) Repair and maintenance activities may not result in the permanent loss of nontidal wetlands in excess of nontidal wetlands lost under the original construction or fill.

(2) Activities within the 100 year floodplain whose cumulative loss of nontidal wetlands and buffer is less than 5,000 square feet for the entire and complete project and which contain no significant plant or wildlife value.

(3) Installation of Utility Lines.

(a) Utility lines include:

(i) Laying of cable, or wire;

(ii) Laying of water and sewage lines;

(iii) Backfilling of the excavated trench containing the pipe, cable, or wire; and

(iv) Installation of overhead transmission lines.

(b) Utility lines do not include:

(i) Intake and outfall structures;

(ii) Pipe or pipeline used to transport any liquid, or slurry substance except as associated with water and sewage lines; or

(iii) Natural gas lines greater than 12 inches in diameter.

(c) The post-construction grades and elevations of nontidal wetlands shall

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be the same as the original grades and elevations.

(4) Any nontidal wetland areas that have been temporarily impacted shall be rectified.

D. In addition to the application requirements, in Regulation .04 of this chapter, an applicant shall submit a written calculation of the acreage of a nontidal wetland and buffer affected by a regulated nontidal wetland activity not exempted under §C.

E. In addition to the application requirements in Regulation .04 of this chapter and §D, the Department may require additional information to evaluate proposed projects for compliance with this regulation and Regulation .15.

.15 Criteria for Review of Applications for a Regulated Nontidal Wetland Activity.

A. The Department may not issue a permit for a regulated nontidal wetland activity unless the Department finds that the applicant has demonstrated that the regulated nontidal wetland activity:

(1) Is water dependent and requires access to a nontidal wetland as a central element of its basic function under the criteria in §B, or is not water dependent, and has no practicable alternative under the criteria in §§C and D.

(2) Will first avoid and then minimize adverse impacts to the nontidal wetland based on consideration of existing topography, vegetation, fish and wildlife resources, and hydrological conditions under the criteria in §E.

(3) Does not cause or contribute to a degradation of ground waters or surface waters. To meet these requirements a regulated nontidal wetland activity may not cause or contribute to a:

(a) Violation of any applicable State water quality standard or cause or contribute to a violation of any applicable toxic effluent criteria or prohibition as determined by the Department of the Environment and imposed or adopted pursuant to the Clean Water Act or applicable State law; or

(b) Degradation of ground waters or surface waters, including individual and cumulative effects on:

- (i) Human health or welfare,
- (ii) Individual and municipal water supplies,
- (iii) Plankton, fish, shellfish, and wildlife,
- (iv) Aquatic ecosystem diversity, productivity, and stability,
- (v) Water treatment and purification; and
- (vi) Recreational and economic values.

B. Water Dependency and Access Test.

(1) A regulated nontidal wetland activity shall be considered water dependent if the use of and access to surface water would be essential to fulfill the basic purpose of the proposed project.

(2) The Department shall apply the following criteria in determining whether an activity is water dependent:

(a) Whether an alternate water source is available for use, including surface runoff or ground water that may have fewer adverse impacts on nontidal wetlands; and

(b) Whether the use of a nontidal wetland would only enhance a project rather than function as an essential element of a project.

(3) In determining whether a proposed project is water dependent, the Department shall consider the applicant's definition of project purpose, but may independently determine whether the proposed project is water dependent.

(4) In determining whether the regulated nontidal wetland activity requires access to a nontidal wetland, the Department shall consider whether access could be accomplished at another location that would first avoid and then minimize nontidal wetland impacts.

(5) A water dependent regulated nontidal wetland activity shall be exempt from the requirements of §§C and D, but must comply with the requirements of §E.

(6) For a multiple use project which has both water dependent and nonwater dependent features, the Department shall determine which features are water dependent and therefore shall be exempt from the requirements of §§C and D.

C. Practicable Alternative Analysis.

(1) The applicant shall demonstrate to the satisfaction of the Department that practicable alternatives, including both alternative site analysis and onsite minimization, have been analyzed and that the regulated nontidal wetland activity has no practicable alternative;

(2) In determining whether the proposed regulated nontidal wetland activity has a practicable alternative, the Department shall consider whether:

(a) The basic project purpose cannot be reasonably accomplished using one or more other sites in the same general area as the proposed regulated nontidal wetland activity that would avoid or result in less adverse impact to nontidal wetlands under the criteria in §D. The Department shall consider the applicant's definition of general area, but may make an independent determination.

(b) A reduction in the size, scope, configuration, or density of the proposed project and all alternative designs that would avoid or result in less adverse impact to nontidal wetlands would not accomplish the basic purpose of the project, under the criteria in §E.

(c) The applicant has made a good faith effort to accommodate site constraints such as inadequate zoning, infrastructure, or parcel size, that caused an alternative to the proposed activity to be rejected. To determine if an applicant has made a reasonable effort to accommodate constraints, the Department shall consider any pertinent information, including:

(i) Correspondence or other written documentation between an applicant and a local authority, including a request for a special exception or other zoning variance;

(ii) Evidence of efforts to modify the local infrastructure, including future planned expansions or redesign of the project because of a potential nontidal wetland impact; and

(iii) Written documentation of efforts undertaken to acquire another site or reconfigure the proposed project to accommodate the constraint.

(d) The regulated nontidal wetland activity is necessary for the project to meet a demonstrated public need. The following apply:

(i) To determine if the regulated nontidal wetland activity is necessary for the proposed project to meet a demonstrated public need, the Department shall consider

any pertinent information, including the economic value that the project contributes to an identified State or local economic priority and whether it promotes the public health, safety, or welfare.

(ii) In weighing the economic value of the proposed project in meeting a demonstrated public need in the general area and the ecological and economic value associated with the nontidal wetland, the Department shall consider the functions of, benefits, and economic value provided to the general public by the nontidal wetland adversely impacted by the regulated nontidal wetland activity, and the ability of the nontidal wetland to continue to provide functions and benefits to the general public.

D. Alternative Site Analysis.

(1) An applicant shall search during the initial planning phase for an alternative site that would avoid or result in the least adverse impact to nontidal wetlands.

(2) Determining the initial planning phase.

(a) The intent of this section is to require an applicant to evaluate the feasibility of the proposed project and the adverse impact on nontidal wetlands at the earliest stage of the development process, before the applicant has committed substantial resources in the project site. Consideration of alternative sites at the earliest stage enables the applicant to retain the flexibility to avoid adverse impacts to nontidal wetlands.

(b) An applicant shall select the earliest of the following times as the initial planning phase for the proposed project:

(i) When an applicant conducts a formal or informal feasibility or market study, environmental impact statement or assessment, or a similar study for the project;

(ii) When an applicant enters into an option agreement or contract of sale for the property;

(iii) When an applicant applies for a building permit, subdivision or infrastructure approval, zoning change or any other local governmental approvals for the project;

(iv) At the time an applicant applies for a permit under this chapter;

(v) When a budget or financing request is secured; or

(vi) Any other appropriate time selected by the applicant.

(c) For the time selected in §D(2)(b), an applicant shall provide a written justification of the selection, including copies of any documentation supporting the selection, and an explanation of why earlier times would be inappropriate or inapplicable to the proposed project.

(d) While the Department will give serious consideration to the initial planning phase selected by the applicant, the Department reserves the right to require additional information from the applicant concerning the initial planning phase selection or independently to determine the appropriate initial planning phase.

(3) To determine if the project purpose cannot be reasonably accomplished by using other sites, the Department shall consider:

(a) Whether an applicant has made and can document a good faith effort to analyze alternative sites in the general area during the initial planning phase of the proposed project to avoid and minimize adverse impacts to nontidal wetlands;

(b) Whether an applicant has made and can document attempts to obtain land ownership interests or other rights to conduct the proposed project activity on alternative sites which avoid and minimize impact to nontidal wetlands;

(c) Total number of alternative sites and the physical, economic and demographic characteristics of alternative sites considered by an applicant;

(d) Physical, economic, and demographic requirements of the proposed project relative to the alternative sites analyzed;

(e) Degree to which use of potential alternative sites is constrained by other governmental imposed restrictions and requirements, including concern for avoidance of environmental, social, community, historic site and parkland impacts; and

(f) Efforts undertaken to reduce adverse impacts to nontidal wetlands through consideration of reduction of proposed density or other site designs or project configuration on each alternative site analyzed.

(4) An alternative site may not be excluded from consideration during the initial planning phase because it includes or requires an area not owned by the applicant if the area could reasonably be obtained, used, expanded, or managed to fulfill the basic purpose of the proposed

project.

E. Avoidance and Minimization Analysis.

(1) The applicant shall demonstrate to the Department's satisfaction that all necessary steps have been taken to first avoid and then minimize adverse impacts to the nontidal wetlands. Losses of nontidal wetlands shall be permitted only when adverse impacts to nontidal wetlands are necessary and unavoidable.

(2) In reviewing the sufficiency of the applicant's efforts to first avoid and then minimize adverse impacts to a nontidal wetland by a reduction in the size, scope, or density of the project, or by an alternative configuration or design, the Department will include consideration of:

- (a) The spatial requirements of the proposed project;
- (b) The location of any existing structural or natural features that may dictate the placement or configuration of the proposed project;
- (c) The purpose of the proposed project, and how the purpose relates to placement, configuration, or density;
- (d) Sensitivity of the site design to nontidal wetlands; and
- (e) An applicant's efforts to:
 - (i) Reduce the scope of the proposed project,
 - (ii) Remove or accommodate site constraints including zoning, infrastructure, access, or natural features, and
 - (iii) Otherwise avoid or minimize adverse impacts.

(3) The Department shall consider pertinent factors when evaluating the extent to which a proposed project has avoided, or the regulated nontidal wetland activity has minimized direct or indirect adverse impacts to nontidal wetlands under this section, including:

- (a) Reduction in acreage of nontidal wetland affected by a regulated nontidal wetland activity;
- (b) Harm to a threatened or endangered species or species in need of conservation, or to the critical habitat of these species;
- (c) Movement of those aquatic species and wildlife indigenous to the

nontidal wetland or water body;

(d) Ability of the nontidal wetland to continue to support and provide habitat for those species of wildlife using the area;

(e) Hydrologic regime of the areas upstream and downstream of the area of impact;

(f) Functions of the affected or adjacent nontidal wetlands;

(g) Passage of normal or expected high flows, or the relocation of water;

(h) Subsurface water flow into or out of any nontidal wetland area;

(i) Presence of fish spawning areas;

(j) Presence of areas having significant plant or wildlife value; and

(k) Cumulative impact to nontidal wetlands.

F. Confidential Information.

(1) Except as provided in §F(2), information submitted to the Department under this regulation shall be made available for public inspection and copying.

(2) The Department may not make information available for public inspection if the applicant requests in writing, at the time of submission of the application, that it not be disclosed and the Department determines that the information is confidential under the State Government Article, Section 10-611, et seq., Annotated Code of Maryland, and other applicable law. If the Department denies the applicant's request for nondisclosure, the applicant may withdraw an application or seek review of the Department's determination under applicable law. If the applicant withdraws an application, the Department shall, at the request of the applicant, return any documents designated as confidential.

TORREY C. BROWN, M.D.
Secretary of Natural Resources



United States Department of the Interior

REGISTRATION
DEVELOPMENT

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

Mar 30 1 24 PM '90

March 26, 1990

Mr. Louis H. Ege, Jr.
Deputy Director
Office of Planning and Preliminary Engineering
State Highway Administration
707 N. Calvert St.
Baltimore, MD 21202

RE: Maryland Route 5 relocated
(MD 205)

Dear Mr Ege:

This letter is in reference to your January 31, 1990, request that the U.S. Fish and Wildlife Service (Service) review the Environmental Assessment for proposed Maryland Route 5 relocated. The Service has reviewed the environmental assessment with respect to the potential impacts of the various highway improvement proposals upon fish and wildlife resources and their habitats. We have the following comments on the proposed alternatives and options.

The Maryland State Highway Administration (SHA) proposes to increase the capacity and improve the safety of Route 5 relocated (presently identified as Maryland Route 205). SHA has separated the mainline portion of the road into three segments with a total of five alternatives. There are two build alternatives for Segment I, two for Segment II, and one for Segment III. There are also four interchange options (A, B, C, D) proposed for the northern intersection of Route 5 relocated and Route 301.

The Service objects to one of the proposed alternatives and two of the options. These include Segment I, Alternate 6 and interchange Options C and D. The Service opposes the alternate and two of the options because these proposals will maximize, rather than minimize, the impacts to several high quality wetlands. In addition to maximizing the filling of wetlands, Segment I, Alternate 6 will isolate 10-13 acres of wetlands within three major road corridors (Route 301, Route 5, Route 205). The Service is especially opposed to this alternate because of the resultant unnecessary fragmentation of wildlife habitat. The surrounding of wildlife habitat with roads will cause a significant increase in the mortality rate of terrestrial wildlife populations.

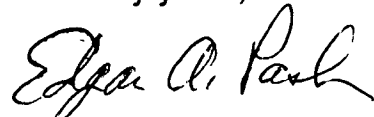
The Service recommends that all unavoidable wetland losses be replaced on a 2:1 basis for palustrine forested wetlands and on a 1:1 basis for all other wetland types. The 2:1 replacement ratio for forested wetlands will help compensate for the time lag of 40 to 50 years which is required for planted seedlings to reach maturity. This ratio will also help compensate for the risk associated with trying to create forested wetlands. The techniques for creating forested wetlands have not been fully developed.

Assuming certain conditions were met, the Service's most probable position on any Section 404 permits for this project would be no objection. This position would be contingent upon:

- a) Elimination of Segment I, Alternate 6, and interchange Options C and D from consideration.
- b) Submission of an acceptable mitigation plan.
- c) Identification of a viable mitigation site with the 404 application.

If you have any questions concerning these comments, please contact Bill Shultz of my staff at (301) 269-5448.

Sincerely yours,



for John P. Wolflin
Supervisor
Annapolis Field Office



United States Department of the Interior

NATIONAL PARK SERVICE
NATIONAL CAPITAL REGION
1100 OHIO DRIVE, S. W.
WASHINGTON, D.C. 20242

27
PROJECT DEVELOPMENT
ENVIRONMENTAL
MAR 20 7 32 AM '90

26 MAR 1990

Mr. Louis Ege, Jr.
Deputy Director, Office of Planning
and Preliminary Engineering
State Highway Administration
707 North Calvert Street, Room 506
Baltimore, Maryland 21202

Dear Mr. Ege:

This letter is in reference to the request for the National Capital Region's comments on the Environmental Assessment for SR-5 Relocation (SR-205), Charles County, Maryland.

Parks and Recreation

None of the proposed alternates will impact public park and recreation areas.

Wetland and Floodplain

Construction of any of the alternatives will require clearing of trees and placement of earth fill and/or structural piers in non-tidal wetland areas. The proposed project will affect the area by causing:

1. Reduction of habitat area; food and cover needs of birds, mammals, reptiles, etc.;
2. Reduction of (short- and long-term) nutrient retention abilities;
3. Reduction of flood controls; existing drainage patterns are altered and wetland areas reduced;
4. Reduction in the amount of wetland; the loss of wetland area is directly proportional to food chain support and sediment.

Archeological and Historical Properties

This project will not impact archeological or historical property.

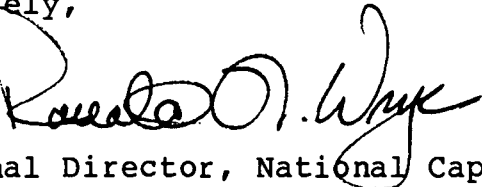
Summary and Conclusion

This road system is obviously needed to keep pace with the anticipated traffic growth. Nevertheless, the adverse affects of environmental damages must and should be addressed. As follows, we are concerned about these conditions:

- 1. Surface and subsurface water discharge;
- 2. Reduction of the water absorption in the area;
- 3. The mitigation action needed for having construction in the 100-year floodplain;
- 4. Changes to the overland flow of stormwater.

Care must be taken with the above factors to insure that minimum harm is absorbed by the resource. This statement, of course, is supported by Executive Orders 1199 and 1198. These documents provide protection for wetland and floodplain areas which are important for the preservation of our system of wildlife, both animals and plants. To ignore these factors will only lead to greater problems in the near future.

Sincerely,



Acting Regional Director, National Capital Region



DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, CORPS OF ENGINEERS
P.O. BOX 1715
BALTIMORE, MARYLAND 21203-1715

PROPOSED
DEVELOPMENT
MAY 29 1990

21

REPLY TO ATTENTION OF:

March 21, 1990

Planning Division

Mr. Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering
Room 506
State Highway Administration
707 North Calvert Street
Baltimore, Maryland 21202

Dear Mr. Ege:

Reference the letter dated January 31, 1990, from Mr. Neil J. Pedersen, requesting Baltimore District comments regarding the Environmental Assessment for the Proposed MD 5 Relocation (MD 205) from MD 5 to US 301/MD 5 and the Interchange at US 301/MD 5, in Charles County. The comments provided below address the Corps of Engineers (Corps) areas of concern, including direct and indirect impacts on existing and/or proposed Corps projects, flood control hazard potential, and permit requirements under Section 404 of the Clean Water Act.

There are no existing or proposed Corps projects that would be affected by the work. In accordance with the subject report, portions of the proposed work will be located within the flood plain. New construction or major replacements within the flood plain requires full compliance with Executive Order (E.O.) No. 11988, Flood Plain Management, May 24, 1977; Federal Emergency Management Agency (FEMA) regulations; and other Federal, State, and local flood plain regulations. The objectives of the E.O. and the other flood plain regulations are to avoid the adverse effects of occupying and modifying the flood plain and to avoid direct and indirect support of development in the flood plain. The E.O. requires that activities not be located in the flood plain unless it is the only practicable alternative. Activities which must be located in the flood plain must incorporate measures to: (1) reduce the hazard and risks associated with floods, (2) minimize the adverse effects on human health, safety, and welfare; and (3) restore and preserve the natural and beneficial values of the flood plain.

Certain activities in the waters of the United States, and jurisdictional wetlands, require Department of the Army permits from the Corps of Engineers. Corps regulations (33 CFR 320 through 330 and 33 CFR 230 and 325 (Appendix B)) require full compliance with the National Environmental Policy Act (NEPA) of 1969 during the review and evaluation of permit applications. To the maximum extent possible, the Corps will accept the information presented in NEPA documents for evaluating permit applications. The report was reviewed by the District's Regulatory Branch and their comments are as follows:

a. It is not apparent from the mapping whether left turn storage has been considered on MD 205 at the intersections with major cross roads. Should the provision of left turn storage necessitate additional right-of-way acquisition, any impacts associated with this acquisition should be addressed.

b. It suggested that the impact to Wetland 8 could be further minimized if the alignment of MD 205 were shifted eastward to cross Wetland 8 at its most narrow point.

c. We endorse the consideration of a narrow median to minimize impacts to Wetland 8. It is suggested that the 20-foot median approaching the structure be transitioned to a Jersey median barrier on the structure in order to further minimize wetland encroachment.

d. We note the statement (p. III-2) that Jordan Swamp (Wetland 8) will be bridged with Alternate 6, and we endorse this. However, if SHA were to subsequently decide that bridging is not practicable and request the Corps' concurrence in this determination, we would ask that you first reevaluate your conclusion (p. IV-17) that Alternate 6 in Segment I "will not have a significant impact on the Jordan Swamp flood plain as encroachment will be minimal through the implementation of parallel bridges."

e. We favor the selection of Option 2 or Option 3 for Schlagle/Sub-Station Road unless one of the following can be demonstrated:

(1) Option 2 and Option 3 can be shown to provide unacceptable Levels of Service (LOS) or operational difficulties;

(2) Projected traffic increases on Sub-Station Road warrant a higher type design than is afforded by Option 2 or Option 3;

(3) The selection of Option 4 makes possible the avoidance of the Messiah Lutheran Church; or

(4) The impacts associated with Option 2 or Option 3 make these options not practicable.

f. We recommend selection of Interchange Option A or Option B at the MD 205/US 301 interchange in order to minimize wetland impacts. Although each of these results in LOS F at the existing Mattawoman-Beantown Road/US 301 intersection, we question whether this unacceptable situation might be improved if the Pinefield Road to Sub-Station Road connector were constructed in conjunction with Option A or Option B.

g. The document indicates that the impact to wetland 1 with Interchange Option A or B could be minimized by providing a structural crossing of the wetland. We endorse this consideration of a structural (i.e. bridge) crossing. However, if the SHA were to subsequently decide, and the Corps concur, that a bridge is not practicable, the construction of the ramp embankment would, in our view, not only destroy the wetland under the foot print of the

embankment, but also the portion of the wetland isolated between the mainline and the ramp. It is not clear whether the document's assessment of impacts at Wetland 1 included this worst case scenario.

If you have any questions or need additional information on permits, the point of contact is Mr. Tom Filip, Assistant Chief, Regulatory Branch, Operations Division, at (301) 962-3671.

If you have any questions on this matter, please call me or my action officer, Mr. John Brzezinski, at (301) 962-4997.

Sincerely,

Harold W. Nelson

for James F. Johnson
Chief, Planning Division



PROJECT
DEVELOPMENT
MAY 21 1990

32

William Donald Schaefer
Governor

Maryland Department of Natural Resources

Torrey C. Brown, M.D.
Secretary

Water Resources Administration

Tawes State Office Building
Annapolis, Maryland 21401

Catherine P. Stevenson
Director

March 16, 1990

Mr. Louis H. Ege, Jr., Deputy Director
Office of Planning and Preliminary Engineering
Room 506
State Highway Administration
707 North Calvert Street
Baltimore, Maryland 21202

Dear Mr. Ege:

This correspondence is in response to your request for comments on the environmental assessment for MD. 5 Relocated, U.S. 301 to MD. 301/5 (Contract CH 566-151-571). The Nontidal Wetlands Division has the following comments:

1. p. 1-22 Wetland #8 is described as being the mitigation site for MD. 382 wetland impacts. If the created wetlands are lost due to the proposed project, another mitigation site must be found. We strongly recommend that SHA locate its mitigation sites in areas that will be protected in perpetuity, as required in the Nontidal Wetlands Regulations.
2. The Division recommends Alternative 5 in segment 1 as the preferred design. If SHA believes that this is not acceptable due to the resulting LOS F intersection, the following information should be included in the final document for review:
 - a. Description of how Alt. 5 has caused a LOS intersection;
 - b. Attempts to accommodate and correct the constraints of the intersection.
3. p. III-2 The document states that Alt. 6, segment 1 would not require an interchange. Please clarify if this means that none of the options A/B/C/D would be necessary.

Telephone: 974-3841

DNR TTY for the Deaf: 301-974-3683

4. p. IV-17 The document states that the potential for minor groundwater contamination is high as a result of this project, and that the impacts are expected to be minor due to the filtering ability of adjacent high quality wetlands. The Division is opposed to using nontidal wetlands as a sole source of water quality treatment. Other measures should be required. Also, we believe that the high quality value of the wetlands will be reduced due to the additional road work.
5. If an interchange is required, the Division recommends Option A as it has the lowest wetland impact (.64 acres).
6. The Division recommends that nontidal wetland losses be replaced by crating, restoring or enhancing nontidal wetlands at the following ratios:
- 1:1 • Emergent nontidal wetlands
 - Farmed nontidal wetlands
 - 2:1 • Scrub-shrub and forested nontidal wetlands
 - 2:1 • Emergent nontidal wetlands of special state concern
 - 3:1 • Scrub-shrub and forested nontidal wetlands of special state concern

In fulfilling the mitigation ratios the State Highway Administration should:

- Locate mitigation sites preferably onsite and connected to existing nontidal wetlands, waterways or 100-year flood plains.
- Select mitigation sites on upland sites which have undergone disturbance.
- Monitor the mitigation project for five years.
- Provide for the long-term protection of mitigation projects.

If you have any questions, please contact me.

Sincerely,

Denise Clearwater

Denise Clearwater
Natural Resources Planner
Nontidal Wetlands Division



PROJECT
DEVELOPMENT
OFFICE

FEB 21 3 10 PM '90

34
U.S. Department of Housing and Urban Development
Philadelphia Regional Office, Region III
Liberty Square Building
105 South Seventh Street
Philadelphia, Pennsylvania 19106-3392

MAR 16 1990

Mr. Louis H. Ege, Jr
Deputy Director
Office of Planning and
Preliminary Engineering
Room 506
State Highway Administration
707 North Calvert Street
Baltimore, Maryland 21202

Dear Mr. Ege:

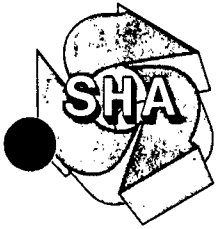
We have received the environmental assessment on contract
No. CH 566-151-571, MD 5 Relocated, US 301 to MD 301/5. We have
no comments on this document.

Very sincerely yours,

Francis X. Healy

Harry W. Staller
Deputy Regional Administrator

for



Maryland Department of Transportation
State Highway Administration

PROJECT
DEVELOPMENT

Richard H. Trainor
Secretary
Hal Kassoff
Administrator

35

MAR 15 1990

March 14, 1990

MEMORANDUM

TO: Mr. Louis H. Ege, Jr.
Deputy Director
Project Planning Division

FROM: John D. Bruck, Chief *JDB/PCW*
Planning and Program
Development Division

SUBJECT: Charles County
MD 5 Relocated - MD 5 to US 301/MD 5
CH 566-151-571
Environmental Assessment

The following comments are offered in response to Mr. Pedersen's January 31st letter concerning the Environmental Assessment for MD 5 Relocated from MD 5 to US 301/MD 5 in Charles County.

1. Page S-2 and elsewhere - It is a goal of the State Highway Administration to have partial or full control of access as part of any improvement on the State Primary Highway System. Although MD 205 is not currently part of our primary system, there is a reasonable chance that it may be once this project is completed. It is also recommended by our office that the six lane typical section includes shoulders to serve as accel/decel areas for any entrances along the highway.
2. Page S-3, Interchange Options, first paragraph - The interchange options may be built at a later date than the mainline alternates.
3. Page I-2, Study Area, first paragraph - MD 205 is also known locally as (not formerly as) Mattawoman-Beantown Road.
4. Page I-9, Land Use - Charles County is currently updating their comprehensive plan. According to their November, 1989 Draft Comprehensive Plan, the proposed land use on the east side of MD 205 is a rural conservation district, with the exception of the Pinefield area which is proposed for a neighborhood conservation district. The west side of MD 205 is proposed for a development district, neighborhood

My telephone number is (301) _____

36

Mr. Louis H. Ege, Jr.

Page Two

conservation district, and business and commercial park districts.

5. Page II-1, Project Background - The referenced Consolidated Transportation Program should be FY 1990-1995, and the Highway Needs Inventory should be 1988.
6. Page II-1, Existing and Projected Traffic Conditions - The current state functional classification of MD 205 is a major collector.
7. Page III-1 and 2 -
 - a) MD 228 - The new relocated highway between MD 228 and MD 210 will be two lanes initially. Construction of MD 228 is programmed to begin in FY 1991. The entire MD 228 project is programmed for construction, not just the section in Charles County.
 - b) MD 5 - An interchange is currently being constructed at MD 223 and interchanges are scheduled to be constructed at Allentown Road and at Manchester Drive in FY 1992. In addition, a study is underway to upgrade access controls and widen MD 5 to a six lane expressway from the US 301 interchange at T.B. to north of I-95.
 - c) MD 210 - The reconstruction of MD 210 to a six lane divided highway from south of Old Fort Road to MD 414 is under construction. It is being supervised by SHA's District 3 Office but it is a major, not a special project. The section from the MD 228 connector to south of Old Fort Road is programmed for construction for a six lane divided highway in FY 1993. A study to upgrade MD 210 to a freeway from south of MD 225 to Livingston Road north of I-95 is also underway.
 - d) The correct spelling of the county road is Billingsley Road.

If you have any questions regarding these comments, please contact Keith Bounds or me. Thank you for the opportunity to review this document.

JDB:gdf

cc: Mr. Neil J. Pedersen
Mr. Jack F. Ross
Mr. Raymond E. Weber
Mr. Keith Bounds



DEPARTMENT OF THE ENVIRONMENT

2500 Broening Highway, Baltimore, Maryland 21224

Area Code 301 • 631-

William Donald Schaefer
Governor

Martin W. Walsh, Jr.
Secretary

March 12, 1990

Mr. Louis H. Ege, Jr., Deputy Director
Office of Planning and Engineering
Maryland State Highway Administration
707 N. Calvert Street
Baltimore, Maryland 21202

RE: Environmental Assessment
Md. Rt. 5 relocation; U. S. 301 to Md. 301/5 in Charles County
Contract No. CH 566-151-571

Dear Mr. Ege:

We are in receipt of the above-referenced document and offer the following comments.

1. The impacted drainage areas, Mattawoman Creek, Zekiah Swamp Run, and Jordan Swamp Run are high quality wetland resources. Avoidance in segment III, alternate 5/6 should be further demonstrated. In addition, Segment I, alternate 6 should be avoided if possible.
2. Mitigation for unavoidable wetland impacts shall be provided by in-kind wetland re-creation at a minimum of 1:1. Stream and riparian habitat restoration may also be required.
3. Areas bound by access ramps should not be used as mitigation areas.
4. All work in State wetlands and waterways is prohibited from March 1 to June 15.

5. All newly constructed impervious areas shall be subject to stormwater management of the first one half inch of runoff in uplands.
6. Naturally occurring State wetlands and waterways shall not be impounded for the purposes of stormwater control or mitigation enhancement.

We hope that this information is helpful and appreciate the opportunity to comment. If you have any questions please contact me at (301) 631-3609.

Sincerely,

Andrew T. Der /TSW

Andrew T. Der
Natural Resources Biologist
Standards & Certifications

cc: Cheryl Smith
James Teitt

ATD:dmt

STATE HIGHWAY ADMINISTRATION

March 2, 1990

PROJECT
DEVELOPMENT
DIVISION

MAR 7 9 48 AM '90

39

M E M O R A N D U M:

TO: Lou H. Ege, Jr.
Deputy Director
Office of Planning & Preliminary
Engineering

Attention: Ms. Cynthia D. Simpson

ESF Freedman

FROM: Earle S. Freedman
Deputy Chief Engineer
Office of Bridge Development

SUBJECT: Contract No. CH 566-251-671
MD Rte. 5 Relocated
Mattawoman/Beantown Rd. (MD 205)
From US 301 to US 301/5
P.D.M.S. No. 082039

RE: FEMA Floodway

Please be advised that the subject project impacts FEMA Detailed Floodplain/Floodway at US 301/5 crossing of Mattawoman Creek (see maps). The Environment Assessment distributed January 31, 1990 did not address the FEMA Detailed Floodplain/Floodway impact.

The cost of the impact analyses should be included in the overall project cost.

Please contact Mr. Charles Okehie X2868 if you have any questions.

ESF/CUO/do
Enclosures

cc: Mr. J. K. Gatley
Mr. F. E. Doerfler
Mr. S. Silva

RM 1

COUNTY BOUNDARY

DOGWOOD DRIVE

ZONE B

ZONE B

ZONE B

STREET

TRURO LANE

TRURO COURT

MATTAWOMAN

BEANTOWN ROAD

PINEFIELD COURT

170

5

301

CONRAIL

ZONE C

SUB-STATION

ZONE B

301

925



COUNTY BOUNDARY

RM 1

ZONE B

ZONE B

DOGWOOD DRIVE

COUNTRY

ZONE B

ZONE B

MATTAWOMAN

BEANTOWN

ROAD

TRURO LANE

TRURO COURT

PINEFIELD COURT

5
301

CONRAIL

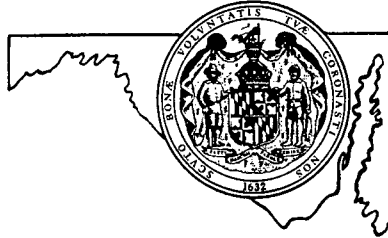
ZONE C

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PEACH COUR

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Maryland

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DEPARTMENT OF THE ENVIRONMENT

2500 Broening Highway, Baltimore, Maryland 21224
Area Code 301 • 631- 3245

William Donald Schaefer
Governor

Martin W. Walsh, Jr.
Secretary

February 21, 1990

Ms. Cynthia D. Simpson, Chief
Environmental Management
Project Development Division
707 North Calvert Street, Room 310
Baltimore, Maryland 21202

RE: Contract No. CH 566-151-571
MD 5 Relocated
US 301 to MD 5
PDMS No. 082039

Dear Ms. Simpson:

I have reviewed the air impact analysis performed for the proposed relocation of Maryland 5 (205) from Maryland Route 5 and US 301/MD 5 and the proposed interchange at US 301/MD 5.

The proposed project is consistent with the Air Management Administration's plans and objectives. Furthermore, adherence with the provisions of COMAR 26.11.06.03D will ensure that impact from the construction phase of this project will be minimal.

Thank you for the opportunity to review this analysis.

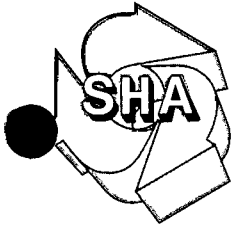
Sincerely,

A handwritten signature in cursive script, appearing to read "Mario E. Jorquera".

Mario E. Jorquera, P.E.
Program Administrator
Air Management Administration

MEJ/sf

42



**Maryland Department of Transportation
State Highway Administration**

43

Richard H. Trainor
Secretary
Hal Kassoff
Administrator

January 31, 1990

Contract No. CH 566-151-571
MD 5 Relocated, US 301 to MD 301/5

ENVIRONMENTAL ASSESSMENT

Transmitted for your review and comment is a copy of the subject document. The document has been prepared in accordance with the CEQ Regulations and 23 CFR 771.

You are requested to provide comments on or before March 12, 1990 to:

Mr. Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering
Room 506
State Highway Administration
707 North Calvert Street
Baltimore, Maryland 21202

All responses will be considered in developing the final document.

Very truly yours,

Neil J. Pedersen

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

NJP:cd

Attachment

cc: Mr. Bob Myers
Mr. Ed Meehan
Mr. Louis H. Ege, Jr.
Ms. Cynthia D. Simpson
Mr. Vic Janata

My telephone number is (301) 333-1110

DISTRIBUTION LIST

Federal Agencies

Mr. Pearlie S. Reed
State Conservationist
Soil Conservation Service
State Department of Agriculture
339 Revell Highway, Suite 301
Annapolis, Maryland 21401

Mr. Jonathan Deason, Director
Office of Environmental Project Review
Room 2340
U.S. Department of the Interior
18th and C Streets, N.W.
Washington, D.C. 20240

U.S. Environmental Protection Agency
Region III
Ms. Diana Fisher, Acting Chief (3ES41)
Federal Agency Compliance Section
841 Chestnut Street
Philadelphia, Pennsylvania 19107

Ms. Margaret A. Kregel
Regional Environmental Officer
Department of Housing and Urban Development
Philadelphia Regional Office, Region III
Liberty Square Building
105 South 7th Street
Philadelphia, Pennsylvania 19106-3392

Commander
U.S. Army Corps of Engineers
P.O. Box 1715
Baltimore, Maryland 21201
ATTN: NABOP-F

Mr. Paul Goirdano
Regional Director
Federal Emergency Management Agency
Liberty Square Building
105 South 7th Street
Philadelphia, Pennsylvania 19106
ATTN: Mr. Walter Pierson

State Agencies

Ms. Kathleen Fay
State Depository Distribution Center
Enoch Pratt Free Library
400 Cathedral Street
Baltimore, Maryland 21201

State Agencies (continued)

Mr. Stan Wong
Water Resources Administration
Department of Natural Resources
Tawes State Office Building
Annapolis, Maryland 21401

Maryland Department of Natural Resources
Tidewater Administration
Power Plant and Environmental Review
Tawes State Office Building, C-2
Annapolis, Maryland 21401
ATTN: Mr. Elder Ghigiarelli

Ms. Jo Ann Watson
Maryland Department of the Environment
Division of Standards and Certification
2500 Broening Highway
Baltimore, Maryland 21224

Local Agencies

Mr. Roy E. Hancock
Director of Charles County Public Works
P.O. Box B
LaPlata, Maryland 20646

Ms. Jacquelyn M. Magness
Charles County Planning Director
P.O. Box B
LaPlata, Maryland 20646

Board of Charles County Commissions
P.O. Box B
Government Building
LaPlata, Maryland 20646

Mr. Tony Rynties
Public Works Road Engineer
P.O. Box B
LaPlata, Maryland 20646

Ms. Michele Anne Hanson
Transportation Coordinator
Tri County Council for Southern Maryland
P.O. Box 1634
Charlotte Hall, Maryland 20622

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Local Agencies (continued)

Maryland State Police
Barrack "H"
Washington Avenue
Waldorf, Maryland 20601

Charles County Fire Department
Company No. 3
Washington Avenue
Waldorf, Maryland 20601

2/5/90

Add to list 47

Mr. Harvey Berlin - new name
Chief, Transportation
Tri-County Council
for Southern Maryland
P.O. Box 1634
Charlotte Hall, MD 20622

Send him copy of
MD 5 Release.

~~E.A.~~ - (put on list for FONSI)

new address: 2/8/90
Charles Co. Fire Department
Company No. 3
A Hwy. Chief Dan Stevens
P.O. Box 392
Washington Ave.
Waldorf, MD 20604

Hold 1-4-90 work copy 48



Maryland Department of Transportation
State Highway Administration

Richard H. Trainor
Secretary
Hal Kassoff
Administrator

Contract No. CH 566-151-571
MD 5 Relocated, US 301 to MD 301/5

ENVIRONMENTAL ASSESSMENT

Transmitted for your review and comment is a copy of the subject document. The document has been prepared in accordance with the CEQ Regulations and 23 CFR 771.

You are requested to provide comments on or before March 12, 1990 to:

Mr. Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering
Room 506
State Highway Administration
707 North Calvert Street
Baltimore, Maryland 21202

All responses will be considered in developing the final document.

Very truly yours,

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

NJP:cd
Attachment
cc: Mr. Bob Myers
Mr. Ed Meehan
Mr. Louis H. Ege, Jr.
Ms. Cynthia D. Simpson
Mr. Vic Janata

My telephone number is (301) 333-1110

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Baltimore, Maryland 21201
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Maryland Department of Natural Resources ✓ 1
Tidewater Administration
Power Plant and Environmental Review
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Annapolis, Maryland 21401
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Ms. Jo Ann Watson ✓ 1
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Waldorf, Maryland 20601

Charles County Fire Department ✓
Company No. 3
Washington Avenue
Waldorf, Maryland 20601

August, 1989

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*Deputy Chief Engineer - Highway Development Robert Douglass Rm 405
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Landscape Architecture Division Charles Adams, Chief Rm 312
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Highway Planning and Program Development Division John Bruck, Chief Rm 211
Relocation Assistance Division John Graver, Chief Rm 602
Acquisition Activities Division Vernon Kral, Chief Rm 616
Federal-Aid Section - Right-of-Way Administration Division Richard Melody, Chief Rm 604
District Chief - Office of Real Estate Susan Bauer, Chief
State Highway Administration Library Service Unit Ruby Weston, Librarian Rm 415
Equal Opportunity Section Angela Hawkins, Chief Rm 409

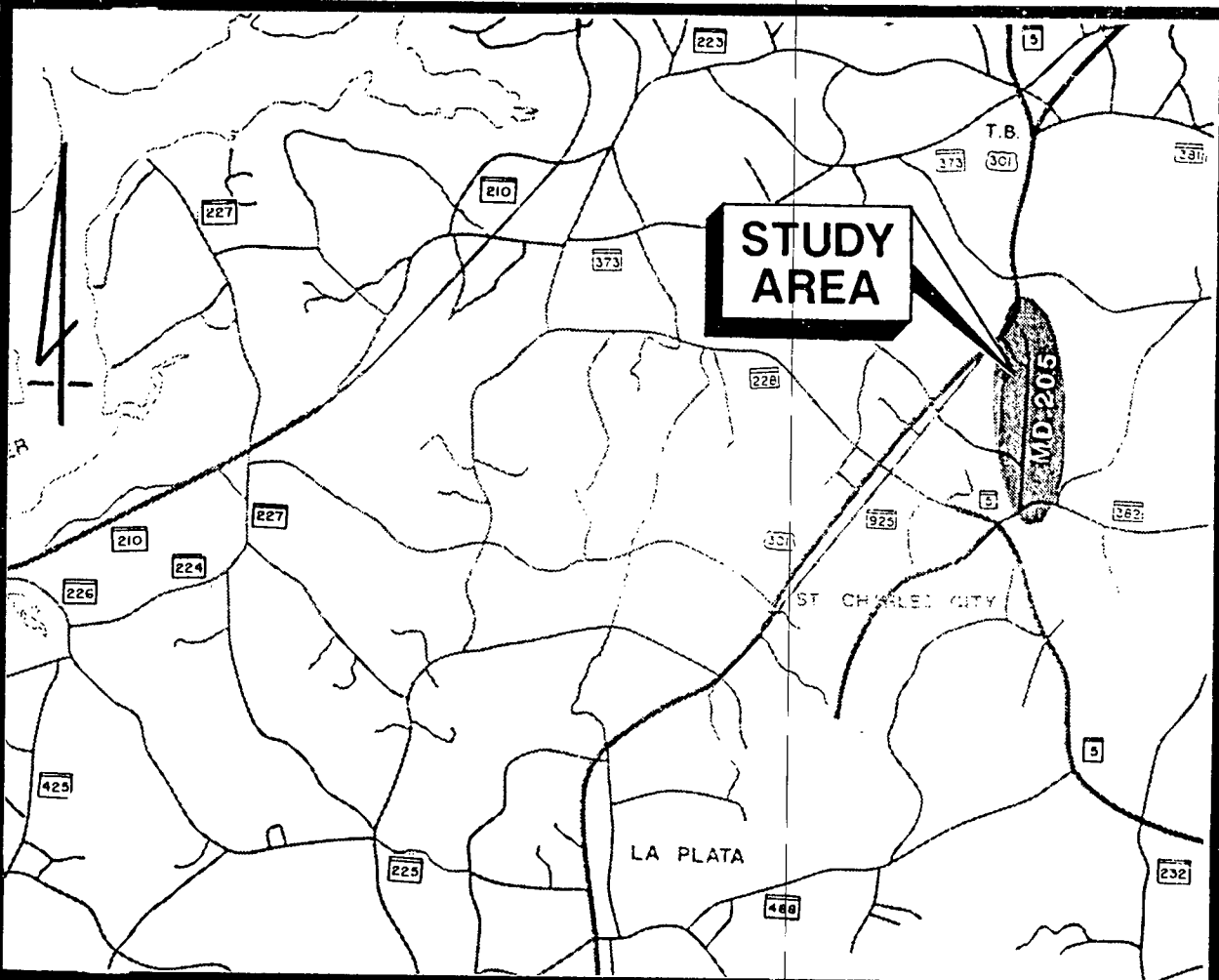
*Cover letter only

ENVIRONMENTAL ASSESSMENT

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Contract No. CH 566-151-571

Proposed MD 5 Relocated (MD 205)
From MD 5 To US 301/MD 5 And The
Interchange At US 301/MD 5
Charles County, Maryland



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

and
MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

Report Number: FHWA-MD-EA-90-01

Federal Highway Administration

Region III

Proposed MD 5 Relocated (MD 205) from
MD 5 to US 301/MD 5 and the
Proposed Interchange at US 301/MD 5
Charles County, Maryland

Administrative Action

Environmental Assessment

U.S. Department of Transportation
Federal Highway Administration

and

State of Maryland
Department of Transportation
State Highway Administration

Submitted pursuant to 42 U.S.C. 4332(2)(C), 23 CFR 771
and CEQ Regulations (40 CFR 1500 et seq.)

Hal Kassoff
Administrator

1/5/90
Date

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

1/19/90
Date

by: Herman Rodrigo
For Federal Highway Administration
Division Administrator

SUMMARY

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SUMMARY

A. Administrative Action

- () Environmental Impact Statement
- (x) Environmental Assessment
- () Section 4(f) Involvement

B. Additional information concerning this project may be obtained by contacting:

Mr. Louis H. Ege, Jr., Deputy Director
 Office of Planning and Preliminary Engineering
 State Highway Administration
 707 N. Calvert Street
 Baltimore, Maryland 21202
 Hours: 8:15 a.m. to 4:15 p.m.
 Phone: 333-1130

Mr. Herman Rodrigo
 Planning, Research, Environment
 and Safety Engineer
 Federal Highway Administration
 The Rotunda - Suite 711
 W. 40th Street
 Baltimore, MD. 21211
 Hours: 7:45a.m. to 4:15p.m.
 Phone: 962-4440

C. Description of Action

The purpose of this study is to increase capacity and improve the safety to Existing MD 205 (Proposed MD 5 Relocated). This roadway is currently being used as a bypass of the congested Waldorf area connecting MD 5 with US 301/MD 5. It links several suburban communities, aides in the transportation of goods and services, and acts as highly important commuter route. The objective of the mainline alternates and interchange options proposed are to alleviate existing congestion and provide for continued safe and efficient operation into the future.

D. Alternates Description

Three (3) mainline alternatives for MD 205 and four (4) interchange options for the intersection of MD 205 with US 301/MD 5 are being considered:

o Alternate 1 (No-Build):

The No-Build Alternate would provide no significant improvement to MD 205. Spot safety and intersection improvements would still occur over time as part of normal highway maintenance and safety operations but no additional capacity would be added.

As traffic volumes continue to grow, traffic delays and the length of the peak hours will expand. Detailed traffic reveals that MD 205 will operate at peak hour level of service (LOS) F in the design year (2015). It can be expected that as the magnitude and derivation of congestion increase over time, the rate of accidents will also increase.

o Mainline Build Alternates

The project has been separated into three segments with interchangeable alternates within each segment. The first segment would begin at MD 5 (at the south) and extends to just south of Trinity Memorial Gardens Cemetery ($\pm 4000'$), the second segment would match with Segment I and extend to just north of Trinity Memorial Gardens Cemetery ($\pm 3000'$), and third segment would match with Segment II and extend to the terminus of MD 205 at the intersection of US 301/MD 5 ($\pm 10,400'$). See Figure I-2.

Segment I begins at MD 5 (at the south) and extends to just south of Trinity Memorial Gardens Cemetery ($\pm 4000'$). Within this segment, there are two alternates. Alternate 5 would follow the basic alignment of existing MD 205. Alternate 6 would be a relocation. A roadway on new location would split from MD 5 approximately 2400' south of the existing MD 5/MD 205 intersection and would match into the basic alignment of MD 205 by the end of the segment. The typical section for both Alternate 5 and 6 would include a 6-lane, divided roadway with an open median of 34'.

Segment II would match with Segment I and would extend to just north of Trinity Memorial Gardens Cemetery ($\pm 3000'$). Within this segment, there would also be two alternates. Alternate 5/6 would widen to the west of the existing roadway and traverse through the cemetery. Alternate 5/6 Modified would widen to the east of the existing roadway. The typical section (for both alternates) would include a transition from the Segment I typical section to a 6-lane, divided roadway with a 20' curbed median.

Segment III would match with Segment II and would extend to the terminus of MD 205 at the intersection of US 301/MD 5 ($\pm 10,400'$). Within the segment, there is one alternate. Alternate 5/6 (preferred) would follow the basic alignment of existing MD 205 with slight shifts to minimize right-of-way impacts. The typical section from Segment II would extend to just south of the railroad tracks. From the railroad tracks to the intersection with US 301/MD 5 a 4-lane, divided roadway with a 20' curbed median. Although this short ($\pm 700'$) 4-lane section would not adequately handle the design year (2015) capacity requirements, it is anticipated that an interchange option would be constructed prior to the need for 6 lanes.

Median openings would be provided at cross roads. A minimum spacing of 750' is required between openings. Sub-Station Road, Indian Lane, and Schlagle Road all tee into MD 205 within 400' of each other. Three options to provide adequate median opening spacings are available. The first option, Relocated Sub-Station Road Option 1, would relocated Sub-Station Road to the north (approximately 850'). A median opening would be placed at Relocated

Sub-Station Road and at Schlagle Road. Option 2 and 3 would each relocated Sub-Station Road to create a 4-way intersection with Schlagle Road. Indian Lane would not have a median opening with any option. A connection between Schlagle Road and the cul-de-sac on Indian Lane could be provided.

o Interchange Options

There are four interchange options for the intersection of MD 205 with US 301/MD 5. The interchange options will be built at a later date than the mainline alternates.

Interchange Option A would provide directional ramps between MD 205 and US 301 to the north. MD 205 would be relocated between the Pinefield Development and the rear of the Pinefield Shopping Center and would interchange with US 301 approximately 800' north of the existing intersection. Interchanging movements would only be provided for US 301 to and from the north via two-lane directional ramps. All traffic destined to and from US 301 to the south would use the existing signalized intersection.

Interchange Option B is very similar to Option A. It would also provide directional ramps between MD 205 and US 301 to the north. This option would differ along southbound US 301. The directional ramp to MD 205 would exist from the median. This would require southbound US 301 to be relocated to the west. The existing signalized intersection would remain, similar to Option A, for southbound US 301 and Western Parkway.

Interchange Option C would provide a flyover ramp from southbound US 301 to MD 205. The flyover ramp would travel behind the Chaney Building and bridge over US 301 at the existing signalized intersection location. This would require northbound MD 205 to be shifted slightly. Additionally, a service road network behind both shopping centers would be provided to replace certain existing access points that would be removed under this option.

Interchange Option D proposes a full movement trumpet interchange. The ramps to and from southbound US 301 would loop behind the Chaney Building. Additional directional ramps would be provided for all movements. A service road network, similar to Option C, would be provided behind both shopping centers.

E. Summary of Impacts

A "Comparison of Impacts" follows. The social and economic environment would generally be improved as a result of increased capacity and safer conditions. In localized areas, access may be changes or hindered. Several displacements of residents and commercial establishments will occur, including one possible displacement of a minority family. There are no 4(f) impacts. The number of displacements will vary dependent on the Alternate selected in each project segment and will range from a minimum of two (2) displacements to a maximum of six (6) displacements. Similarly, the proposed interchanges will produce displacements that vary by Option. A minimum of three (3) to a maximum of six (6) displacements will occur.

There is one area that meets and one area that exceeds the Federal noise abatement criteria. Generally, the alignments were shifted to minimize right-of-way impacts, thereby providing natural attenuation to the project noise levels.

There are no air quality sites that will exceed State or National Ambient Air Quality Standards (S/NAAQS).

No threatened or endangered species are known to be impacted by this project. Impacts to fish and wildlife would be minor with mitigation, as would effects to water quality and wetlands. New pavement would be constructed in floodplain areas under some alternates.

Construction impacts would include noise, dust, sedimentation, access and neighborhood disruption. Mitigation through careful construction timing, revegetation, sediment control, and other measures would minimize both short term and long term impacts. Table S-I summarizes specific impacts.

COMPARISON OF IMPACTS

<u>Analysis Item</u>	<u>No- Build</u>	<u>Seg I Alt 5</u>	<u>Seg I Alt 6</u>	<u>Seg II Alt 5/6</u>	<u>Mod. Seg II Alt 5/6</u>	<u>Seg III Alt 5/6</u>
<u>Economic</u>						
1. Residential Displacements	0	1	0	0	2	2
2. Minorities Relocated	0	0	0	0	0	0
3. Business Displacements	0	0*	0*	0**	1	2***
4. Total Properties Affected	0	8	9	16	15	42
5. Historic Sites Affected	0	0	0	0	0	0
6. Archeological Sites Affected	0	0	0	0	0	0
7. Public Recreational Lands	0	0	0	0	0	0
8. Effect on Residential Access	no	no	yes	no	no	no
9. Consistent w/Land Use Plans	yes	yes	yes	yes	yes	yes

Natural Environment

1. Loss of Woodlands (acres)	0	2	2	2	1	8
2. Effect on Wildlife Population	0	0	0	0	0	0
3. Effect on Endangered Species	0	0	0	0	0	0
4. Stream Crossings	0	1	2	1	1	1
5. Wetland Areas Affected(ac.)	0	.75	2	0	0	1.4
6. 100 yr Floodplain Affect(ac.)	0	1	1	0	0	0
7. Prime Farmland Affected (ac.)	0	0	0	0	0	0
8. Air Quality Impacts (sites exceeding S/NAAQS)	0	0	0	0	0	0
9. Noise Sensitive Areas (NSA's exceeding Federal criteria or experiencing a 10dBA or greater increase	3	0	0	1	2	7

* A barn would be displaced

** A displacement of 1500 grave sites (125 occupied)

*** One displacement would be a church

COMPARISON OF IMPACTS CONT'D

<u>Analysis Item</u>	<u>Reloc. Sub- Station Road OPT 1-2-3</u>	<u>INT OPT A</u>	<u>INT OPT B</u>	<u>INT OPT C</u>	<u>INT OPT D</u>
<u>Economic</u>					
1. Residential Displacements	O-1-1	4	3	0	0
2. Minorities Relocated	0-1-0	0	0	0	0
3. Business Displacements	0-0-0	2	2	3	4
4. Total Properties Affected	4-2-2	18	17	22	19
5. Historic Sites Affected	0-0-0	0	0	0	0
6. Archeological Sites Affected	0-0-0	0	0	0	0
7. Public Recreational Lands	0-0-0	0	0	0	0
8. Effect on Residential Access	yes	no	no	no	no
9. Consistent w/Land Use Plans	yes	yes	yes	yes	yes
<u>Natural Environment</u>					
1. Loss of Woodlands (acres)	2.8.8-.6	1	1	2	2
2. Effect on Wildlife Population	0-0-0	0	0	0	0
3. Effect on Endangered Species	0-0-0	0	0	0	0
4. Stream Crossings	0-0-0	2	3	4	4
5. Wetland Areas Affected (ac.)	.4-0-0	.94	1.1	2.4	2
6. 100 yr Floodplain Affected (ac)	0-0-0	1.5	1.4	1.4	1.9
7. Prime Farmland Affected (ac)	0-0-0	.84	.52	.38	.35
8. Air Quality Impacts (sites exceeding S/NAAQS)	0-0-0	0	0	0	0
9. Noise Sensitive Areas (NSA's exceeding Federal abatement criteria or experiencing a 10dBA or greater increase	0-0-0	0	0	0	0

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The following Environmental Assessment Form is a requirement of the Maryland Environmental Policy Act and Maryland Department of Transportation Order 11.01.06.02. Its use is in keeping with the provisions of 1500.4 (k) and 1506.2 and .06 of the Council of Environmental Quality Regulations, effective July 31, 1979, which recommend that duplication of federal, state, and local procedures be integrated into a single process.

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

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ENVIRONMENTAL ASSESSMENT FORM

	<u>Yes</u>	<u>No</u>	<u>Comments</u>
A. <u>Land Use Considerations</u>			
1. Will the action be within the 100-year floodplain?	<u>x</u>	<u> </u>	<u>Pg. I-18</u>
2. Will the action require a permit for construction or alteration within the 50-year floodplain?	<u> </u>	<u>x</u>	<u> </u>
3. Will the action require a permit for dredging, filling, draining or alteration of a wetland?	<u>x</u>	<u> </u>	<u>Pg. IV-17</u>
4. Will the action require a permit for the construction or operation of facilities for solid waste disposal including dredge and excavation spoil?	<u> </u>	<u>x</u>	<u> </u>
5. Will the action occur on slopes exceeding 15 percent?	<u> </u>	<u>x</u>	<u> </u>
6. Will the action require a grading plan or a sediment control permit?	<u>x</u>	<u> </u>	<u>Pg. IV-12</u>
7. Will the action require a mining permit for deep or surface mining?	<u> </u>	<u>x</u>	<u> </u>
8. Will the action require a permit for drilling a gas or an oil well?	<u> </u>	<u>x</u>	<u> </u>
9. Will the action require a permit for airport construction?	<u> </u>	<u>x</u>	<u> </u>
10. Will the action require a permit for the crossing of the Potomac River by conduits, cables or other like devices?	<u> </u>	<u>x</u>	<u> </u>
11. Will the action affect the use of a public recreation area, park, forest, wildlife, management area, scenic river, or wildland?	<u> </u>	<u>x</u>	<u> </u>

	<u>Yes</u>	<u>No</u>	<u>Comments</u>
12. Will the action affect the use of natural or man-made features that are unique to the county, state or nation?	_____	<u> x </u>	_____
13. Will the action affect the use of an archeological or historical site or structure?	_____	<u> x </u>	<u>Pg. IV-9</u>
B. <u>Water Use Considerations</u>			
14. Will the action require a permit for the change of the course, current, or cross-section of stream or other body of water?	_____	<u> x </u>	_____
15. Will the action require the construction, alteration, or removal of a dam, reservoir, or waterway obstruction?	_____	<u> x </u>	_____
16. Will the action change the overland flow of stormwater or reduce the absorption capacity of the ground?	<u> x </u>	_____	<u>Pg. IV-12 & IV-13</u>
17. Will the action require a permit for drilling of a water well?	_____	<u> x </u>	_____
18. Will the action require a permit for water appropriation?	_____	<u> x </u>	_____
19. Will the action require a permit for the construction and operation of facilities for treatment or distribution of water?	_____	<u> x </u>	_____
20. Will the project require a permit for the construction and operation of facilities for sewage treatment and/or land disposal of liquid waste derivatives?	_____	<u> x </u>	_____
21. Will the action result in any discharge into surface or sub-surface water?	<u> x </u>	_____	<u>Pg. IV-13</u>

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	<u>Yes</u>	<u>No</u>	<u>Comments</u>
22. If so, will the discharge affect ambient water quality parameters and/or require a discharge permit?	_____	<u> x </u>	_____
C. <u>Air Use Considerations</u>			
23. Will the action result in any discharge into the air?	<u> x </u>	_____	<u>Pg. IV-37</u>
24. If so, will the discharge affect ambient air quality parameters or produce a disagreeable odor?	_____	<u> x </u>	<u>Pg. IV-41</u>
25. Will the action generate additional noise which differs in character or level from present conditions?	<u> x </u>	_____	<u>Pg. IV-31 & IV-32</u>
26. Will the action preclude future use of related air space?	_____	<u> x </u>	_____
27. Will the action generate any radiological, electrical, magnetic, or light influences?	_____	<u> x </u>	_____
D. <u>Plants and Animals</u>			
28. Will the action cause the disturbance, reduction, or loss of any rare, unique or valuable plant or animal?	_____	<u> x </u>	<u>Pg. IV-25</u>
29. Will the action result in the significant reduction or loss of any fish or wildlife habitats?	_____	<u> x </u>	_____
30. Will the action require a permit for the use of pesticides, herbicides or other biological, chemical or radiological control agents?	_____	<u> x </u>	_____
E. <u>Socio-Economic</u>			
31. Will the action result in a pre-emption or division of properties or impair their economic use?	<u> x </u>	_____	<u>Pg. IV-1 & IV-2</u>

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	<u>Yes</u>	<u>No</u>	<u>Comments</u>
32. Will the action cause relocation of activities or structures, or result in a change in the population density or distribution?	<u>x</u>	<u> </u>	<u>Pg. IV-3</u>
33. Will the action alter land values?	<u> </u>	<u>x</u>	<u> </u>
34. Will the action affect traffic flow and volume?	<u>x</u>	<u> </u>	<u>Pg. II-1 to II-6</u>
35. Will the action affect the production, extraction, harvest or potential use of a scarce or economically important resource?	<u> </u>	<u>x</u>	<u> </u>
36. Will the action require a license to construct a sawmill or other plant for the manufacture of forest products?	<u> </u>	<u>x</u>	<u> </u>
37. Is the action in accord with federal, state, regional and local comprehensive or functional plans, including zoning?	<u>x</u>	<u> </u>	<u>Pg. IV-8</u>
38. Will the action affect the employment opportunities for persons in the area?	<u>x</u>	<u> </u>	<u>Pg. IV-6</u>
39. Will the action affect the ability of the area to attract new sources of tax revenue?	<u>x</u>	<u> </u>	<u>Pg. IV-6 to IV-8</u>
40. Will the action discourage present sources of tax revenue from remaining in the area, or affirmatively encourage them to relocate elsewhere?	<u> </u>	<u>x</u>	<u> </u>
41. Will the action affect the ability of the area to attract tourism?	<u> </u>	<u>x</u>	<u> </u>
F. <u>Other Considerations</u>			
42. Could the action endanger the public welfare, safety, or welfare?	<u> </u>	<u>x</u>	<u> </u>

	<u>Yes</u>	<u>No</u>	<u>Comments</u>
43. Could the action be eliminated without deleterious effects to the public health, safety, welfare, or the natural environment?	_____	<u> x </u>	<u>Pg. II-1 to II-3</u>
44. Will the action be of statewide significance?	_____	<u> x </u>	_____
45. Are there any other plans or actions (federal, state, county or private) that, in conjunction with the subject action could result in a cumulative or synergistic impact on the public health, safety, welfare or environment?	_____	<u> x </u>	_____
46. Will the action require additional power generation or transmission capacity?	_____	<u> x </u>	_____
47. This agency will develop a complete environmental effects report on the proposed action?	_____	<u> x* </u>	_____

*This environmental assessment has been prepared in accordance with the National Environmental Policy Act and 23 CFR, Part 771. It also satisfies the requirements of the Maryland Environmental Policy Act.

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I. DESCRIPTION OF PROPOSED ACTION

I. DESCRIPTION OF PROPOSED ACTION

A. Project Location

Proposed MD 5 Relocated is located in the north central part of Charles County near Waldorf. The alignment follows along MD 205 (formerly Mattawoman-Beantown Road) from MD 5 (Waldorf-Leonardtown Road) to US 301/MD 5 (Blue Star Memorial Highway). MD 205 is currently being used as a bypass of the congested Waldorf area. Figures I-1 and I-2 depict the project location and the study area, respectively.

B. Project Description

MD 205 is currently a two-lane roadway which extends from MD 5 (Leonardtown Road) to US 301/MD 5. Access is uncontrolled and signalized intersections are located at the northern and southern terminus and at Pinefield Road. A box culvert on relocation was recently constructed over the tributary to the Jordan Swamp. This project proposes to provide a six lane divided roadway. Additionally a future interchange is proposed for the intersection of MD 205 with US 301/MD 5.

C. Existing Environment

1. Social Environment

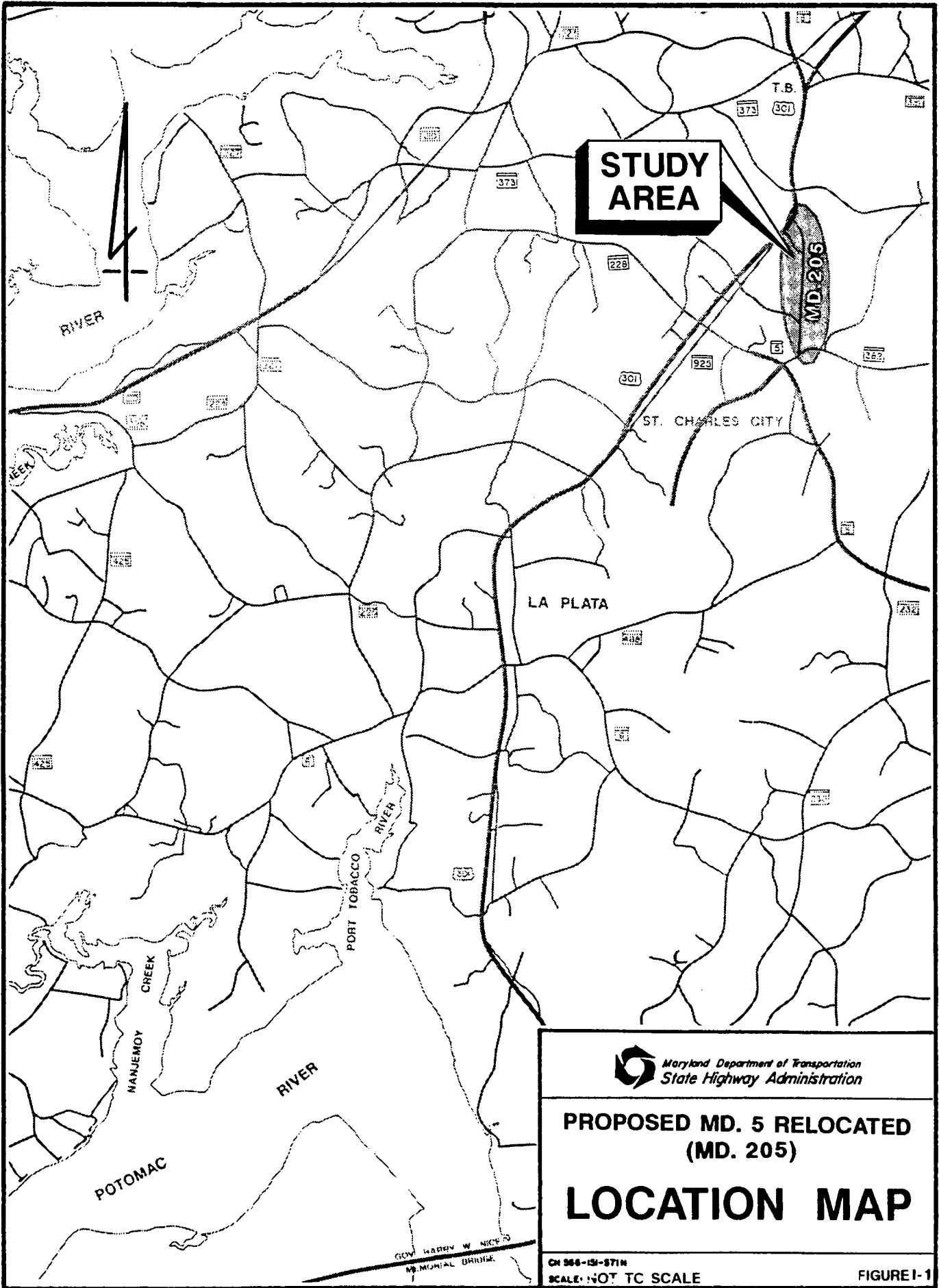
a. Population

Charles County

Charles County is centrally located in southern Maryland and is bordered by Prince George's County to the north, St. Mary's County to the south, the Potomac River to the west and Calvert County to the east. Because of the County's proximity to Washington, D.C., it is grouped in the Washington-Maryland-Virginia Metropolitan Statistical Area (MSA). For the purposes of this report, Charles County is discussed with respect to only the Maryland portion of this MSA. The Maryland portion of the MSA is comprised of the following counties: Calvert, Charles, Frederick, Montgomery and Prince Georges.

Charles is Maryland's eleventh most populated county and in recent years has been the scene of a flourishing economy and tremendous growth. Sizeable increases in the number of new residents, new buildings (residential and non-residential) and household incomes coupled with low unemployment rates has been the trend.

According to the 1988-89 Maryland Statistical Abstract, Charles County's population increased 53 percent from 1970 (47,678) to 1980 (72,751), and is projected for an additional 17.5 percent increase (to 85,470) between 1980 and 1985. This will make it the second fastest growing county in its MSA behind rural Calvert County, which is expected to experience an increase of 21% to 41,480 (1985) from 34,368 (1980). Future projections of population growth for Charles' MSA, prepared by the Department of State Planning (September 1987), show that by the year 2005 the population of Charles County will swell by 51% to 128,700 inhabitants. This growth rate will be second only to Calvert County which is forecasted to grow by 62% to 67,200 by 2005.



**STUDY
AREA**

Maryland Department of Transportation
State Highway Administration

**PROPOSED MD. 5 RELOCATED
(MD. 205)**

LOCATION MAP

CH 366-19-871N
SCALE: NOT TO SCALE

FIGURE I-1

RIVER

T.B.

MD 205

ST. CHARLES CITY

LA PLATA

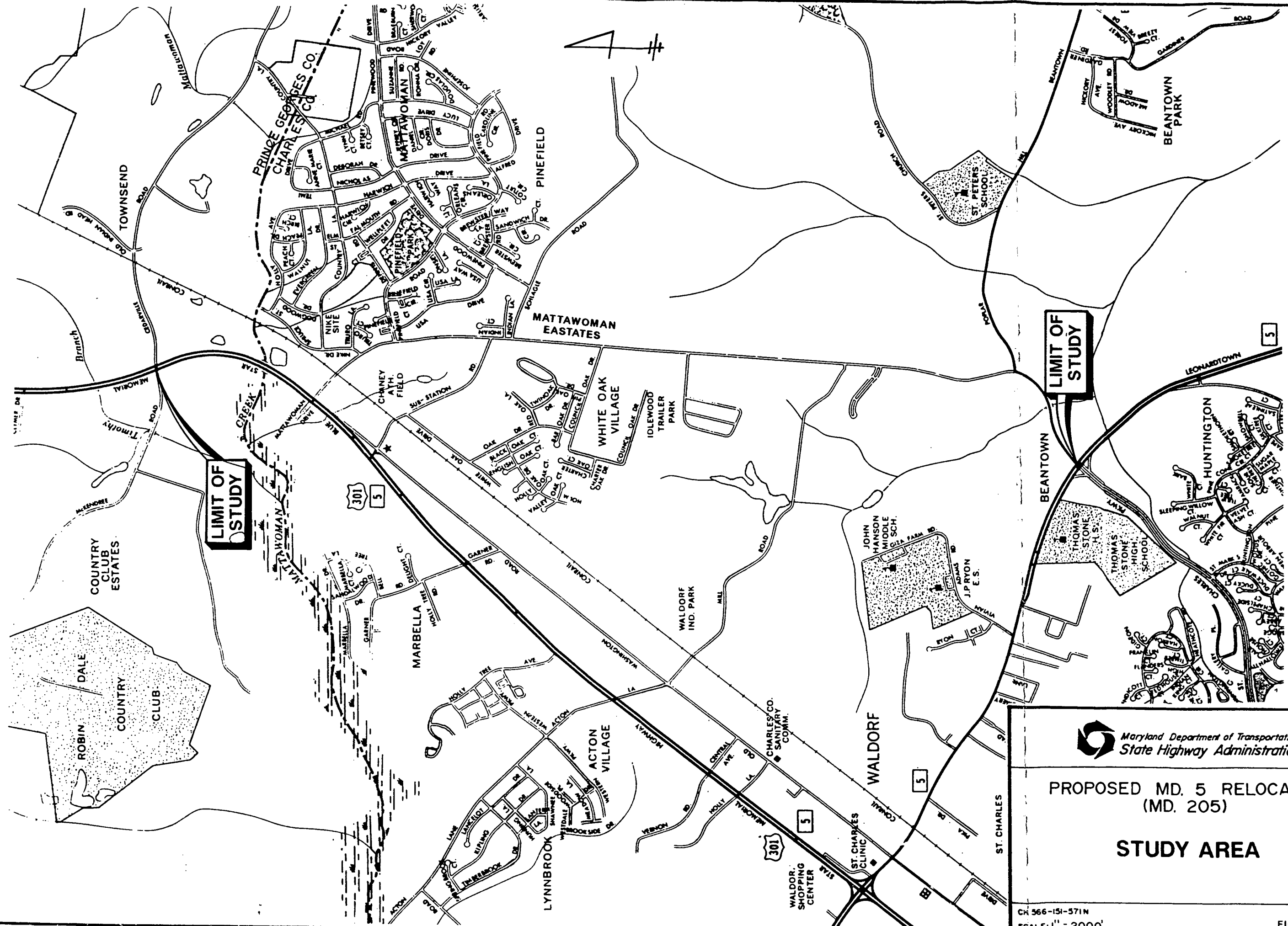
PORT TOBACCO RIVER

MANJEMOY CREEK

RIVER

POTOMAC

GOV. WARREN W. MACPHERSON
MEMORIAL BRIDGE



Maryland Department of Transportation
State Highway Administration

PROPOSED MD. 5 RELOCATED
(MD. 205)

STUDY AREA

CH 366-151-571N
SCALE: 1" = 2000'

Study Area

The study area is located in the north central part of Charles County, Maryland near the County's northern political border with Prince Georges County, Maryland. It centers on MD 205 (formerly Mattawoman-Beantown Road) from its intersection with US 301/MD 5 at its northern terminus to its intersection with MD 5 at its southern end, and is situated within the Census Tract #8508 as shown in Figure I-3.

Data from the 1980 Census shows that the population of this tract (6,812 inhabitants or 9.4% of the County's total) is relatively young with a large available labor force. Population projections for 1985 and beyond for Census Tract # 8508 are not available. However; the number of inhabitants in the County is expected to grow tremendously. Therefore, it is anticipated that a population increase commensurate with developable land and zoning will occur in the future in this census test.

The majority of the population in Tract #8508 is comprised of individuals between the ages of 20 and 44. These figures are reflective of Charles County as a whole and indicate a thriving population, both now and in the years to come.

b. Ethnic Characteristics

Data collected from the 1980 Census reveals that the Census tract has a predominantly white population with blacks being the largest of the minority groups. The composition of the tracts population is 88% white, 10% black and 2% other minorities. However, there are no known concentrations of minorities, elderly or handicapped individual within the study area.

c. Neighborhoods

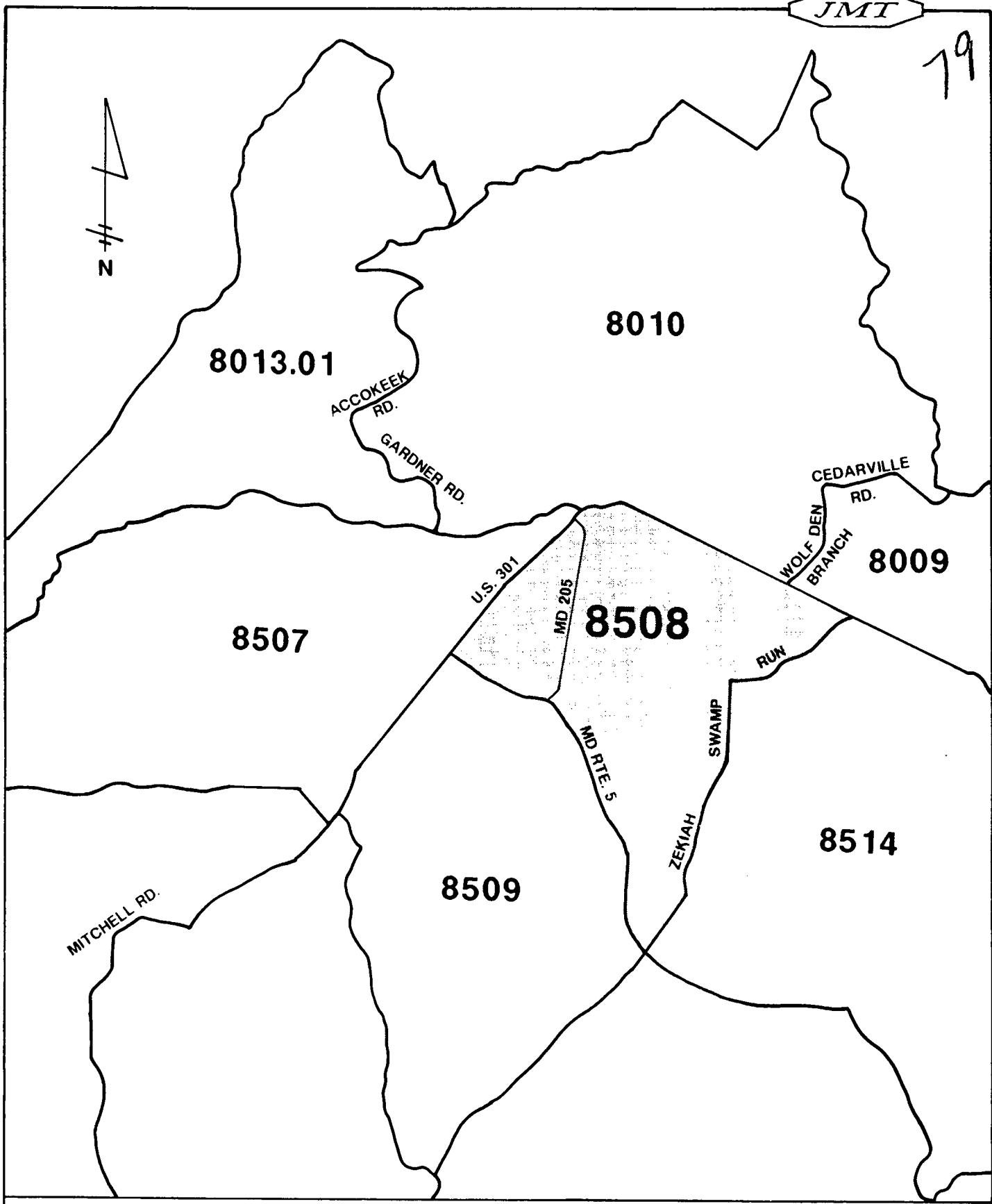
There are four neighborhoods within the study area: Pinefield, Mattawoman Estates, White Oak Village, and Idlewood Trailer Park. The planned town of St. Charles although not in the study area, is contiguous and located to the south.

Pinefield is the largest neighborhood within the tract and is located on the northeast side of MD 205 near its intersection with US 301. White Oak Village is slightly south of Pinefield on the west side of MD 205, just south of Sub-Station Road. In between these two neighborhoods on the east side is Mattawoman Estates. These three neighborhoods are comprised of single family detached homes. Idlewood Trailer Park is located south of White Oak Village on the west side of MD 205, near the Waldorf Industrial Park. St. Charles is a large development in close proximity to the study area with a combination of apartments, townhomes, and single family detached homes with multiple community centers.

d. Community Facilities and Services

Education

The location of facilities and services in or nearby the study area described below are depicted on Figure I-4.



STUDY AREA CENSUS TRACT

SCALE: 1"=2.6 MILES

FIGURE I-3

There are three public schools which are located in the immediate vicinity of the study area: J.P. Ryon Elementary, John Hanson Middle and Thomas Stone High. J.P. Ryon and John Hanson are adjacent to each other near the southwestern portion of the study area below Charles County Sand and Gravel mining operations, and north of MD 5. Thomas Stone, also found in the southwestern portion, is on the southern side of MD 5 and closer to the intersection of MD 5 and St. Charles Parkway.

Although no parochial schools are within the study area, one school, St. Peter's, is located nearby to the southeast of the study area. St. Peter's, which is situated in the northeastern quadrant of the intersection of St. Peter's Church Road and Poplar Hill Road (formally MD 382) is a primary and secondary Catholic school.

There are several pre-school centers in the Waldorf area. The Happy Faces Early Learning Center is located in the study area opposite the Pinefield development close to the crossing of MD 205 with the Conrail Railroad tracks. A second center, ABC Child Care, Inc., is in the immediate vicinity to the southwest near J.P. Ryon and John Hanson.

Emergency Facilities

Emergency facilities and services for the study area include the Charles County Sheriff's Department, the MD State Police ("Barrack H"), and the Waldorf Volunteer Fire Company. Of these, only the State Police Barrack is located within the study area at the intersection of Old Washington Road and Sub-Station Road.

Churches

There are two churches directly within the study area: Messiah Lutheran and Trinity Baptist. The Messiah Lutheran Church is positioned along MD 205 on the west side, just north of the intersection of MD 205 and Sub-Station Road. The Trinity Baptist Church is just south of White Oak Village on the western side of MD 205 near the intersection of Council Oak Drive.

Cemeteries

There are two cemeteries within the study area, The Hunt Cemetery and Trinity Memorial Gardens Cemetery. Hunt Cemetery, which is relatively small, is located near the intersection of MD 205 and US 301/MD 5 behind and accessed by the Dash-In/Pinefield Liquors parking lot. Trinity Memorial Gardens Cemetery, which is a much larger facility and not yet fully occupied, is situated on the west side of MD 205 in the southern portion of the study area just south of the intersection of Mill Road and MD 205.

Health Care

There are no hospitals or health care facilities directly in the study area. However, throughout the County, the Charles County Health Department provides a wide range of services such as Allied Nursing, Mental Health, Alcohol Control, Drug Abuse, Environmental Health, and a County operated nursing home located in LaPlata. In addition, if residents of the study area are in need of hospital facilities, Physicians Memorial in LaPlata would be the closest to their residences. Another option would be

the Southern Maryland Hospital Center in Clinton, Maryland, which is a semi-regional hospital in southern Prince Georges County.

Parks and Recreation Facilities

There are no Federal, State or County operated parks within the project area. However, in the immediate vicinity there is the Pinefield Community Park. Positioned near the center of the community, this park is owned and operated by Charles County and provides a variety of recreational activities including a football/soccer field, two softball fields, a tot lot, picnic areas and a general purpose pavilion. Nearby the study area and east of the Pinefield subdivision is the Cedarville State Forest. This State run facility which straddles Charles County and Prince Georges County provides for the following activities: camping, hunting, fishing, hiking and picnicking.

Additional recreational areas include the Chaney Ball fields and the facilities that exist at the public schools previously mentioned. The John Hanson, J.P. Ryon and Thomas Stone schools offer recreational facilities such as baseball fields, basketball courts and tennis courts. In addition, the County Department of Recreation operates a public pool during the summer at Thomas Stone. The Chaney Ball fields area, which is in the northwestern portion of the study area, is a privately owned tract of land (Waldorf Restaurant, Inc.) that is west of MD 205 and accessed by Sub-Station Road near the intersection of White Oak Drive. This area provides seven softball/baseball fields that are used by various age groups and local leagues. Currently, approved use of this facility runs through summer 1989 only. Impacts to this area would not be considered a 4(f) impact.

Libraries

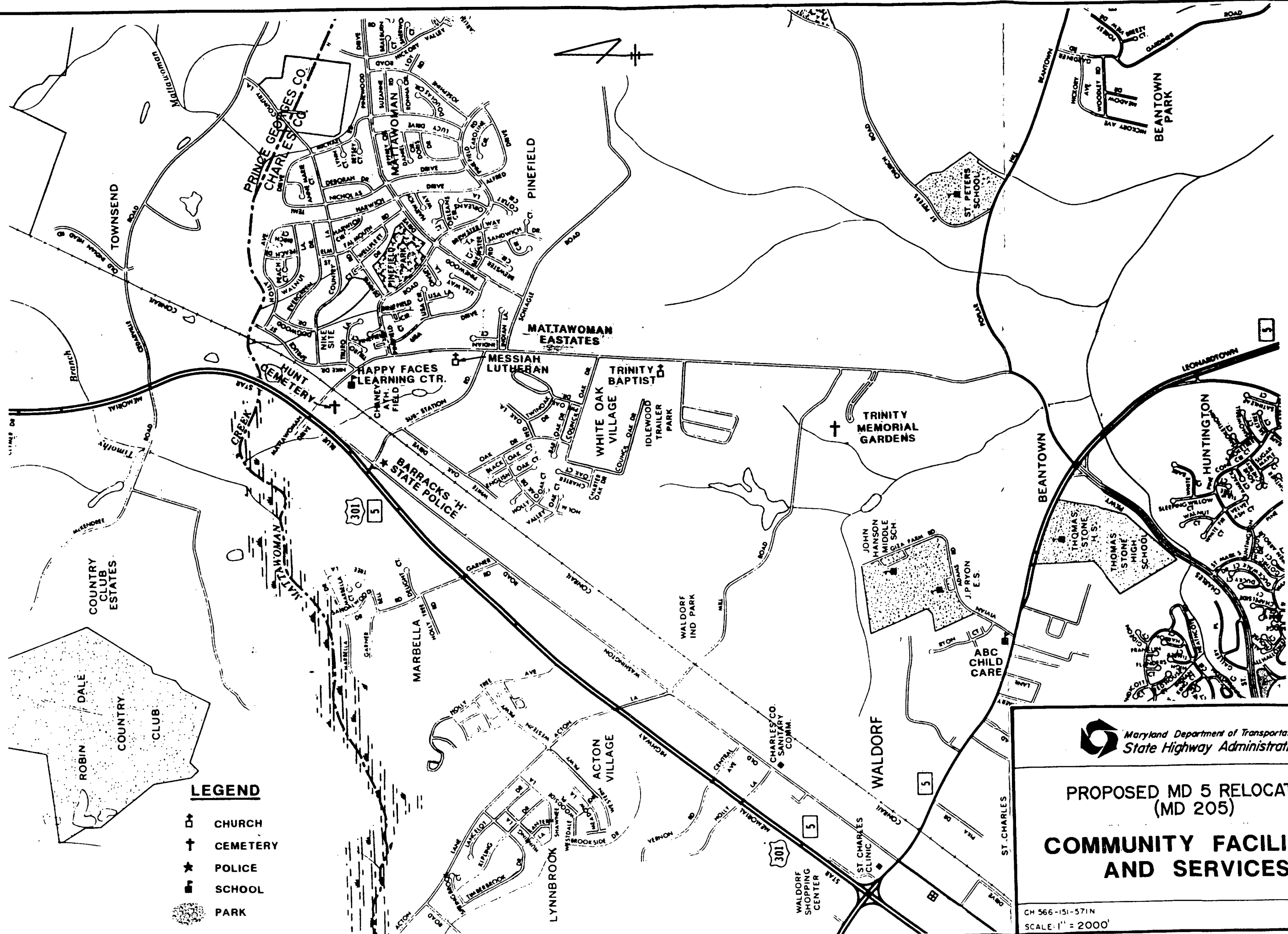
There are no libraries in the study area. However, there is a branch of the Charles County Public Library in St. Charles.

2. Economic Environment

a. Employment Characteristics

Charles County

According to Maryland Department of Economic Development (MDED) 88-89 Statistical Abstract, Charles County in 1986 had a total available labor force of 41,780 persons, of which 40,609 were actually employed, reflecting only 2.8% unemployment for that year. In comparison to the other four counties in its MSA, Charles County ranked second to the lowest behind Montgomery County (2.3%) for unemployment rates, and was 1.7% lower than the State's average of 4.5%. In addition, the County labor force in 1985 was 66.7% privately employed and 33.3% employed by the government (Federal, State, and Local, combined).



LEGEND

- ⊕ CHURCH
- † CEMETERY
- ★ POLICE
- 🏫 SCHOOL
- 🌳 PARK

 Maryland Department of Transportation
State Highway Administration

PROPOSED MD 5 RELOCATED
(MD 205)

**COMMUNITY FACILITIES
AND SERVICES**

CH 566-151-571N
SCALE: 1" = 2000'

FIGURE I-4

Within the private sector, the three largest areas of employment were wholesale and retail (29.2%), miscellaneous services (15.5%) and construction (10.8%). According to the Charles County Economic Development Commission's Economic Analysis, the three fastest growing sectors of private employment from 1970 to 1984 were Finance, Insurance and Real Estate (+163.9%), Retail Trade (+134.6%) and Services (+84.1%).

The average gross household income for the County in 1985, according to MDED was \$39,390, second in its MSA behind Montgomery County, which averaged \$53,522 per household.

Study Area

Data from the 1980 U.S. Census reveals that Census tract #8508 had a total of 3,101 persons employed and 136 or 4.2% unemployed. Fifty-nine percent of those employed work for private industry and the remaining 41% work in the public sector. In addition, the largest area of those privately employed were "technical, sales and administrative support services" comprising 40.3% of the total. A breakdown for those publicly employed was not available on the census tract level.

The 1980 Census also shows that the average gross household income for the study area tract (\$30,126) surpassed that of the County (\$25,253) by 19.3%, and that the majority of the households earnings fell in the \$25,000 to \$35,000 range.

Families in the Census tract that were recorded as living at or below the federal poverty level in 1980 represented 46 of 1,807 families or 2.5% of the total. This percentage is notably lower than the County's total of 6.2% of the families.

According to 1960, 1970 and 1980 U.S. Census data, the percentage of workers who live in the County but work outside its borders has increased from 22.5% in 1960 to 41.0% in 1970 to 54.0% in 1980; a 31.5% increase since 1960. The predominant migratory pattern of County residents has been to the north, to Washington, D.C. and Prince Georges County. See Table 1 for a partial breakdown of the destinations of the County's commuters.

The Conrail tracks cross MD 205 in the northern segment near the intersection of US 301/MD 5. There is no economic benefit to the study area, as Conrail does not have any stops within the study area.

b. Commercial and Industrial Facilities

Commercial and industrial facilities within the study area are primarily located at the northern end at the intersection of US 301/MD 5 and north of the Conrail tracks. These facilities include fast food, general retail, automotive and a variety of other services. Additional facilities also exist within the study area at the south-central portion. Figure I-5 depicts the existing land use of the study area, and Table 2 provides a complete list of its commercial and industrial facilities.

TABLE 1

DESTINATION OF COMMUTERS

RESIDENCE	CHARLES	CALVERT	ST. MARY'S	WASHING- TON, DC	PRINCE GEORGES	MONT- GOMERY	STATE OF VIRGINIA
CHARLES	13,557 (48%)	173 (1%)	--	6,321 (22%)	6,063 (21%)	574 (2%)	1,710 (6%)
CALVERT	307 (3%)	5,651 (47%)	296 (2%)	1,574 (13%)	3,471 (29%)	515 (4%)	265 (2%)
ST. MARYS	1,274 (6%)	407 (2%)	18,491 (81%)	1,103 (5%)	1,181 (5%)	105 (<1%)	249 (1%)
PRINCE GEORGES	1,935 (1%)	186 (<1%)	--	119,388 (40%)	131,876 (44%)	27,532 (9%)	19,698 (6%)

Source: Maryland Statistical Abstract 1988-89.
Department of Economic and Employment Development.

TABLE 2

COMMERCIAL AND INDUSTRIAL FACILITIES

Northeast quadrant of MD 205 and US 301:

Chaney Building

Northwest quadrant of MD 205 and US 301:

Exxon	Waldorf Motel
McDonald's	Waldorf Apartments
Embassy Dairy	Jones Auto
Quality Spas	Philadelphia House Deli
Sammy's Auto Repair	Diamond Apartments
Chevron	Diamond Club

Southeast quadrant of MD 205 and US 301:

Wendy's	Oak Tree II
Quick Shop	Cap City
Pinefield Center	

Southwest quadrant of MD 205 and US 301:

Hardee's	Dash-In
Pinefield Liquors	Pinefield South Shopping Center
Hunt Cemetery	Lawn Mower Sales & Services

Southwest quadrant of MD 205 and Conrail:

Happy Faces Learning Center

Northwest quadrant of Sub-Station Road and MD 925:

Dunkin Donuts

Southeast quadrant of Sub-Station Road and MD 925:

United Bank

Southwest quadrant of Sub-Station Road and MD 925:

State Police

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3. Land Use

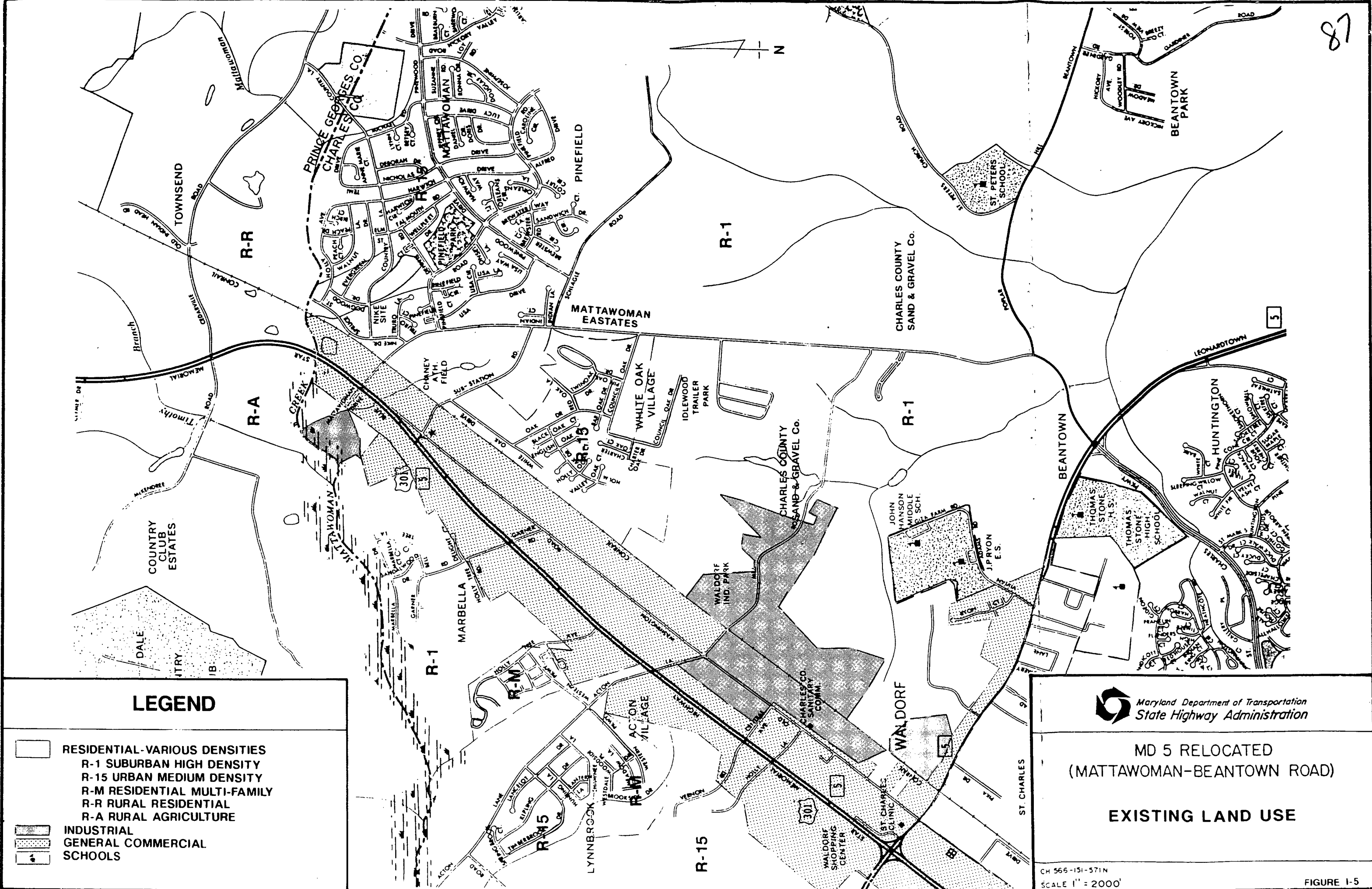
a. Existing Land Use

Figure I-5 depicts the general land use of the study area. The primary land use in the study area consists of residential and commercial uses. Residential development, the dominant of the two, occurs all along MD 205 in varying densities.

In general, the northern half of the study area (Idlewood Trailer Park to the Conrail Tracks) is densely developed with the neighborhoods previously mentioned in Section I(C). The remaining southern half is typically individual lots with single family detached homes with direct access off of MD 205. Some agricultural activity takes place in the southern portion near the intersection of MD 205 and Poplar Hill - Beantown Road. These operations are relatively small and isolated on the eastern and western sides of MD 205.

The commercial uses in the study area are predominantly found at the intersection of MD 205 and US 301/MD 5. Charles County has a well defined zone of commercial concerns through this area and to the south all based on US 301 as a corridor. To the east of US 301, the zones limits are the Conrail Tracks, and to the west the limits vary by development.

There are some industrial operations in and nearby the study area. The only operation in the study area is Embassy Dairy on the west side of the US 301/MD 205 intersection. Other industrial activities in the vicinity of the study area consist of mining by the Charles County Sand and Gravel Co. on the east and west sides of MD 205 near Mill Road, and an industrial park (Waldorf South) just east of the intersection of Conrail and Mill Road.



LEGEND

- RESIDENTIAL-VARIOUS DENSITIES
 - R-1 SUBURBAN HIGH DENSITY
 - R-15 URBAN MEDIUM DENSITY
 - R-M RESIDENTIAL MULTI-FAMILY
 - R-R RURAL RESIDENTIAL
 - R-A RURAL AGRICULTURE
- INDUSTRIAL
- GENERAL COMMERCIAL
- SCHOOLS

Maryland Department of Transportation
State Highway Administration

MD 5 RELOCATED
(MATTAWOMAN-BEANTOWN ROAD)

EXISTING LAND USE

CH 565-151-571N
SCALE 1" = 2000'

b. Future Land Use

Figure I-6 depicts the future land use of the study area.

Charles County has recently developed a Comprehensive Land Use Plan that is intended to direct the growth and development of the County through 2010. Correspondence with the County's planning staff has revealed that this is the County's first Comprehensive Plan and that it has incorporated and supersedes the County's 1974 General Plan. Therefore, information relative to the future land use of the study area is derived from the County's Comprehensive Land Use Plan.








According to this plan the study area is almost entirely located within an umbrella sector known as "Metro Form". The purpose of the "Metro Form" designation is to outline areas whose functionality will parallel that of a metropolitan setting. The "Metro Form" area is characterized by a variety of development oriented districts that appears to be an effort to accommodate and consolidate increasing growth to specific areas in the county.


Within the "Metro Form" specific land use designations as shown on the Comprehensive Plan depicts the majority of the study area south of Sub-Station Road as "Development Districts". Other designations in the study area are "Neighborhood Conservation Districts" and "Business/Commercial Park Districts" which basically affect only Pinefield, Mattawoman Estates and White Oak Village. The "Business/Commercial Districts" are located adjacent to Pinefield and spread to the west to Sub-Station Road, and in the northwestern quadrant of the MD 205/MD 5 intersection.

4. Historical/Archeological Sites

Although Charles County is part of historic Southern Maryland and has a rich history as a county, there are no historic structures within the study area as verified by correspondence with the Maryland Historical Trust (see Comments and Coordination section page V-5). Although the Maryland Geological Survey (MGS) Division of Archeology, stated that the study area had a high potential for prehistoric archeological sites and moderate historic resource potential, a Phase I survey indicated that no prehistoric archeological sites were impacted in the project area. The Maryland Historic Trust concurs that the proposed project will have no effect upon significant archeological resources (see Comments and Coordination section page V-6). A copy of the Executive Summary for the Phase I survey is included in the Appendix B page VIII-1.

LEGEND

-  BUSINESS/INDUSTRIAL PARK DISTRICT
-  NEIGHBORHOOD CONSERVATION DISTRICT
-  BUSINESS/COMMERCIAL PARK DISTRICT
-  RESIDENTIAL DEVELOPMENT ENVELOPE
-  TOWN CENTER
-  DEVELOPMENT DISTRICT
-  METRO FORM

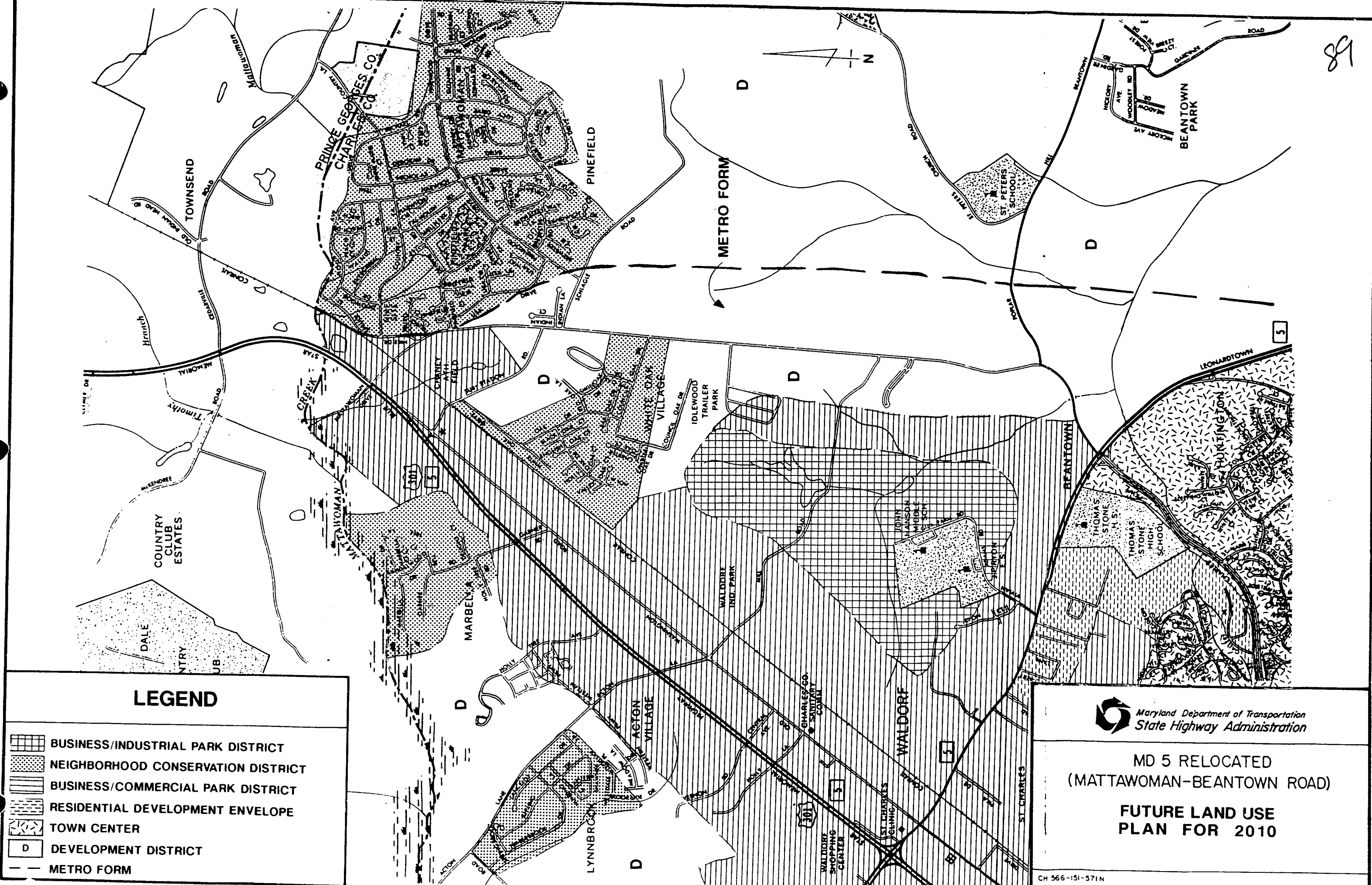

 Maryland Department of Transportation
 State Highway Administration

MD 5 RELOCATED
(MATTAWOMAN-BEANTOWN ROAD)

FUTURE LAND USE
PLAN FOR 2010

CH 566-151-571N
 SCALE: 1" = 2000'

FIGURE I-6



5. Natural Environment

a. Physiography/Topography, Geology, Soils

The study area is located in northeastern Charles County on the Western Shore of the Chesapeake Bay in the Coastal Plain Physiographic Province. The Western Shore is relatively low in elevation ranging from approximately 150 feet at the southern end of the study area to 200 feet towards the northern end of the area. The terrain in the study area is generally flat with a gentle slope of 0-2 percent except towards the southern end where slopes can reach 15 percent in the vicinity of streams.

The underlying rocks in the higher elevations of the Coastal Plain in Charles County are composed of easily eroded clays, sands, and gravels extensively dissected by the Potomac River and its tributaries, as well as other streams. The study area is mostly of the Upland Deposits Formation which consists of unconsolidated gravel, sand and silt deposits with a thickness of 0 to 50 feet. This formation is of the Cenozoic era; however, there is a discrepancy among geologists as to whether it is within the Miocene epoch in the Tertiary period or the Pliocene epoch within the Quaternary period. In addition, the southern end of the study area is underlain by the Calvert Formation. This formation was created from the first sediments deposited into the sea in the Miocene epoch when the eastern portion of Maryland was under water. The rocks are unconsolidated, ranging from medium to fine sands to materials largely in the clay size. Distance to bedrock in the study area is approximately 1,500 feet.

Mineral resources in Charles County are of comparatively little value. There are sands, clays, gravels, marls and diatomaceous earth that are available for mining. Charles County Sand and Gravel Company currently mines within the study area. However, due to the distance to major urban areas, mine yields are used locally for the most part.

Information concerning the soils in the County and study area was derived from the U.S. Department of Agriculture Soil Conservation Services (SCS), Soil Survey of Charles County 1972. The soils in the study area are diverse and fall under two (2) major associations, the Beltsville-Evesboro-Sassafras and the Leonardtown-Beltsville. The Beltsville-Evesboro-Sassafras soils range from moderately to excessively drained loamy and sandy soils, some of which are only moderately deep to a hard, dense fragipan with a level to moderate slope. The second association in the study area is the Leonardtown-Beltsville Association, which has a level to gentle slope and loamy soils which range from poorly drained to moderately well drained, with a hard fragipan at a moderate depth.

The soil associations are named for the major soils present in them although inclusions of minor soils are also present. Table 3 shows the various soil types that are present in the study area. The Soil Survey for Charles County, generally rated soils as fair to poor for highway construction. Table 4 describes each soil type and some of its principle features. Limitations include: a perched water table at or near the surface, high potential frost action and seepage problems for the Beltsville, the Bourne, and the Leonardtown Series; a seasonal high water table at a depth of 1-1/2 to 2-1/2 feet below the surface with a high potential for frost action for the Bibb, the Matawan, the Elkton, and the Woodstown series. Within the dominant Beltsville-Evesboro-Sassafras Association, the Beltsville soils have severe limitations for effluent disposal from septic systems, but have only moderate limitations for other non-farm uses. The Evesboro and Sassafras soils have limitations due to slopes, but none for foundations and basements due to soil wetness and few limitations for sewage disposal. However, because it is characteristic of these soils to be excessively drained, the potential for the contamination of groundwater is high. The Leonardtown-Beltsville Association also has moderate to severe limitations for non-farm usage. These soils are seldom cultivated but are suited to selective crops. Figure I-7 depicts these soils groups as they relate to the study area.

A preliminary assessment of the study area corridor indicates the presence of prime farmland and soils of statewide importance in both Charles and Prince George's County. When these soils are zoned for agriculture and are in agricultural use, any land use change must be coordinated with the U.S. Soil Conservation Service (SCS) by completing a Farmland Conversion Impact Rating, Form AD 1006. The necessary coordination has been completed with the SCS in both Charles and Prince George's Counties, and are attached in Appendix C. There is no impact to any prime farmland soils in Charles County.

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TABLE 3

STUDY AREA SOILS

<u>SOIL SERIES</u>	<u>SCS SYMBOL</u>
Aura	AuC2, AuD2, AuD3
Beltsville	B1A, B1B2, B1C2, B1C3
Bourne	BrB2
Bibb	Bo
Croom	CrB2
Elkton	Ek
Evesboro	EvB
Galestown	GaB
Gravel and Borrow Pits	Gp
Leonardtwn	Le
Matawan	Ms
Ochlockonee	OhA
Rumford	RdB2, RdC2, RgB2
Sandy Land	SaE
Sassafras	Sha, SgB2, SgC2
Wickham	WkC2, WmC3
Woodstown	WoA, WoB2

Source: U.S. Department of Agriculture, Soil Conservation Service (SCS) Soil
Survey for Charles County 1974, and Prince Georges County 1967

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TABLE 4
 DESCRIPTIONS OF SOILS

<u>SYMBOL</u>	<u>NAME</u>
AuC2	Aura gravelly sandy loam, 5 to 10 percent slopes, moderately eroded
AuD2	Aura gravelly sandy loam, 10 to 15 percent slopes, moderately eroded
AuD3	Aura gravelly sandy loam, 5 to 15 percent slopes, severely eroded
B1A	Beltsville silt loam, 0 to 2 percent slopes
B1B2	Beltsville silt loam, 2 to 5 percent slopes, moderately eroded
B1C2	Beltsville silt loam, 5 to 10 percent slopes, moderately eroded
B1C3	Beltsville silt loam, 5 to 10 percent slopes, severely eroded
Bo	Bibb silt loam
BrB2	Bourne sandy loam, 2 to 5 percent slopes, moderately eroded
CrB2	Croom gravelly loam, 3 to 8 percent slopes, moderately eroded
EvB	Evesboro loamy sand, 0 to 8 percent slopes
GaB	Galestown loamy sand, 0 to 8 percent slopes.
Le	Leonardtown silt loam
Ms	Matawan loamy sand
OhA	Ochlockonee silt loam, local alluvium, 0 to 2 percent slopes
RdB2	Rumford loamy sand, 0 to 5 percent slopes, moderately eroded
RdC2	Rumford loamy sand, 5 to 10 percent slopes, moderately eroded
RgB2	Rumford gravelly sandy loam, 0 to 5 percent slopes, moderately eroded
SaE	Sandy land, steep
ShA	Sassafras sandy loam, 0 to 2 percent slopes
SgB2	Sassafras gravelly sandy loam, 2 to 5 percent slopes, moderately eroded
SgC2	Sassafras gravelly sandy loam, 5 to 10 percent slopes moderately eroded

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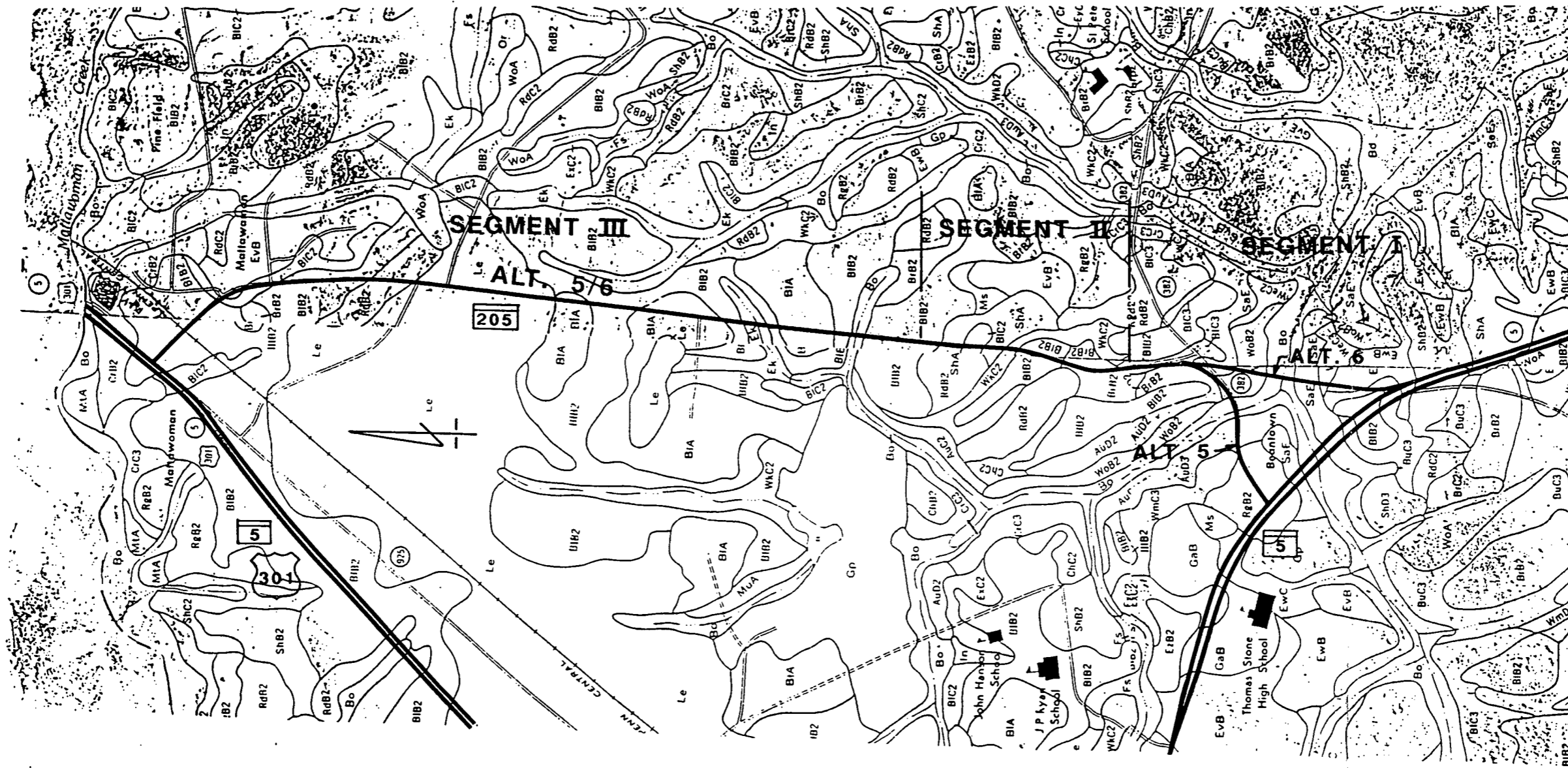
TABLE 4 CONT'D
DESCRIPTIONS OF SOILS

<u>SYMBOL</u>	<u>NAME</u>
WkC2	Wickham fine sandy loam, 2 to 5 percent slopes, moderately eroded
WmC3	Wickham sandy clay loam, 5 to 10 percent slopes, severely eroded
WoA	Woodstown sandy loam, 0 to 2 percent slopes
WoB2*	Woodstown sandy loam, 2 to 5 percent slopes, moderately eroded

*Denotes prime farmland soils

Soil Legend

The first capital letter is the initial one of the soil name. A second capital letter, A, B, C, D, or E, shows the slope. Most symbols without a slope letter are those of nearly level soils but some are for land types have a considerable range of slope. A final number, 2 or 3, in the symbol shows that the soil is moderately eroded or severely eroded.



LEGEND

The first capital letter is the initial one of the soil name. A second capital letter, A, B, C, D, or E, shows the slope. Most symbols without a slope letter are those of nearly level soils but some are for land types have a considerable range of slope. A final number, 2 or 3, in the symbol shows that the soil is moderately eroded or severely eroded.

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MD 5 RELOCATED
(MATTAWOMAN-BEANTOWN ROAD)

STUDY AREA SOILS

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b. Water Resources

Surface Water

The majority of the MD 205 study area is situated within the Zekiah Swamp Run drainage basin. The northern boundary of the basin crosses MD 205 at its intersection with Schlagle Road and includes the entire study area to the south of this line. The remaining portion of the study area is within the Mattawoman Creek drainage basin. Both basins drain into the Potomac River; Mattawoman Creek drains directly flowing in a westward direction, and the Zekiah indirectly flowing southwestward via Allens Fresh Run and the Wicomico River. Figure I-8 depicts the drainage basin boundaries of Mattawoman Creek and the Zekiah Swamp in the study area.

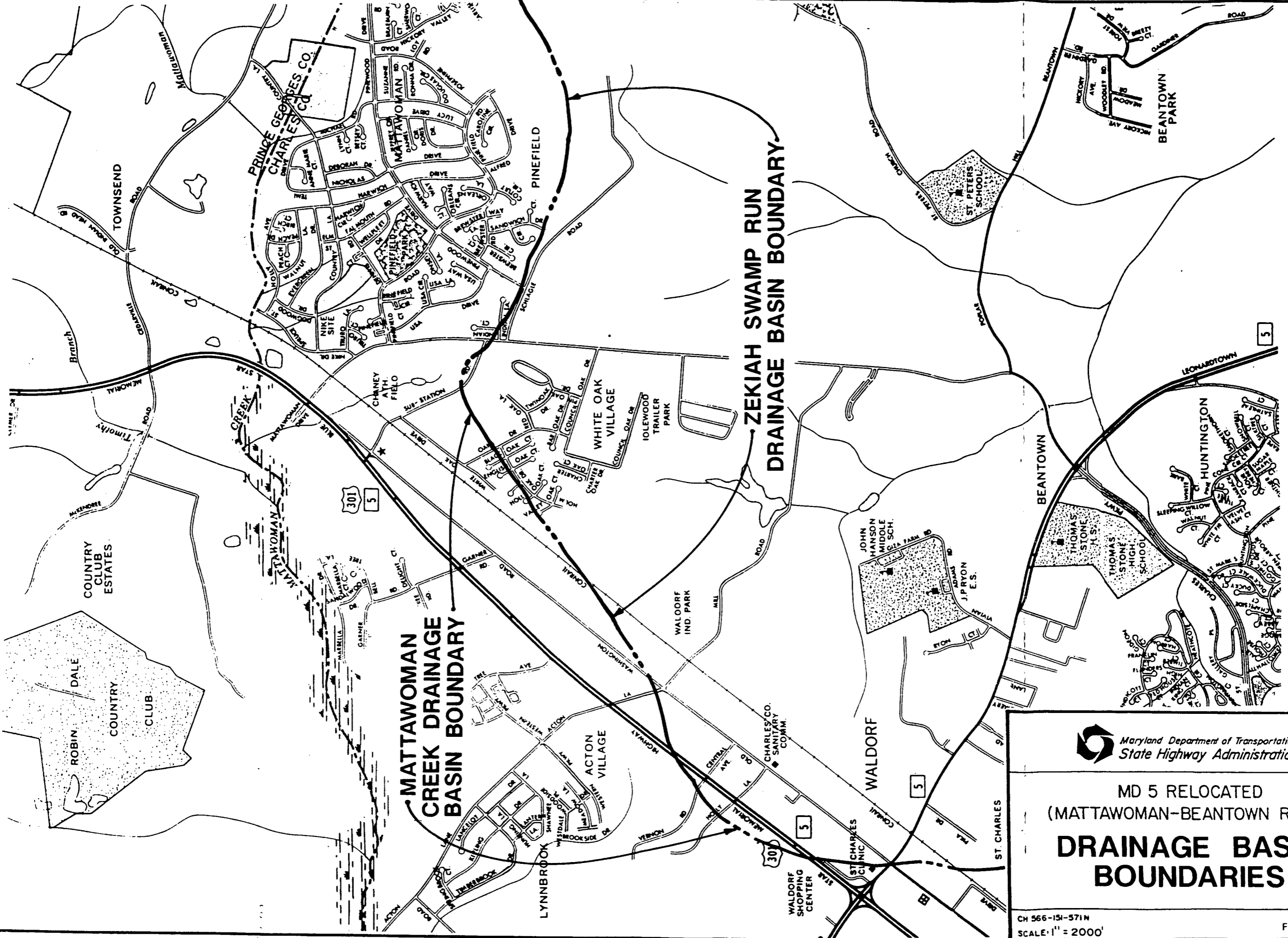
The streams in the study area consists of the Jordan Swamp Run and its tributaries, which drain into Zekiah Swamp Run to the south, and Mattawoman Creek which drains directly into the Potomac to the west. These streams have all been designated as Class I streams only.

The Maryland Department of the Environment classifies all surface waters of the State by four categories:

- Class I - Water contact recreation, habitat for fish, other aquatic life and wildlife
- Class II - Shellfish harvesting
- Class III - Natural trout waters
- Class IV - Recreational trout waters

All of the waters in the State are designated as Class I with increased protection provided for higher classes.

The Department of Natural Resources has designated the Wicomico-Zekiah River System as a Scenic River which is to be managed for the protection and preservation of its natural values. The Scenic Rivers Act [8-402(f)], defines the criteria for a scenic river as "...a free flowing river whose shoreline and related land are predominantly forested, agricultural, grassland, marshland, or swampland with a minimum of development for at least 2 miles of the river length." [8-402(d)(2)]. Although the study area does not have direct contact with the Zekiah Swamp it is important to note that it does have indirect influence via the Jordan Swamp.



**MATTAWOMAN
CREEK DRAINAGE
BASIN BOUNDARY**

**ZEKIAH SWAMP RUN
DRAINAGE BASIN BOUNDARY**

Maryland Department of Transportation
State Highway Administration

MD 5 RELOCATED
(MATTAWOMAN-BEANTOWN ROAD)

**DRAINAGE BASIN
BOUNDARIES**

CH 566-151-571N
SCALE: 1" = 2000'

FIGURE I-8

There are several ponds in the study area; both natural and manmade. One large pond is adjacent to Mattawoman Creek on its south side, and to the east of US 301. There is also a sizable storm water management pond for White Oak Village between Bar Oak Drive, Twin Oak Drive, and Oak Drive. In addition, there are also several ponds of various sizes in the area currently being mined by Charles County Sand and Gravel Company on the west side of MD 205. A tributary to the Jordan Swamp flows directly through this area. Therefore, some of the ponds are natural while others were probably created from the effects of the mining activities with a high water table in this particular area. Two of these ponds are used as sludge ponds.

Groundwater

Normal annual precipitation is 44 to 47 inches, of which 30 to 40 percent infiltrates the groundwater reservoirs. Groundwater is available in nearly every part of the county, acquired by well drilling, digging, or in some areas springs. The groundwater is replenished by precipitation, and in some cases is drained by streams that have cut down through underlying deposits.

The public supply system that serves Waldorf and St. Charles is primarily derived from the Magothy Aquifer and in recent years, from the Patapsco Aquifer. Increasing demand has required the County to tap into the Patapsco in order to protect the Magothy supply from depletion. The Magothy Aquifer is the shallower of the two formations lying at depths of 600 to 700 feet below the surface compared to the Patapsco which is tapped at depths of 1400 to 1500 feet. Both aquifers yield between 400 to 500 gallons of water per minute.

The Magothy and Patapsco Formations are of the Cretaceous system from the Mesozoic era, made up of water-bearing sands. The unconsolidated Coastal Plain units of inter-layered clay, silt, sand, gravel, and shell beds dip gently beneath the area to the southeast. These are underlain by consolidated crystalline basement rock at depths from approximately 1,500 to 2,000 feet below sea level (Brown & Others, 1972 pl.5). The geologic units overlying this basement rock for the purpose of this study are Upland Deposits, the Calvert Formation, the Magothy Formation and the Potomac Group (Patapsco Formation).

There is a high potential for contamination of groundwater due to a perched water table and well drained soils in the area. Contaminant sources may be improper or illegal disposal techniques from industry and citizens, seepage from septic systems, and, to a lesser extent, petrochemical and salt runoff from the roadways. However, the potable sources of water are low risk due to the depths of the aquifers, and the confining geologic units above and below them.

Water Quality

The water quality of the Zekiah Swamp basin and Mattawoman Creek Basin is generally rated as good to excellent (U.S. Soil Conservation Service, 1985). In addition, verbal correspondence with the Maryland Department of the Environment (MDE) reveals that Southern Maryland is regarded as having the best groundwater in the State with respect to supply and quality.

Chemical analysis profiles of the public water supply wells are performed quarterly by the MDE to insure that State standards are being met. Water Quality data from two public supply wells in the Waldorf area that draw from the Magothy and the Patapsco Aquifers shows that State standards are being met and are listed below in Table 5.

TABLE 5

WATER QUALITY FOR PUBLIC SUPPLY

MAGOTHY

<u>Parameter</u>	<u>Measurement</u>
pH	7.6
Temperature	55 ⁰ (F)
Hardness	60-70 (PPM)
Iron	.15-.2 (PPM)
Chlorine	4 (PPM)
Fluoride	.25 (PPM)

PATAPSCO

<u>Parameter</u>	<u>Measurement</u>
pH	7.8
Temperature	55 ⁰ (F)
Hardness	50 (PPM)
Iron	0 (PPM)
Chlorine	3 (PPM)
Fluoride	1 (PPM)

Source: Maryland Department of the Environment

It should be noted that the chemical and mineral content of water varies from aquifer to aquifer and from place to place within the aquifer.

c. Floodplains

According to the Flood Insurance Rate Maps (FIRM) for Charles County, produced by the Federal Emergency Management Agency (FEMA), the only 100 year floodplains in the study area are those associated with the Jordan Swamp and Mattawoman Creek. The majority of the 100 year floodplain of Jordan Swamp is south of the study area. However, there is a small portion that crosses MD 205 approximately 1300 feet from its intersection with MD 5.

The 100 year floodplain associated with Mattawoman Creek is unaffected by the projects mainline alternates. However, the interchange options of MD 205 with US 301 will intrude into the floodplain with structural piers and associated earth fill. The floodplains are depicted on Figure I-9 and the alternates mapping.

6. Ecology

a. Terrestrial Habitat

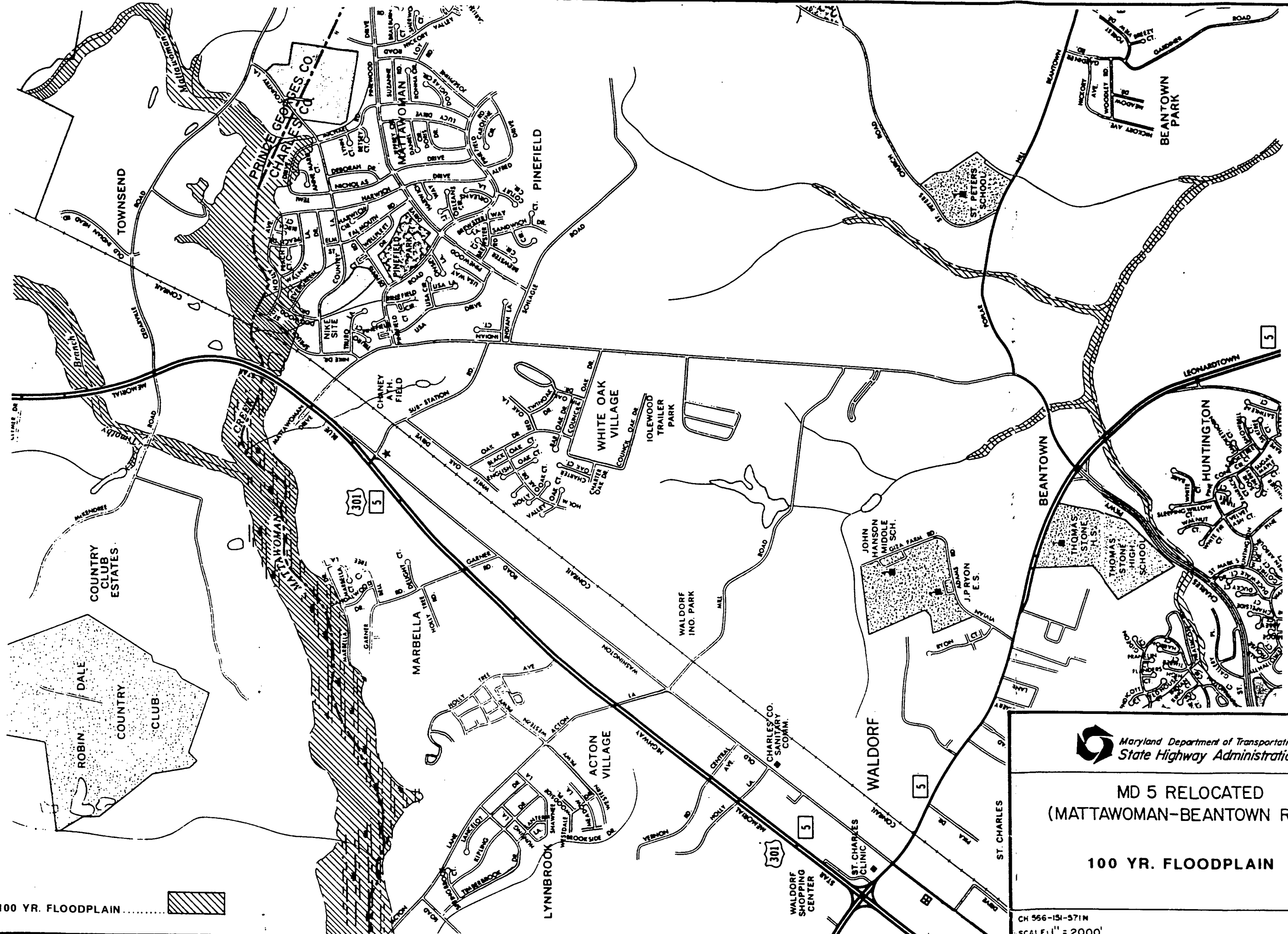
The native forestland of the study area is comprised of mixed upland hardwoods; mainly oak, scrub-type oaks, wetland hardwoods, and also some softwoods such as Virginia pine, loblolly pine, birch, willow, and pond pine are prevalent. The current forestland is regrowth and not virgin forestland due to the agricultural nature and history of the county. Early farming techniques left many fields abandoned for regeneration when soil nutrients were depleted from the crops. The woodlands which occur in the study area are found adjacent to the existing roadway throughout the study area. Forested areas are depicted on the Alternates mapping (Figures III-1 thru III-11) and identified by the standard topographic tree line symbol.

The forest communities known to exist in the study are subdivided by species into the following associations:

The Chestnut Oak - Post Oak - Blackjack Oak association is predominant throughout the study area from the MD 205 crossing of the tributary to Jordan Swamp north to US 301/MD 5. This association is recognized by the presence of any two species of chestnut oak, post oak and or blackjack oak. Community associated species include eastern chinquapin, sassafras, virginia pine, red cedar and pitch pine.

The Willow Oak - Loblolly Pine association occurs from the MD 205 crossing of the tributary to Jordan Swamp to the south and west. The association is characterized by the presence of willow oak and loblolly pine. Commonly associated species include red maple, sweet gum, black gum, white oak and tulip poplar.

The River Birch-Sycamore Association occurs along major study all streams and associated tributaries. Besides river birch and/or sycamore representative species include slippery elm, green ash, spicebush, and poison ivy. Other common species include red maple, Virginia creeper, greenbrier, Japanese honeysuckle, southern arrowwood, tulip poplar, and black gum.



100 YR. FLOODPLAIN

Maryland Department of Transportation
State Highway Administration

MD 5 RELOCATED
(MATTAWOMAN-BEANTOWN ROAD)

100 YR. FLOODPLAIN

CH 566-151-571N
SCALE: 1" = 2000'

FIGURE 1-9

Within the study area, there is edge habitat and agricultural land nearby to support rabbits, squirrels, deer, turkey, quail and other types of upland birds and small rodents. The wetlands in the area create a suitable habitat for raccoon, muskrat, rail, duck, geese and other waterfowl. Through correspondence with the Department of Natural Resources, Forest Park and Wildlife Service, a list of species which are known or expected to be found in the study area is enclosed as Appendix D.

b. Aquatic Habitat

The aquatic habitats of the study area include ponds, the Jordan Swamp Run and its tributaries, Mattawoman Creek and its tributaries, and are corresponding wetlands. Vegetation, algae and insects associated with the wetlands provide a good source of food for fish, wildlife and waterfowl. Tree cover and vegetation also provide cover for smaller species of wildlife. Spawning anadromous finfish are known to be present in the lower reaches of Zekiah Swamp Run and Jordan Swamp Run. The following fish species were identified by the Maryland Department of Natural Resources (DNR) as being known to inhabit these streams.

<u>Scientific Name</u>	<u>Common Name</u>
<u>Erismyzon oblongus</u>	Creek Chubsucker
<u>Ictalurus nebulosus</u>	Brown Bullhead
<u>Ictalurus catus</u>	White Catfish
<u>Esox niger</u>	Chain Pickerel
<u>Lepomis machrochirus</u>	Bluegill
<u>Lepomis gibbosus</u>	Pumpkinseed Sunfish
<u>Semotilus corporalis</u>	Fallfish
<u>Clinostomus funduloides</u>	Royside Dace
<u>Mieropterus salmoides</u>	Largemouth Bass
<u>Perca flavescens</u>	Yellow Perch
<u>Morone americana</u>	White Perch
<u>Etheostoma Imstedi</u>	Tesselated Darter

The existence of these species is considered indicative of good water quality and a healthy stream habitat according to the Maryland Department of Natural Resources. This list, however, does not constitute a complete inventory of fish and possible invertebrates for Zekiah Swamp Run or Jordan Swamp Run.

c. Wildlife

There is much diversity among the wildlife species within the study area which is indicative of a healthy ecosystem. The US Department of Agriculture, Soil Conservation Service has separated wildlife species into three general categories: Open land wildlife, woodland wildlife and wetland wildlife.

Open wildlife is attracted to cropland, pasture, meadows, lawns, and areas overgrown with grasses, herbs and shrubs. In Charles County, this type of habitat accommodates quail, pheasant, meadowlark, field sparrows, dove, cottontail rabbit, red fox and woodchuck.

Woodland wildlife get food and cover in stands of hardwood trees, coniferous trees, shrubs or a combination of these. Woodland wildlife supported in the County include ruffed grouse, woodcock, thrush, vireo, scarlet tanager, gray and red squirrels, gray fox, white-tailed deer, raccoon, and wild turkey.

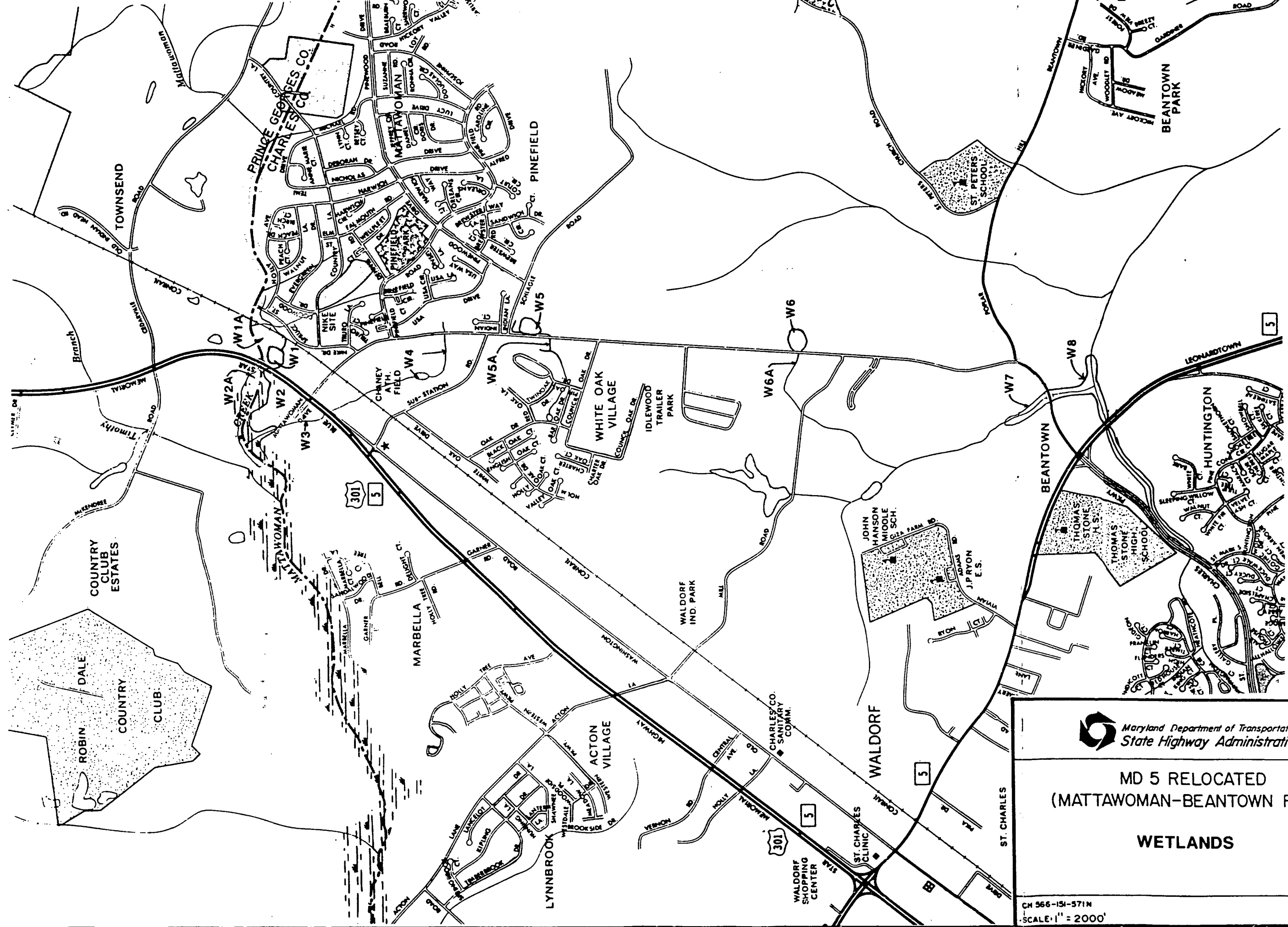
Ducks, geese, rails, herons, shore birds, and muskrats are among the wetland wildlife species in Charles County that need the swampy areas for survival. The wetland areas also give abundant food and cover for reptiles and amphibians such as frogs, lizards, salamanders, snakes, toads and turtles. During migration periods, Sora Rail, Wilson's Snipe, and Wood Warblers are known to inhabit the swamp area. Wilson's Snipe and the Wood Duck overwinter are in this area also. In the lower part of the Zekiah Swamp, the Bald Eagle is recorded as nesting.

The upper tributaries to Jordan Swamp are smaller and therefore, are less likely to support an abundance of fish and/or wildlife. However, they do play an important part in the food chain by carrying insects, leaf litter and algae downstream to the larger species of fish, wildlife and waterfowl.

d. Wetlands

In accordance with Executive Order 11990, wetlands within the study area have been identified (See Figure I-10 and Figures III-1 thru III-11) and the impacts produced by the proposed improvements have been quantified. The wetlands identified were field delineated on March 17, 1989 using the Unified Federal Method. A description of each site location and classification is given in Table 6.

The wetlands are considered to be of high quality with the exception of Site W-2. The dominant vegetation at each site along with the U.S. Army Corps of Engineers (C.O.E.) Wetland Regional Indicator Classification for each species, and the sites functional value is listed in Table 7. A field review with the U.S. Army Corps of Engineers (C.O.E.) was conducted on August 22, 1989 for concurrence with the March 17, 1989 findings. A concurrence was given for each site location and classification (see Comments and Coordination section V, pages V-1 to V-4).



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**MD 5 RELOCATED
(MATTAWOMAN-BEANTOWN ROAD)**

WETLANDS

CM 566-154-571M
SCALE: 1" = 2000'

FIGURE I-10

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TABLE 6

DESCRIPTION AND CLASSIFICATION OF WETLANDS

<u>Wetland Number</u>	<u>Site Description</u>	<u>Classification</u>
W-1	Pond adjacent to Mattawoman Creek on the east side of US 301 approximately 850' north of the intersection of MD 205 and US 301/MD 5.	PF00W1B
W-1A	Saturated wooded area contiguous to W-1 and Mattawoman Creek.	PF01E/R2SB2
W-2	Drainage swale which runs perpendicular to US 301 to the west into a small pond, approximately 450' north of the intersection of MD 205 and US 301/MD 5. Drainage is to the north into Mattawoman Creek.	PEM1F
W-2A	Similar to wetland W-1A, as it is the westward extension of the same ecosystem is located approximately 50' north of Wetland W-2.	PF01E/R2SB2
W-3	Tributary channel area behind the Chaney Building and on the north side of Embassy Dairy. Approximately 250' due west of the intersection of MD 205 and US 301/MD 5.	R2SB2
W-4	Meandering undefined channel that parallels MD 205 from the rear of the Pinefield South Shopping Center to a forested pond area adjacent to the Chaney ball fields. This channel then extends southward to the intersection of MD 205 and Sub-Station Road. In addition, there is a channel perpendicular to the west of Sub-Station Road that flows into the pond area behind the Chaney ball fields.	PF01B
W-5	An isolated, heavily wooded, marsh-like area on the east side of MD 205 and just south of the intersection of MD 205 and Schlagle Road. Drainage is to the west into the White Oak Village area which has been channelized due to recent construction activities.	PF01E

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TABLE 6 CONT'D

<u>Wetland Number</u>	<u>Site Description</u>	<u>Classification</u>
W-5A	Vegetated Drainage channel approximately 5 feet wide. This channel is positioned on the west side of MD 205 across from site W-5 and receives the drainage from that site as well as the roadway.	PEM1C
W-6	Similar in size and composition to Site W-5 with the exception of extended areas of standing water. It is located on the east side of MD 205 is approximately 1000 feet north of the intersection of Md 205 and Mill Road.	PF01B
W-6A	Natural stream channel and adjacent flat area approximately 130' in width which traverses to the southwest. This is the sister site to site W-6 and it is located on the west side of MD 205.	PFO1B
W-7	Riverine wetland on the west side of MD 205 that has recently R2SB2 been disturbed due to improvements to MD 205 and its new crossing of the Jordan Swamp. It is located approximately 1300' north of the intersection of MD 205 and MD 5.	R25B2
W-8	A heavily wooded area with well defined meandering channel and adjacent seeps. This site is located on the east side of MD 205 and is basically the eastward extension of site W-7 into another tributary/wetland order. (This is also the location of the wetland mitigation site for the MD 382 bridge replacement project).	PF01E/R2SB2

As previously mentioned, the characteristics of wetland types are classified by the U.S. Fish and Wildlife Service Cowardin System. This system identifies the ecological system, the ecological subsystem, the class, the subclass, the water regime and water chemistry. The following is a description of the wetland types identified within the study corridor:

- o PF00W - Palustrine, forested, open water
- o PF01E - Palustrine, forested, broad-leaved deciduous and seasonally saturated.
- o PF01B - Palustrine, forested, broad-leaved, deciduous and saturated.
- o PEM1F - Palustrine, emergent, persistent, semipermanent impoundment.
- o R2SB2 - Riverine, lower perennial, streambed with a sandy bottom.

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TABLE 7

VEGETATION AND FUNCTIONAL VALUE OF WETLANDS

<u>Site</u>	<u>Dominant Vegetation</u> (Botanical/Common Name)	<u>U.S. Army C.O.E Regional Indicator Classification</u>	<u>Functional Value</u>
W-1	o Broad-leaved Cattail <u>Typha latifolia</u>	OBL	o Sediment Trapping (long & short term) o Habitat for aquatic wildlife o Flood desynchronization
	o Pin Oak <u>Quercus palustris</u>	FACW	
	o Red Maple <u>Acer rubrum</u>	FACW	
	o Eastern Red Cedar <u>Juniperus virginiana</u>	FACU	
W-1A	o Broad-leaved Cattail <u>Typha latifolia</u>	OBL	o Habitat for aquatic wildlife o Nutrient retention o Food chain support o Groundwater recharge
	o Common Greenbriar <u>Smilax rotundifolia</u>	FACW	
	o Pin Oak <u>Quercus palustris</u>	FACW	
	o Red Maple <u>Acer rubrum</u>	FACW	
	o Eastern Red Cedar <u>Juniperus virginiana</u>	FACU	
W-2	o Broad-leaved Cattail <u>Typha latifolia</u>	OBL	o Flood desynchronization o Sediment trapping (short term)
	o Smooth Alder <u>Alnus serrulata</u>	OBL	
	o Queen Anne's Lace <u>Daucus carota</u>	---	
W-2A	o Broad-leaved Cattail <u>Typha latifolia</u>	OBL	o Habitat for aquatic wildlife o Nutrient Retention o Food chain support o Groundwater recharge
	o Common Greenbriar <u>Smilax rotundifolia</u>	FACW	
	o Pin Oak <u>Quercus palustris</u>	FACW	
	o Red Maple <u>Acer rubrum</u>	FACW	
	o Eastern Red Cedar <u>Juniperus virginiana</u>	FACU	

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TABLE 7 CONT'D

Site	Dominant Vegetation (Botanical/Common Name)	U.S. Army C.O.E Regional Indicator Classification	Functional Values
W-3	<ul style="list-style-type: none"> o Smooth Alder <u>Alnus serrulata</u> o Common Greenbriar <u>Smilax rotundifolia</u> o Pin Oak <u>Quercus palustris</u> 	<ul style="list-style-type: none"> OBL FAC FACW 	<ul style="list-style-type: none"> o Sediment trapping (short term) o Groundwater discharge o Flood desynchronization
W-4	<ul style="list-style-type: none"> o Pin Oak <u>Quercus palustris</u> o Scrub Pine <u>Pinus virginiana</u> o Eastern Red Cedar <u>Juniperus virginiana</u> o American Holly <u>Ilex opaca</u> 	<ul style="list-style-type: none"> FAC FAC FAC FAC 	<ul style="list-style-type: none"> o Habitat for aquatic wildlife o Nutrient retention (long & short term) o Food chain support o Groundwater recharge
W-5	<ul style="list-style-type: none"> o Pin Oak <u>Quercus palustris</u> o Scrub Pine <u>Pinus virginiana</u> o Eastern Red Cedar <u>Juniperus virginiana</u> o American Holly <u>Ilex opaca</u> 	<ul style="list-style-type: none"> FAC FAC FAC FAC 	<ul style="list-style-type: none"> o Habitat for aquatic wildlife o Nutrient retention (long & short term) o Food chain support o Groundwater Recharge
W-5A	<ul style="list-style-type: none"> o Jewel Weed <u>Impatiens capensis</u> o American Holly <u>Ilex opaca</u> o Common Greenbriar <u>Smilax rotundifolia</u> 	<ul style="list-style-type: none"> FAC FAC FAC 	<ul style="list-style-type: none"> o Nutrient retention (long and short term) o Groundwater recharge o Sediment trapping (short term) o Nutrient retention (short term)
W-6	<ul style="list-style-type: none"> o Pin Oak <u>Quercus palustris</u> o Scrub Pine <u>Pinus virginiana</u> o Eastern Red Cedar <u>Juniperus virginiana</u> o American Holly <u>Ilex opaca</u> 	<ul style="list-style-type: none"> FAC FAC FAC FAC 	<ul style="list-style-type: none"> o Habitat for aquatic wildlife o Nutrient retention (long & short term) o Food chain support o Groundwater Recharge

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TABLE 7 CONT'D

<u>Site</u>	<u>Dominant Vegetation</u> (Botanical/Common Name)	<u>U.S. Army C.O.E Regional Indicator Classification</u>	<u>Functional Values</u>
W-6A	<ul style="list-style-type: none"> o Pin Oak <u>Quercus palustris</u> o Scrub Pine <u>Pinus virginiana</u> o Eastern Red Cedar <u>Juniperus virginiana</u> o American Holly <u>Ilex opaca</u> 	<ul style="list-style-type: none"> FAC FAC FAC FAC 	<ul style="list-style-type: none"> o Habitat for aquatic wildlife o Nutrient retention (long & short term) o Food chain support o Groundwater Recharge
W-7	Disturbed, riprap placed with new planting		<ul style="list-style-type: none"> o Groundwater discharge o Food chain support o Flood desynchronzation
W-8	<ul style="list-style-type: none"> o Flowering Dogwood (adj. wood) <u>Cornus florida</u> (stream bed) o Smooth Alder <u>Alnus serrulata</u> o Jewelweed <u>Impatiens capensis</u> 	<ul style="list-style-type: none"> FAC OBL FAC 	<ul style="list-style-type: none"> o Habitat for aquatic wildlife o Nutrient retention (long & short term) o Food chain support o Groundwater recharge

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e. Threatened and Endangered Species

According to the U.S. Fish and Wildlife Service no Federally listed endangered or threatened plant or wildlife species are present within the study limits. However, correspondence with the Maryland Department of Natural Resources, Forest Park and Wildlife Service has reported that the following rare birds exist within the vicinity of the study area: least bittern (Ixobrychus exilis) which is state listed as in need of conservation; common barn-owl (Tyto alba) which is on the Maryland Heritage's watchlist; and loggerhead shrike (Lanius ludovicianus) which is state listed as endangered and is a candidate for federal listing. None of the above species was observed during field reconnaissance activities. See Comments and Coordination Section V, pages V-8, V-10, V-17, V-18, and V-20.

f. Chesapeake Bay Critical Area Involvement

Correspondence with the Chesapeake Bay Critical Area Commission states that this project is not in the critical area for the Chesapeake Bay. This correspondence is attached in Section V, Comments and Coordination, pages V-20 and V-21.

7. **Existing Noise Conditions**

a. Noise Sensitive Area Description

The noise sensitive areas (NSA's) selected for the noise analysis are described in Table 8, depicted on the Alternates mapping in Section II and summarized on Figure IV-1. Thirteen (13) NSA's were identified for this analysis and are considered to emulate worst case conditions with respect to land use. The areas chosen consist of eleven (11) residential areas, one (1) churches and a preschool. These sites were field verified during study area visits.

b. Ambient Noise Level Measurements

A detailed technical analysis has been performed to determine the impact of the proposed project on noise. The results are summarized in Section IV. A copy of the technical analysis report is available at the State Highway Administration, 707 North Calvert Street, Baltimore, Maryland 21202.

In an acoustical analysis, measurement of ambient noise levels is intended to establish the basis of impact analysis. The ambient noise levels as recorded represent a generalized view of present noise levels. Variations with time of total traffic volume, truck traffic volumes, speed, etc., may cause fluctuations in ambient noise levels of several decibels. However, for the purposes of impact assessment, these fluctuations are usually not sufficient to significantly affect the assessment. The existing noise levels for this analysis were calibrated with the prediction model and found to be within 1-5 dBA of the actual existing levels.

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TABLE 8

DESCRIPTION OF NSA'S

<u>NSA NO.</u>	<u>ACTIVITY CATEGORY</u>	<u>DESCRIPTION/LOCATION</u>
1	B	Residence, single family detached house on the west side of MD 205 approximately 450' south of Poplar Hill-Beantown Road.
2	B	Residence, single family detached house on the east side of MD 205 approximately 250' south of Poplar Hill-Beantown Road
3	B	Residence, single family detached house on the west side of MD 205, Box 191A MD 205.
4	B	Resident, single family detached house on the east side of MD 205 across from Site 3, Box 196A MD 205.
5	B	Residence, single family detached house on the east side of MD 205 approximately 250' north of Mill Road, Box 201A MD 205.
6	B	Resident, single family detached house on the west side of MD 205 approximately 650' north of the Idlewood Trailer Park, Box 211 MD 205.
7	B	Trinity Baptist Church, west side of MD 205, Box 212 Md 205.
8	B	Residence, single family detached house west side of MD 205, 518 Council Oak Drive, White Oak Village Subdivision.
9	B	Residence, single family detached house east side of MD 205, 101 Indian Lane, Mattawoman Estates Subdivision.
10	B	Residence, single family detached house east side of MD 205, Box 2003 MD 205 adjacent to Pinefield Subdivision.
11	B	Residence, single family detached house, Box 1907 MD 205 adjacent to Pinefield Subdivision.
12	B	Preschool, Happy Faces Learning Center, west side of MD 205, approximately 300' north of Nike Road.
13	B	Residence, single family detached house east side of Nike Road, 246 Nike Road adjacent to Pinefield Subdivision.

It was determined for all the noise sensitive areas, that the most typical noise conditions occur during the non-rush hour period (9:00 a.m. and 3:00 p.m.). During this time the highest noise levels are experienced for the greatest length of time.

The monitored and predicted ambient noise levels are presented in Table 9. A discussion of noise impacts from the proposed project is included in Section IV of this document.

The noise levels are expressed in terms of an Leq noise level or equivalent levels on an hourly basis. the leq noise level is the energy-averaged level for a given period of time. All ambient and predicted levels in this report are Leq exterior levels unless otherwise noted.

c. Noise Abatement Criteria

This project is subject to Federal Highway Administration (FHWA) Noise Abatement Criteria as outlined in Federal Highway Program Manual (FHPM) 7-7-3.

The FHPM establishes Federal Noise Abatement Criteria for various activity categories. This criteria is shown in Table 10. These levels are expressed in terms of an Leq noise level which is the energy averaged noise level for a given period of time.

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TABLE 9
AMBIENT NOISE LEVELS

<u>NSA DESCRIPTION</u>		<u>MEASURED AMBIENT Leq</u>	<u>PREDICTED AMBIENT Leq</u>
1	Residence	61	62
2	Residence	59	59
3	Residence	60	62
4	Residence	63	63
5	Residence	67	68
6	Residence	67	66
7	Church	60	62
8	Residence	72	73
9	Residence	70	66
10	Residence	68	69
11	Residence	69	68
12	School	67	65
13	Residence	63	60

TABLE 10
NOISE ABATEMENT CRITERIA

ACTIVITY CATEGORY	DESIGN NOISE LEVELS-dBA		DESCRIPTION OF ACTIVITY
	Leq (h)		
A	57 (Exterior)		Lands on which serenity and quiet are of extraordinary significant and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (Exterior)		Picnic areas, recreation areas, playground, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (Exterior)		Developed lands, properties, or activities not included in Categories A or B above.
D	--		Undeveloped lands.
E	52 (Interior)		Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

Source: FHPM 7-7-3

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8. Existing Air Quality

The project area is located in Maryland's Air Quality Control Area V (Southern Maryland). This project is in an area where the State Implementation Plan (SIP) does not contain any transportation control measures. The study area is located in a CO attainment area within Area V (ie. Charles County). Therefore, the conformity requirements of 23 CFR 770 do not apply to this project.

A detailed technical analysis has been performed to determine the impact of the proposed project on CO. The results are summarized in Section IV. A copy of the technical analysis report is available at the State Highway Administration, 707 North Calvert Street, Baltimore, Maryland 21202.

II. NEED FOR PROJECT

II. NEED FOR THE PROJECT

A. Purpose

The purpose of this study is to increase capacity and improve the safety to Proposed MD 5 Relocated (Existing MD 205). This roadway is currently being used as a bypass of the congested Waldorf area connecting MD 5 with US 301/MD 5. It links several suburban communities, aides in the transportation of goods and services, and acts as highly important commuter route. The objective of the mainline alternates and interchange options proposed are to alleviate existing congestion and provide for continued safe and efficient operation into the future. The proposed improvements will also enhance the existing MD 5 corridor as additional traffic will be diverted away.

B. Project Background

Proposed MD 5 Relocated is currently signed as MD 205. It has recently been transferred to the State Highway Administration from Charles County when it was signed Mattawoman-Beantown Road. This project is currently included in the Maryland Department of Transportation's Consolidated Transportation Program (FY 1989-1994) for planning and engineering and in the Highway Needs Inventory. This project is also included within the Charles County, Maryland Comprehensive Land Use Plan (1988). These improvements are consistent with other planned or design projects within the vicinity.

C. Existing and Projected Traffic Conditions

MD 205 is currently a two lane, uncontrolled access road that connects MD 5 with US 301/MD 5. This road functions as a urban minor arterial and acts as a bypass of the MD 5/US 301 intersection in Waldorf. It currently has three signalized intersections. The first signal is at the southern terminus at MD 5. The second signal is near the northern end at the intersection with Pinefield Road (the access route to the Pinefield subdivision). The third signalized intersection is at the northern terminus of MD 205 at US 301/MD 5. This intersection is heavily developed in all four quadrants. There are 65 driveways located on the roadway.

Currently this road experiences congestion during peak periods (7 a.m. to 8 a.m. and 5 p.m. to 6p.m.). Daily delays occur today at the signalized intersections of MD 5 and US 301/MD 5 due to lack of capacity. This is expected to worsen as traffic volumes increase. A review of the Average Daily Traffic (ADT) (Figure II-1) reveals an approximate 40% increase between the 2015 No-Build and 1987 ADT in expected on the existing roadway. This will only exacerbate the existing congestion, delays, and accidents.

**U.S. 301/
MD. 5**

62000
78425 (78425)
119500 (119500)

**NIKE
DRIVE**

450
5150 (5150)
6750 (6750)

**PINEFIELD
DRIVE**

6800
7775 (7775)
10200 (10200)



**INDIAN
LANE**

400
450 (450)
600 (600)

**SCHAGLE
ROAD**

200
1300 (1300)
4000 (4000)

3050
5625 (4500)
12000 (5500)

21800
29100 (26025)
47400 (30000)

19700
26700 (23625)
44250 (26850)

18500
25325 (22250)
42450 (25050)

17800
24475 (21400)
41150 (23750)

17600
24225 (21150)
40850 (23450)

17500
24125 (21050)
40350 (23300)

PROPOSED

MD. 5

RELOCATED

52000
63350 (67700)
91700 (111000)

**U.S. 301/
MD. 5**

2200
2750 (2750)
4100 (4100)

**SUB-STATION
ROAD**

LEGEND:

1987 ADT

1995 BUILD (NO-BUILD) ADT

2015 BUILD (NO-BUILD) ADT



Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION

PROPOSED MD. 5 RELOCATED (MD. 205)

AVERAGE DAILY TRAFFIC

CH 566-151-571N

SCALE: NONE

FIGURE: II-1A

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**POPLAR HILL/
BEANTOWN RD. MD. 5**

5250	23975
6900 (6900)	33375 (33375)
11125 (11125)	56500 (56500)

17500	17400	17600	17450	20000	12925
24125 (21050)	24475 (21400)	24700 (21625)	24500 (21475)	27900 (24825)	18075 (17575)
40350 (23300)	40275 (24575)	40575 (24875)	40275 (24575)	47500 (30000)	28500 (22575)

PROPOSED

MD.

5

RELOCATED

1450	500	900	23600
2000 (2000)	575 (575)	1200 (1200)	30700 (32075)
3075 (3075)	750 (750)	1900 (1900)	51300 (53455)
COUNCIL OAK DRIVE	IDLEWOOD TRAILER PARK	MILL ROAD	MD. 5

LEGEND:

1987 ADT

1995 BUILD (NO-BUILD) ADT

2015 BUILD (NO-BUILD) ADT



**Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION**

PROPOSED MD. 5 RELOCATED (MD. 205)

AVERAGE DAILY TRAFFIC

CH 566-151-571N

SCALE: NONE

FIGURE: II-1B

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The increase traffic volumes will affect the vehicle operating speeds. It is estimated that the traffic operating speeds for Proposed MD 5 Relocated will be:

<u>1995</u>	<u>Peak</u>	<u>Off Peak</u>
No Build	10 MPH*	40 MPH
Build	40 MPH	40 MPH
 <u>2015</u>		
No Build	10 MPH*	40 MPH
Build	30 MPH	40 MPH

* A 10 MPH operating speed signifies a stop and go condition.

The intersection of US 301/MD 5 with MD 205 and MD 5 with MD 205 are currently "High Accident Intersections". This will only worsen as traffic congestion increases in length and volume. Improvements at these intersections include increased capacity and exclusive turn lanes. These improvements along with the addition of through lanes on US 301 (construction is programmed to begin in FY 1990) will help to reduce the accident rate at this intersection. Improvements at intersection of MD 5 with MD 205 also include increased capacity and exclusive turn lanes. One alternative includes a relocation to bypass this intersection. This improvement will help reduce the accident rate at this intersection.

The average accident rate for MD 205 is 308 accidents for every one hundred million vehicle miles of travel (accident/100 MVM). This accident rate is considerably higher than the statewide average rate of 278 accident/100 MVM for similarly designed highways.

The collision types that exceeded their respective statewide averages rates were angle, rear end, and left turn collisions. These types of accidents are generally indicative of intersection and driveway conflicts, slower moving traffic, and periods of congestions. While there are no "High Accident Sections", the majority of these accidents are occurring in the northern segment from just north of Sub-Station Road to US 301/MD 5. These accidents resulted in a monetary loss to the motoring and general public of \$2.2 million/100 MVM.

Providing a 6-lane divided highway would reduce the accident rate to 144 accidents/100 MVM. The accident cost resulting from either build alternate would be approximately \$1.5 million/100 MVM, when compared to the existing conditions. The additional capacity will help reduce the angle and rear end collisions, while the use of protected left turn bays at median openings will help reduce left turn collisions.

Proposed MD 5 Relocated will be classified as an intermediate arterial by MSHA classifications or urban minor arterial by FHWA classification. Detailed traffic reveals an existing Average Daily Traffic (ADT) of 17,400 (at Council Oak Drive) to 21,800 (at US 301/MD 5) vehicles and a design year (2015) build ADT of 40,300 (at Council Oak Drive) to 47,400 (at US 301/MD 5) vehicles (Figure II-1). This is an increase of approximately 125% over existing traffic.

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Quality of traffic flow along a roadway is measured in terms of levels-of-service (LOS). Level-of-service (LOS) is dependent upon highway geometry, highway capacity, and traffic characteristics and volumes. The Transportation Research Board's HIGHWAY CAPACITY MANUAL defines level-of-service as follows:

- o LOS A: Free flow.
- o LOS B: Stable flow; the presence of others in the traffic stream begins to be noticeable.
- o LOS C: Stable flow; the presence of others in the traffic stream begins to significantly affect interactions.
- o LOS D: High density, stable flow; the presence of others in the traffic stream begins to severely affect speed and freedom to maneuver.
- o LOS E: Operating conditions at or near the capacity level. All speeds are reduced to a low, but relatively uniform value.
- o LOS F: Forced or breakdown flow.

Previous alternatives presented at the Public Workshop (November 22, 1988), provide for a 4-lane roadway. With the completion of detailed traffic, it was determined that the roadway would operate at an unacceptable LOS E in the design year (2015). A LOS summary (Table 12; page IV-6) for the various segments validate the necessity for the proposed mainline alternatives (6-lane roadway), intersection improvements, and interchange improvements.

III. ALTERNATES CONSIDERED

III. ALTERNATES CONSIDERED

A. Alternate 1 (No-Build)

The No-Build Alternate would provide no significant improvement to MD 205. Spot safety and intersection improvements would still occur over time as part of normal highway maintenance and safety operations but no additional capacity would be added.

As traffic volumes continue to grow, traffic delays and the length of the peak hours will expand. Detailed traffic reveals that MD 205 will operate at peak hour level of service (LOS) F in the design year (2015). It can be expected that as the magnitude and duration of congestion increases over time, the rate of accidents will also increase.

Under the No-Build Alternate there would be no right-of-way, relocation, or construction costs or impacts. There would be no disruption of traffic due to construction or other related impacts.

Other major study area transportation improvements that are programmed for planning, design and/or construction, regardless of the outcome of this study include:

- o MD 5 (Waldorf-Leonardtown Road): This project will widen existing MD 5 to five lanes from US 301 to Post Office Road. Construction is programmed to begin in FY 1991.
- o US 301 (Blue Star Memorial Highway): This project will widen existing US 301 to six lanes from south of Smallwood Drive to south of the US 301/MD 5 interchange at T.B. Construction is programmed to begin in FY 1990.
- o MD 228 (Berry Road): This project will dualize existing MD 228 from US 301 to Bealle Hill Road and construct a new/relocated dual highway between MD 228 and MD 210. Construction is programmed to begin in FY 1992. Only the section in Charles County is programmed for construction.
- o MD 5: This project will reconstruct MD 5 to: upgrade two at-grade intersections north of I-95; reconstruct interchanges at I-95 and US 301 and construct six new interchanges and two right-on/right-off partial interchanges. This project is not programmed past the planning phase.
- o MD 210 (Indian Head Highway): This project will reconstruct existing MD 210 to a 6 lane divided highway from south of Old Fort Road to MD 414. This is a special project being completed today under the supervision of State Highway Administration District 3.
- o US 301 (Blue Star Memorial Highway): A planning study is underway to widen and control access on existing US 301 from MD 5 at T.B. to US 50.
- o Eastern Bypass Corridor Study: A planning study is underway for an eastern bypass of the Washington Metropolitan Area through part of Charles County.

- o US 301 (Blue Star Memorial Highway): A planning study is underway to provide interchanges along US 301 with Billingsly Road, Smallwood Drive, and MD 5/MD 228. This project is currently on hold.
- o Western Parkway (Charles County): This project will provide a new 4-lane divided roadway from Billingsly Road to MD 205.
- o Billingsly Road (Developers Road): This project will provide a new 2-lane roadway between US 301 and MD 5. Charles County will provide the roadway from MD 5 (7300') and the developer will provide the remainder.
- o US 301 bridge over Mattawoman Creek (Charles County): will improve this bridge upon completion of Western Parkway.
- o Middletown Road (Charles County): This project will ultimately provide a 4-lane improvement from Billingsly Road to MD 228.

B. Mainline Build Alternates

General Description

The project has been separated into three segments with interchangeable alternates within each segment. The first segment would begin at MD 5 (at the south) and extends to just south of Trinity Memorial Gardens Cemetery (+4000'), the second segment ties-in with Segment I and extend to just north of Trinity Memorial Gardens Cemetery (+3000'), and the third segment ties-in with Segment II and extend to the terminus of MD 205 at the intersection of US 301/MD 5 (+10,400'). The typical sections for the project are depicted on Figure III-1.

SEGMENT I

Segment I begins at MD 5 (at the south) and extends to just south of Trinity Memorial Gardens Cemetery. Within this segment there are two alternates. Alternate 5 (Figure III-2) would follow the basic alignment of existing MD 205. The typical section (Figure III-1) would include a 6-lane, divided roadway with an open median of 34'. The open typical section corresponds to the open typical section on MD 5. The existing traffic signal at MD 205/MD 5 would remain. Construction and approved site developments in three quadrants restrict major reconstruction of the intersection and leaves an unacceptable LOS F (Table 12; page IV-6). The box culvert over the tributary to Jordan Swamp would be extended.

Alternate 6 (Figure III-3) would be on relocation. A roadway on new location would split from MD 5 approximately 2400' south of the existing MD 5/MD 205 intersection, would bridge the tributaries to the Jordan Swamp, and would tie into the basic alignment of MD 205 by the end of the segment. The typical section (Figure III-1) would be the same as Alternate 5. The existing traffic signal at MD 205/MD 5 would remain, and a new signal, at the split, for the new southbound roadway and existing northbound MD 5 would be added. The relocation would obtain an acceptable intersection levels of service (Table 12; page IV-6) that Alternate 5 would not. This would eliminate any need for an interchange.

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Additional studies are being investigated to reduce the wetland impacts in Segment I. The typical section for Alternate 5 would be revised to a 6-lane divided closed roadway with a 20' curbed median (similar to Segment II). The typical section for Alternate 6 would involve extending the closed typical section with a 20' median (similar to Segment II) through to the southern limits of the tributary to Jordan Swamp and then transition to an open section roadway for the proposed intersection with existing MD 5.

SEGMENT II

Segment II would tie into Segment I and would extend to just north of Trinity Memorial Gardens Cemetery ($\pm 3000'$). Within this segment, there would also be two alternates. Alternate 5/6 (Figure III-4) would construct the new roadway to the west of the existing roadway and traverse through the cemetery. Alternate 5/6 Modified (Figure III-5) would construct the new roadway to the east of the existing roadway. The typical section for both alternates (Figure III-1) would include a transition from the Segment I typical section (6-lane open median) to a 6-lane, divided roadway with a 20' curbed median.

SEGMENT III

Segment III would tie into Segment II and would extend to the terminus of MD 205 at the intersection of US 301/MD 5 ($\pm 10,400'$). Within this segment, there is one alternate. Alternate 5/6 (preferred)(Figure III-6) would follow the basic alignment of existing MD 205 with slight shifts to minimize right-of-way impacts. The existing traffic signals at Pinefield Road and US 301/MD 5 would remain. The typical section (Figure III-1) from Segment II would extend to just south of the railroad tracks. From the railroad tracks to the intersection with US 301/MD 5 the roadway would include 4 lanes. This would minimize right-of-way impacts to the two shopping centers. Although this short ($\pm 700'$) 4-lane section would not adequately handle the design year (2015) capacity requirements, it will provide an adequate level-of-service past the year 2000. It is anticipated that an interchange option would be constructed prior to this as the US 301/MD 5 intersection will already have an unacceptable level-of-service.

Median openings would be provided at cross roads. A minimum spacing of 750' is required between openings. Sub-Station Road, Indian Lane, and Schlagle Road all tee into MD 205 within 400' of each other. Three options to provide adequate median opening spacings are available (Figure III-7). The first option, Relocated Sub-Station Road Option 1, would relocate Sub-Station Road to the north (approximately 850'). A median opening would be placed at Relocated Sub-Station Road and at Schlagle Road. Option 2 and 3 would each relocate Sub-Station Road to create a 4-way intersection with Schlagle Road. Indian Lane would not have a median opening with any option. A connection between Schlagle Road and the cul-de-sac on Indian Lane could be provided. Only one of the three options would be constructed.

C. Interchange Options

There are four interchange options for the intersection of MD 205 with US 301/MD 5. The interchange options will be built at a later date than the mainline alternates. The typical sections for the interchange options is shown on Figure III-8.

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Interchange Option A (Figure III-9) would provide directional ramps between MD 205 and US 301 to the north. MD 205 would be relocated between the Pinefield Development and the rear of the Pinefield Shopping Center and would interchange with US 301 approximately 800 foot north of the existing intersection. Interchanging movements would only be provided for US 301 to and from the north via two-lane directional ramps. All traffic destined to and from US 301 to the south would use the existing signalized intersection.

Interchange Option B (Figure III-10) is very similar to Option A. It would also provide directional ramps between MD 205 and US 301 to the north. This option would differ along southbound US 301. The directional ramp to MD 205 would exit from the median. This would require southbound US 301 to be relocated to the west. The existing signalized intersection would remain, similar to Option A, for southbound US 301 and Western Parkway.

Interchange Option C (Figure III-11) would provide a flyover ramp from southbound US 301 to MD 205. This would eliminate the existing southbound double left turns. The flyover ramp would travel behind the Chaney Building and bridge over US 301 at the existing signalized intersection location. This would require northbound MD 205 to be shifted slightly. A connection from Sub-Station Road (at US 301) (MD 5) to Pinefield Road would allow for the remaining movements. Additionally, a service road network behind both shopping centers would be provided to replace certain existing access points that would be removed under this option.

Interchange Option D (Figure III-12) proposes a full movement trumpet interchange. The ramps to and from southbound US 301 would loop behind the Chaney Building. Additional directional ramps would be provided for all movements (replacing the connection from Sub-Station Road & Pinefield Road). A service road network, similar to Option C, would be provided behind both shopping centers.

D. Alternates Considered and Dropped

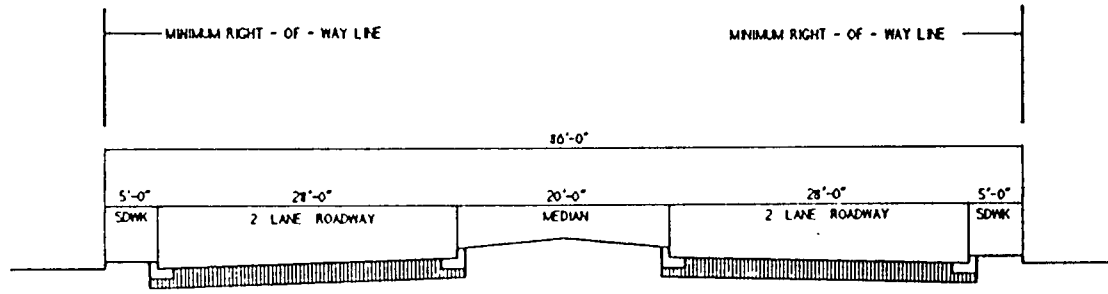
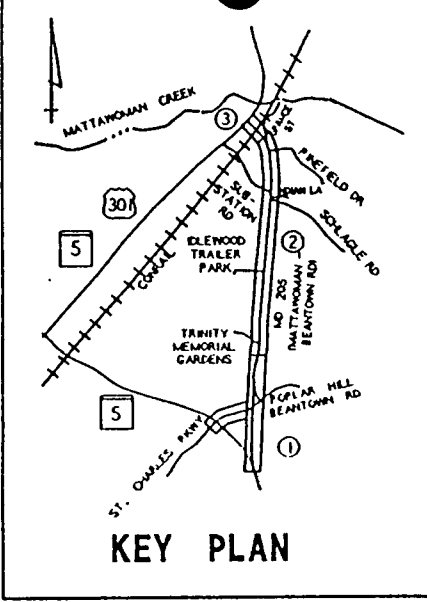
A number of alternates were considered and dropped from further consideration because they did not adequately handle operational requirements.

Alternate 2, as presented at the Public Workshop, was a 5-lane urban section. This alternate was dropped because it did not provide adequate capacity for future demands, increased the accident rate to 488 accident/100 MVM (state average accident rate is 202 accidents/100 MVM), and was deemed unsafe for pedestrians.

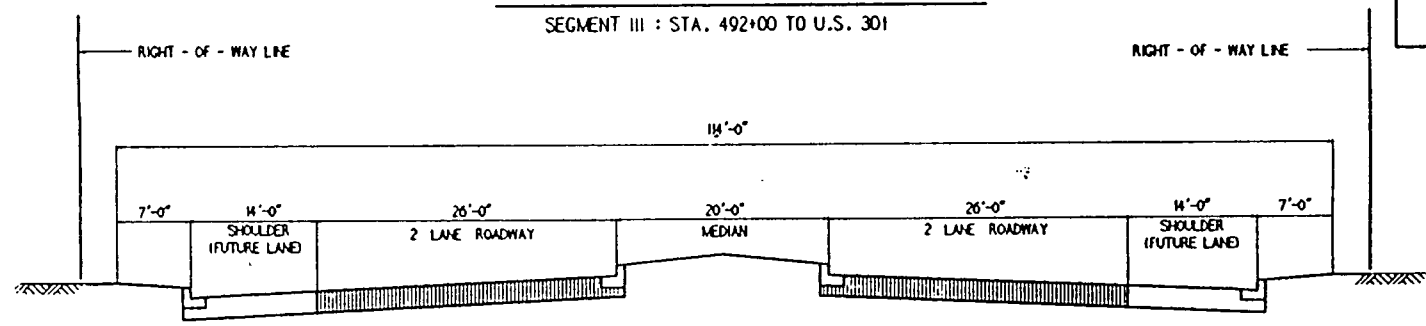
Alternate 3 and 4 as presented at the Public Workshop, were a 4-lane divided urban section with a 20' median, with varying networks of services roads. These alternates were dropped because they did not provide adequate capacity for future demands.

A modification of Interchange Option A was developed that avoided the relocation of two commercial establishments. This modification shifted the ramps further east towards the railroad tracks. This option was dropped because it impacted additional wetlands (approximately 1 acre) and created an additional crossing of Mattawoman Creek, and had increased construction costs.

PROPOSED MD 5 RELOCATED
ALTERNATES 5 & 6

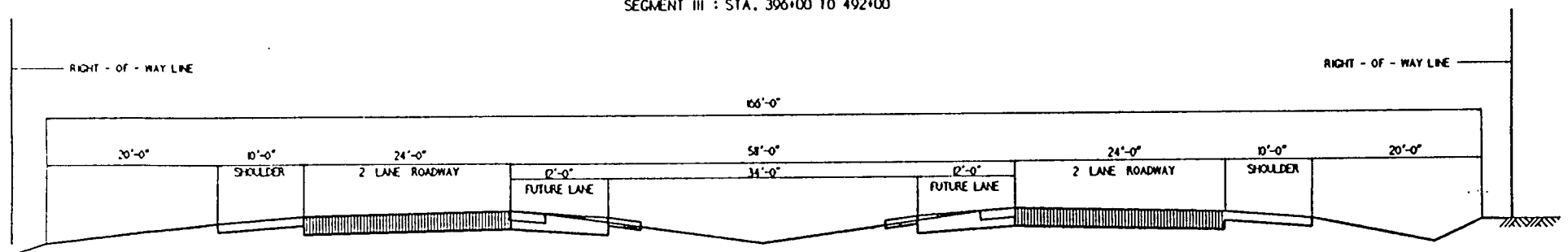


TYPICAL SECTION NO. 3



TYPICAL SECTION NO. 2

SEGMENT II : STA. 367+00 TO 396+00
SEGMENT III : STA. 396+00 TO 492+00



TYPICAL SECTION NO. 1

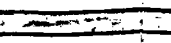

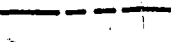
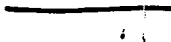

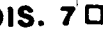



SEGMENT I : MD. 5 TO STA. 367+00

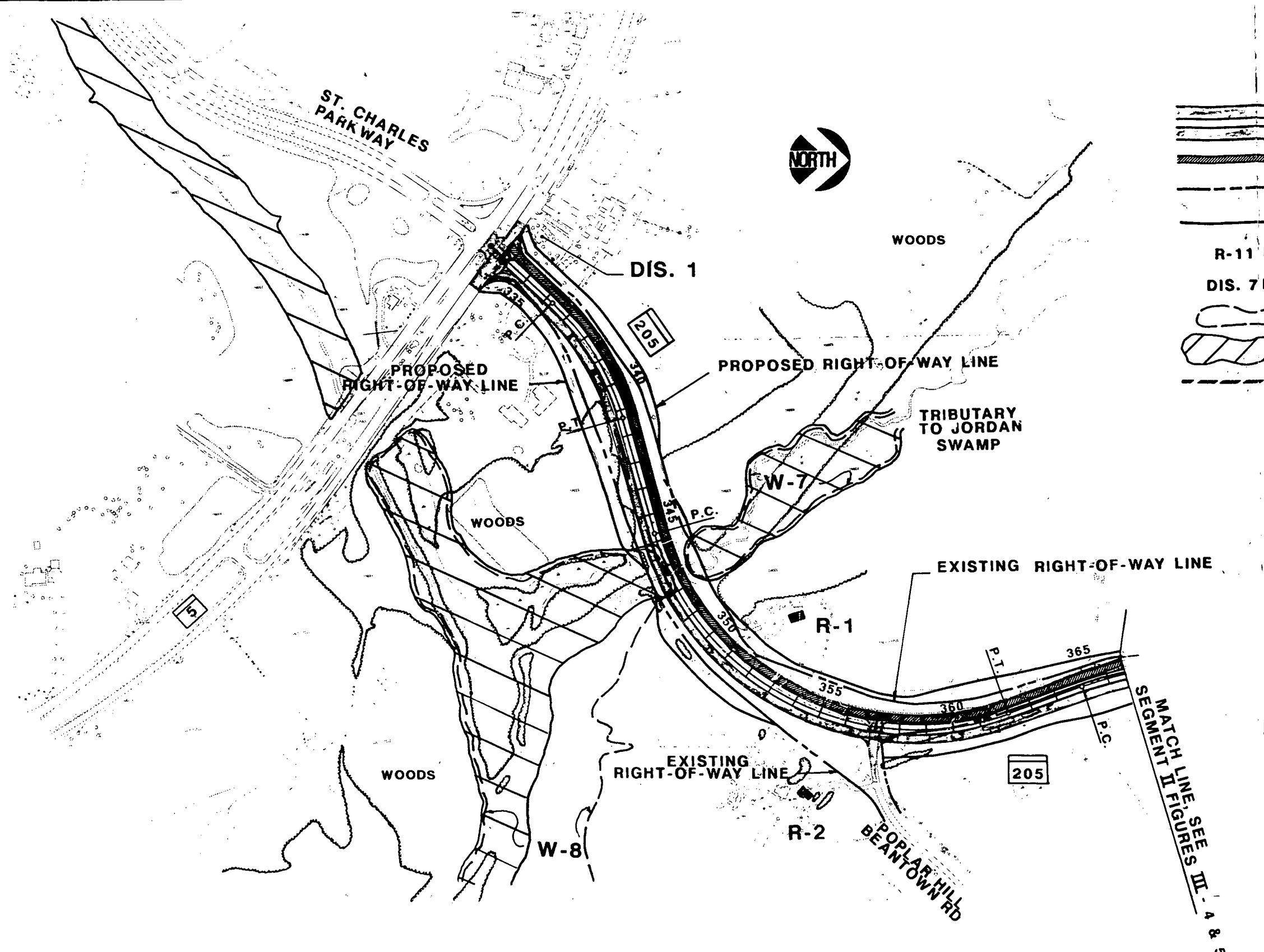
NOTE: THE DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACTS, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.

FIGURE III-1

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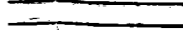




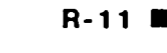
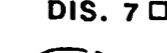

LEGEND

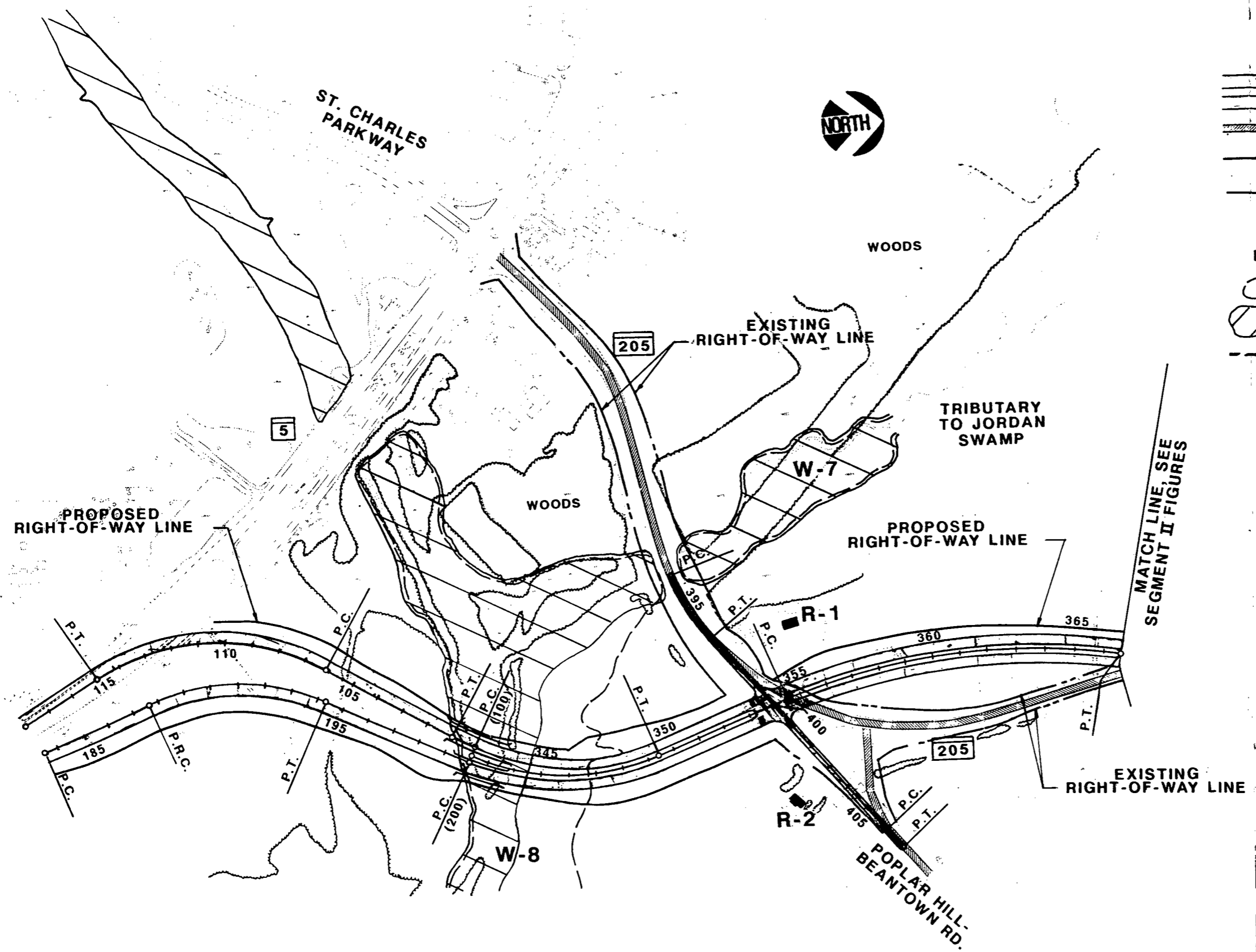
-  PROPOSED ROADWAY
-  EXISTING ROADWAY
-  EXISTING RIGHT-OF-WAY
-  PROPOSED RIGHT-OF-WAY
-  R-11 ■ AIR/NOISE RECEPTOR SITES
-  DIS. 7 □ DISPLACEMENT
-  WETLANDS (W-1)
-  FLOOD PLAINS
-  PROPOSED U.S. 301 WIDENING



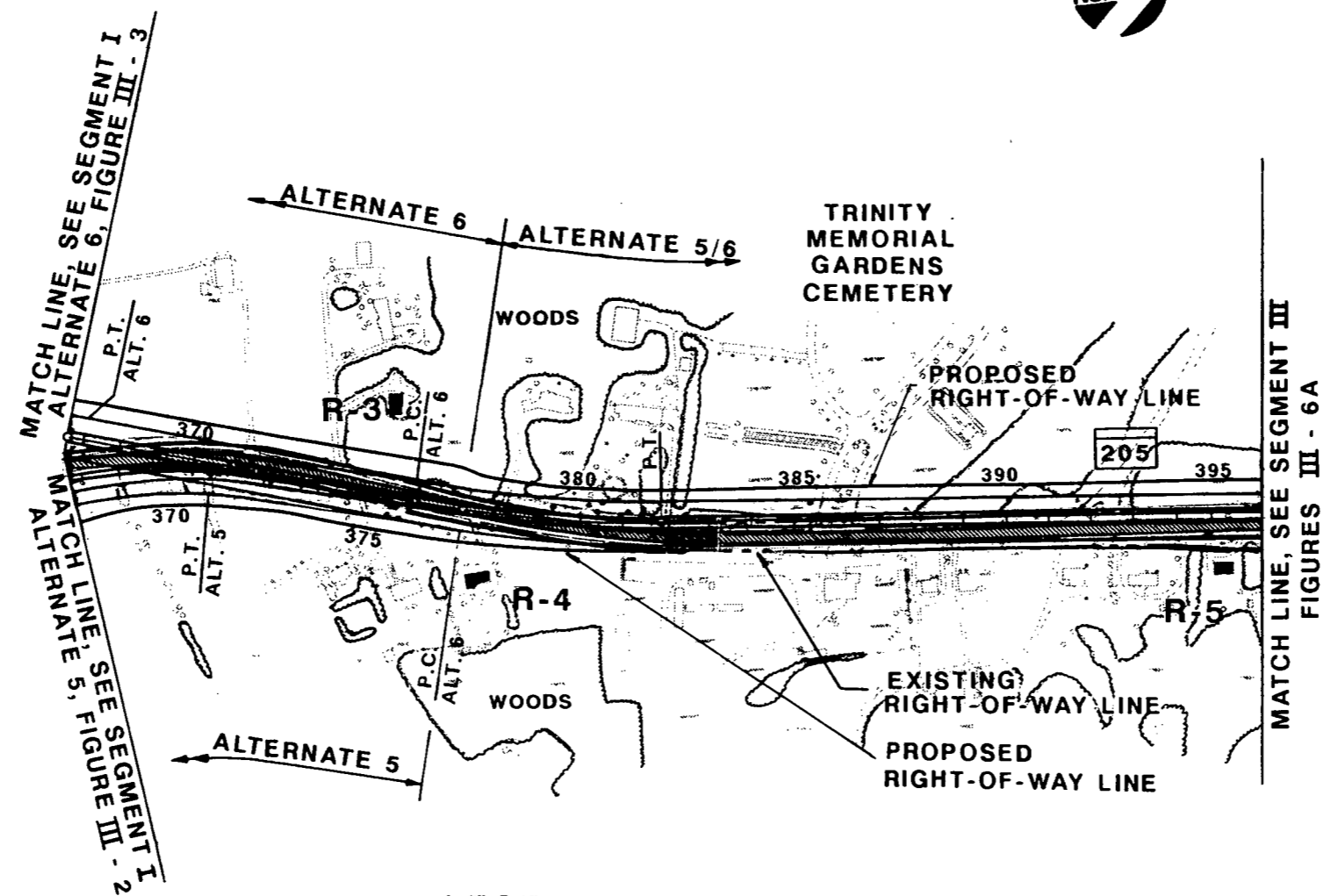
PROPOSED MD 5 RELOCATED
SEGMENT I
ALTERNATE 5
 SCALE: 1" = 400' FIGURE III - 2

LEGEND

-  PROPOSED ROADWAY
-  EXISTING ROADWAY
-  EXISTING RIGHT-OF-WAY
-  PROPOSED RIGHT-OF-WAY
-  R-11 ■ AIR/NOISE RECEPTOR SITES
-  DIS. 7 □ DISPLACEMENT
-  WETLANDS (W-1)
-  FLOOD PLAINS
-  PROPOSED U.S. 301 WIDENING



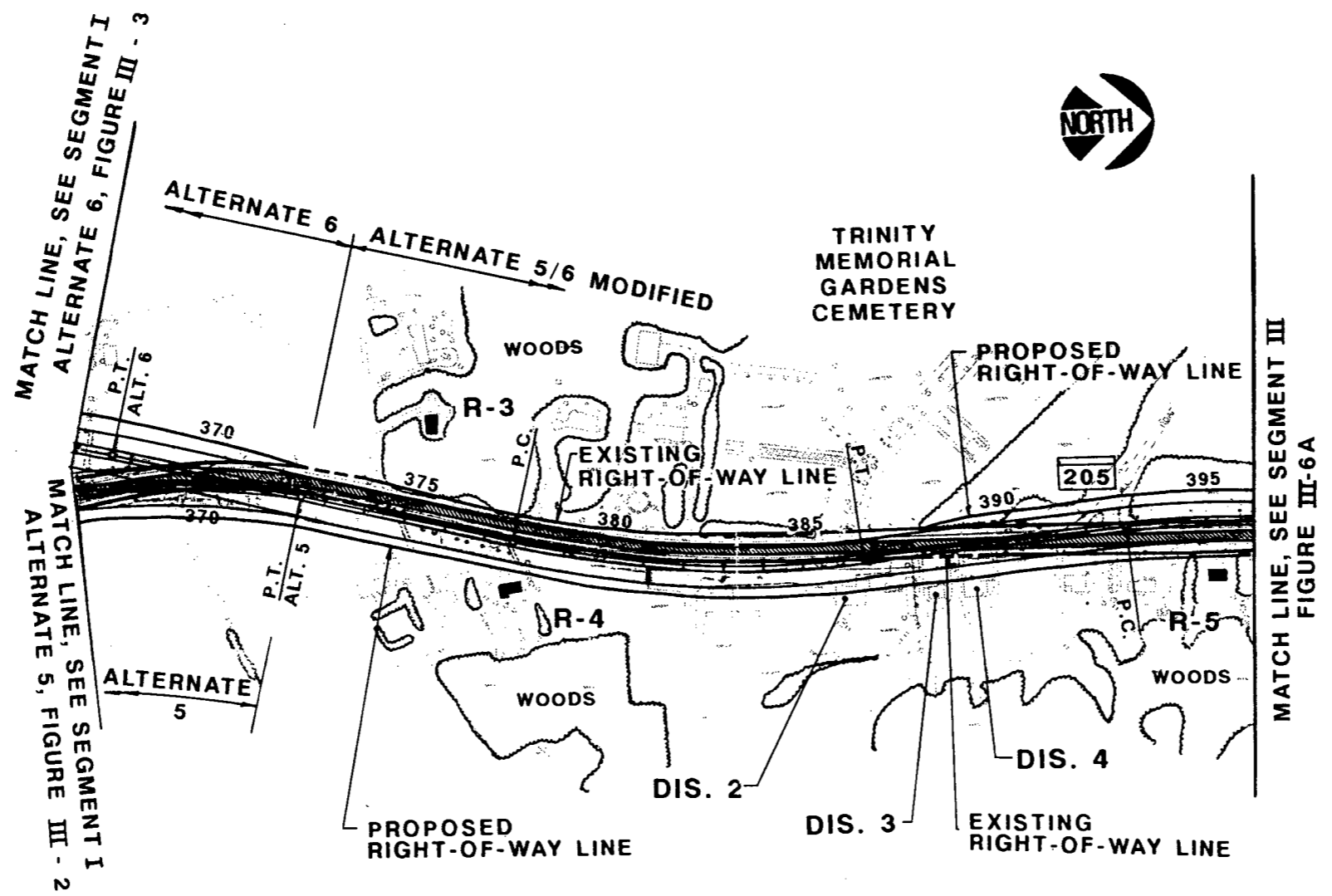
**PROPOSED MD 5 RELOCATED
SEGMENT I
ALTERNATE 6**
SCALE: 1" = 400' FIGURE III - 3



LEGEND

- PROPOSED ROADWAY
- EXISTING ROADWAY
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- R-11 ■ AIR/NOISE RECEPTOR SITES
- DIS. 7 □ DISPLACEMENT
- WETLANDS (W-1)
- FLOOD PLAINS
- PROPOSED U.S. 301 WIDENING

PROPOSED MD 5 RELOCATED
SEGMENT II
ALTERNATE 5/6
 SCALE : 1"=400' FIGURE III - 4



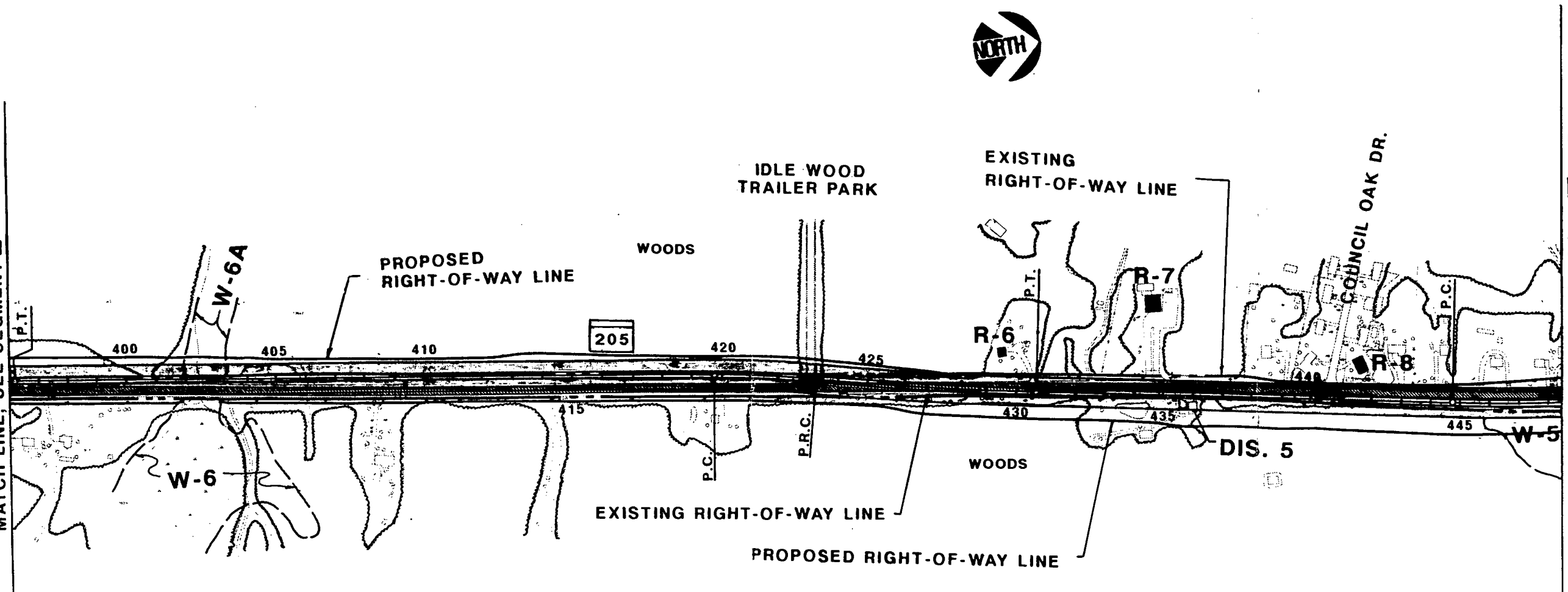
LEGEND

- PROPOSED ROADWAY
- EXISTING ROADWAY
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- R-11 ■ AIR/NOISE RECEPTOR SITES
- DIS. 7 □ DISPLACEMENT
- WETLANDS (W-1)
- FLOOD PLAINS

**PROPOSED MD 5 RELOCATED
SEGMENT II
ALTERNATE 5/6
MODIFIED**

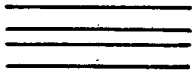

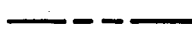

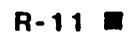

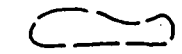


SCALE: 1"=400' FIGURE III-5

MATCH LINE, SEE SEGMENT II FIGURES III - 4 & 5



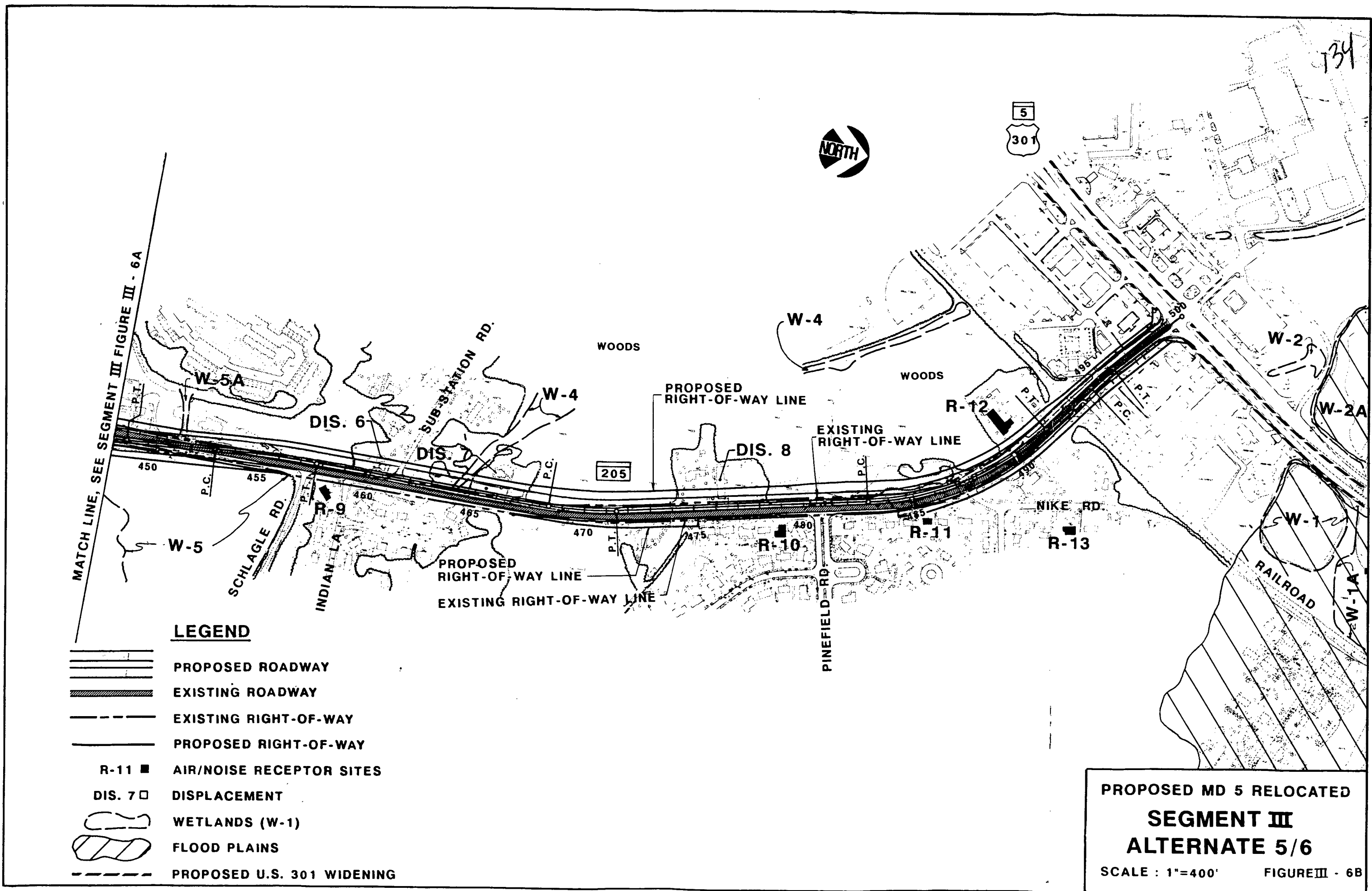
MATCH LINE, SEE SEGMENT III FIGURE II - 6B

LEGEND

-  PROPOSED ROADWAY
-  EXISTING ROADWAY
-  EXISTING RIGHT-OF-WAY
-  PROPOSED RIGHT-OF-WAY
-  R-11 ■ AIR/NOISE RECEPTOR SITES
-  DIS. 7 □ DISPLACEMENT
-  WETLANDS (W-1)
-  FLOOD PLAINS
-  PROPOSED U.S. 301 WIDENING

PROPOSED MD 5 RELOCATED
SEGMENT III
ALTERNATE 5/6
 SCALE : 1"=400' FIGURE III - 6A

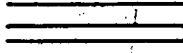

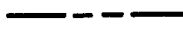
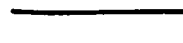
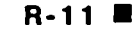
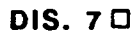



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MATCH LINE, SEE SEGMENT III FIGURE III - 6A

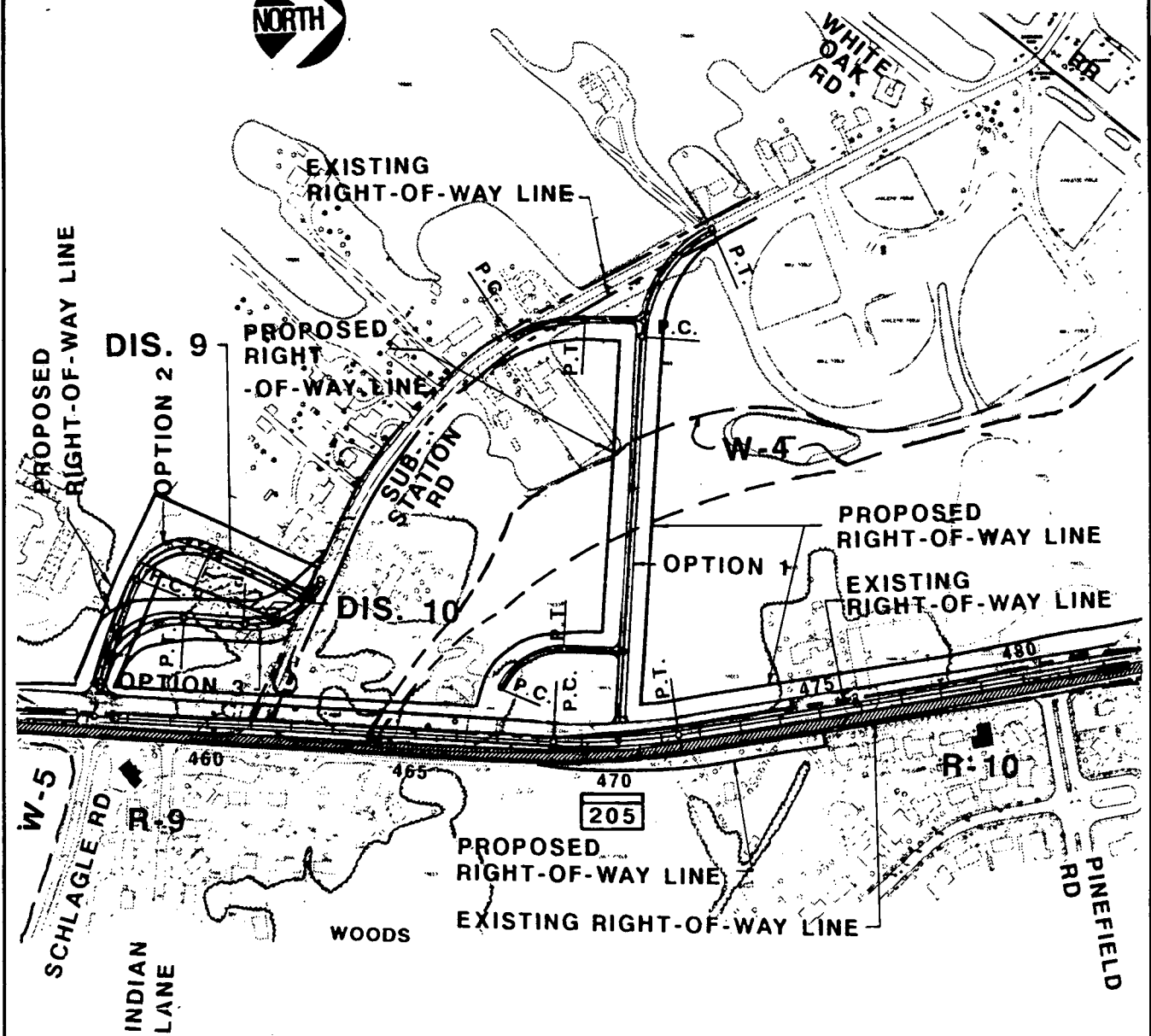


LEGEND

-  PROPOSED ROADWAY
-  EXISTING ROADWAY
-  EXISTING RIGHT-OF-WAY
-  PROPOSED RIGHT-OF-WAY
-  R-11 ■ AIR/NOISE RECEPTOR SITES
-  DIS. 7 □ DISPLACEMENT
-  WETLANDS (W-1)
-  FLOOD PLAINS
-  PROPOSED U.S. 301 WIDENING

PROPOSED MD 5 RELOCATED
SEGMENT III
ALTERNATE 5/6
 SCALE : 1"=400' FIGURE III - 6B

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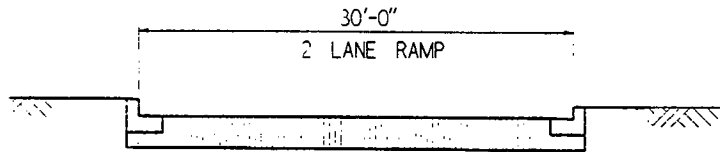
LEGEND

- PROPOSED ROADWAY
- EXISTING ROADWAY
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- R-11 AIR/NOISE RECEPTOR SITES
- DIS. 7 DISPLACEMENTS
- WETLANDS (W-1)
- FLOOD PLAINS
- PROPOSED U.S. 301 WIDENING

**PROPOSED MD 5 RELOCATED
RELOCATED
SUB-STATION ROAD**

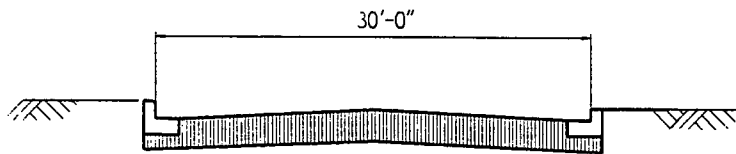
SCALE: 1" = 400' FIGURE III-7

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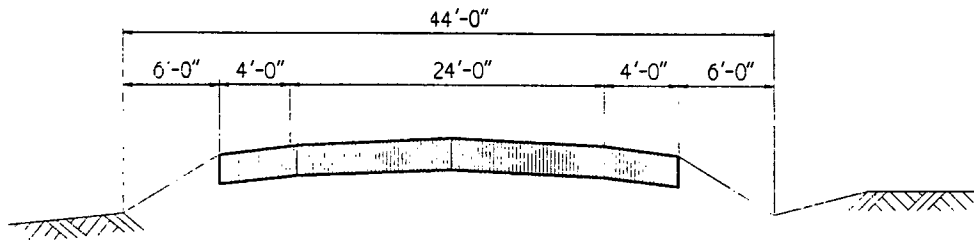
RAMPS

INTERCHANGE OPTIONS A, B, C, & D



SERVICE ROAD

INTERCHANGE OPTIONS C & D



PINEFIELD ROAD EXTENDED

INTERCHANGE OPTIONS C

NOTE:

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










PROPOSED MD 5 RELOCATED

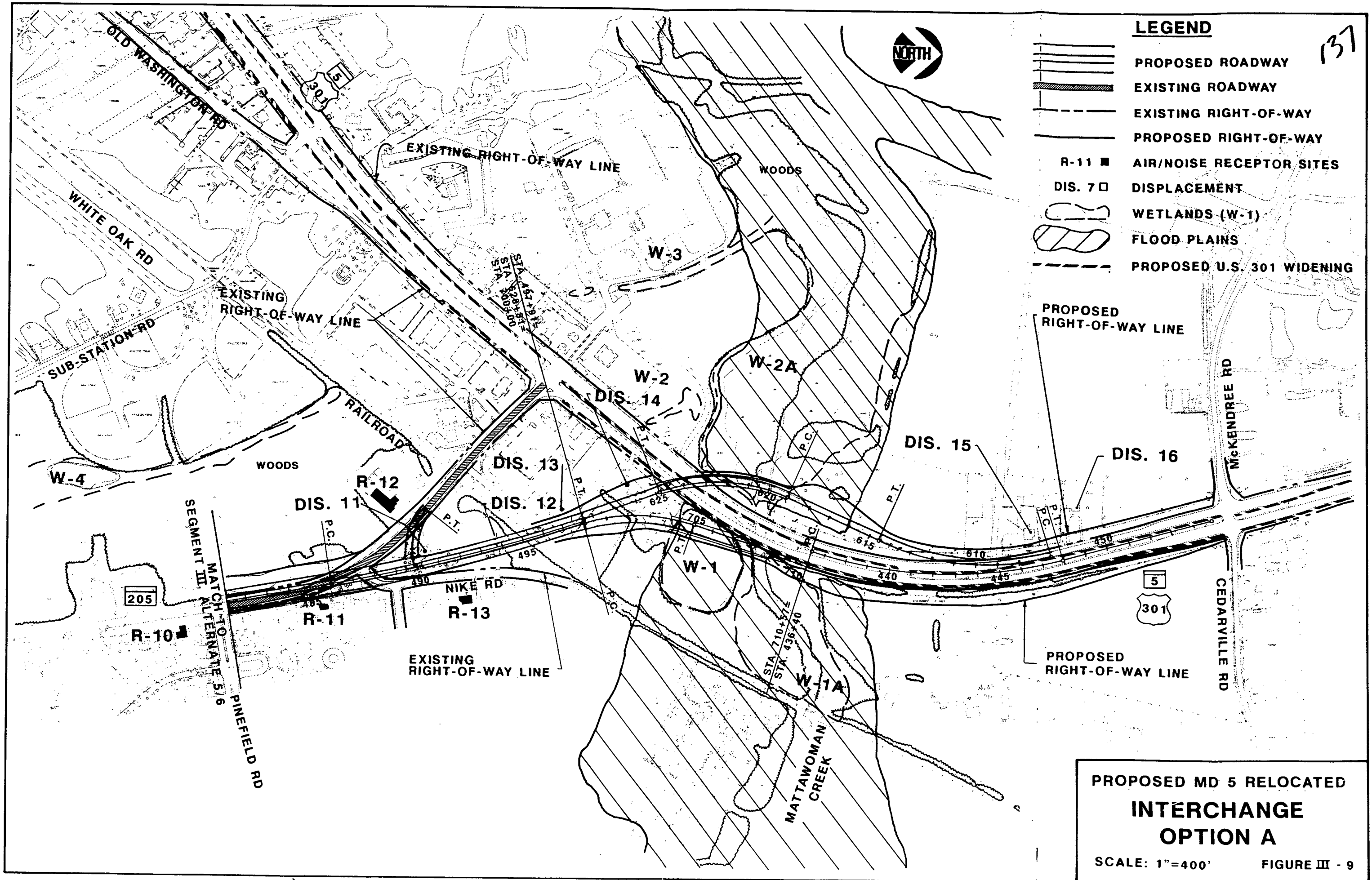
**INTERCHANGE OPTIONS
TYPICAL SECTIONS**

FIGURE III-5

137

LEGEND

-  PROPOSED ROADWAY
-  EXISTING ROADWAY
-  EXISTING RIGHT-OF-WAY
-  PROPOSED RIGHT-OF-WAY
-  R-11 AIR/NOISE RECEPTOR SITES
-  DIS. 7 DISPLACEMENT
-  WETLANDS (W-1)
-  FLOOD PLAINS
-  PROPOSED U.S. 301 WIDENING



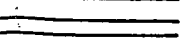

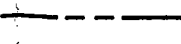

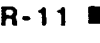
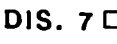


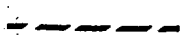
**PROPOSED MD 5 RELOCATED
INTERCHANGE
OPTION A**

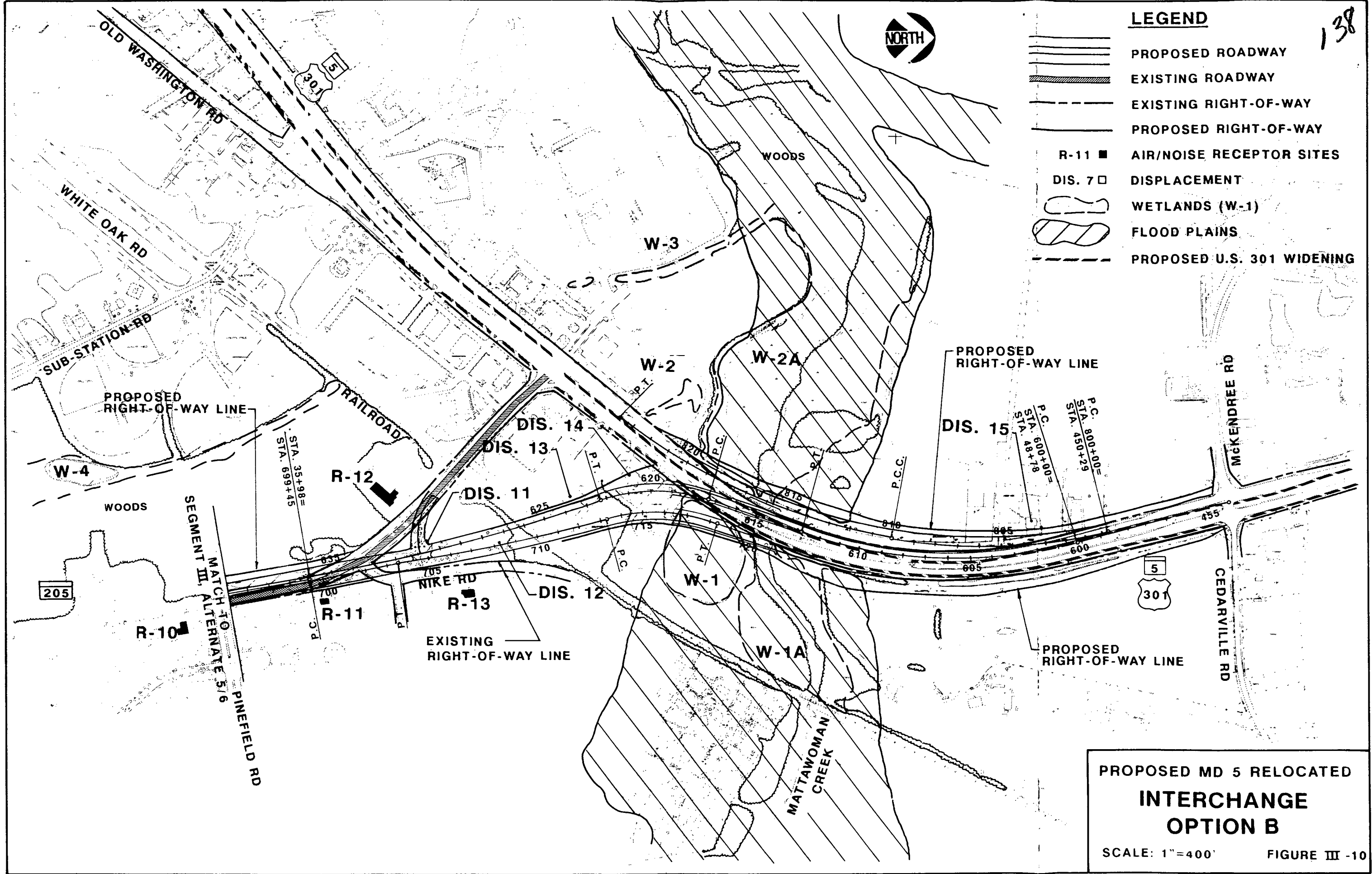
SCALE: 1"=400' FIGURE III - 9

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LEGEND

-  PROPOSED ROADWAY
-  EXISTING ROADWAY
-  EXISTING RIGHT-OF-WAY
-  PROPOSED RIGHT-OF-WAY
-  R-11 AIR/NOISE RECEPTOR SITES
-  DIS. 7 DISPLACEMENT
-  WETLANDS (W-1)
-  FLOOD PLAINS
-  PROPOSED U.S. 301 WIDENING

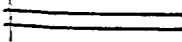

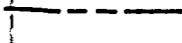

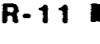
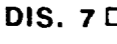





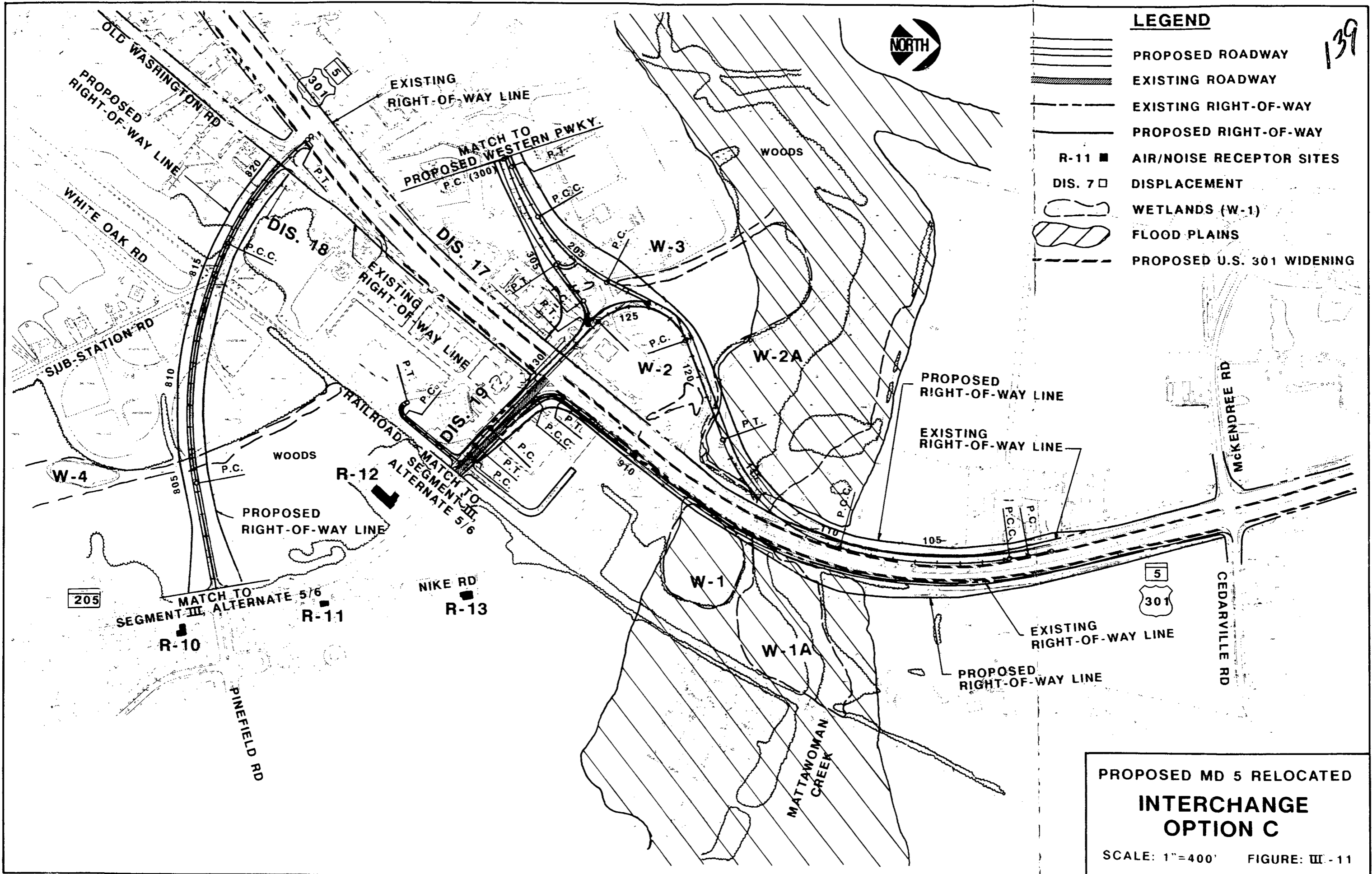
PROPOSED MD 5 RELOCATED
**INTERCHANGE
 OPTION B**
 SCALE: 1"=400' FIGURE III -10

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LEGEND

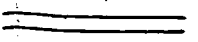

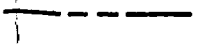
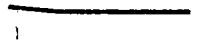



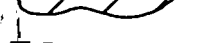

-  PROPOSED ROADWAY
-  EXISTING ROADWAY
-  EXISTING RIGHT-OF-WAY
-  PROPOSED RIGHT-OF-WAY
-  R-11 ■ AIR/NOISE RECEPTOR SITES
-  DIS. 7 □ DISPLACEMENT
-  WETLANDS (W-1)
-  FLOOD PLAINS
-  PROPOSED U.S. 301 WIDENING

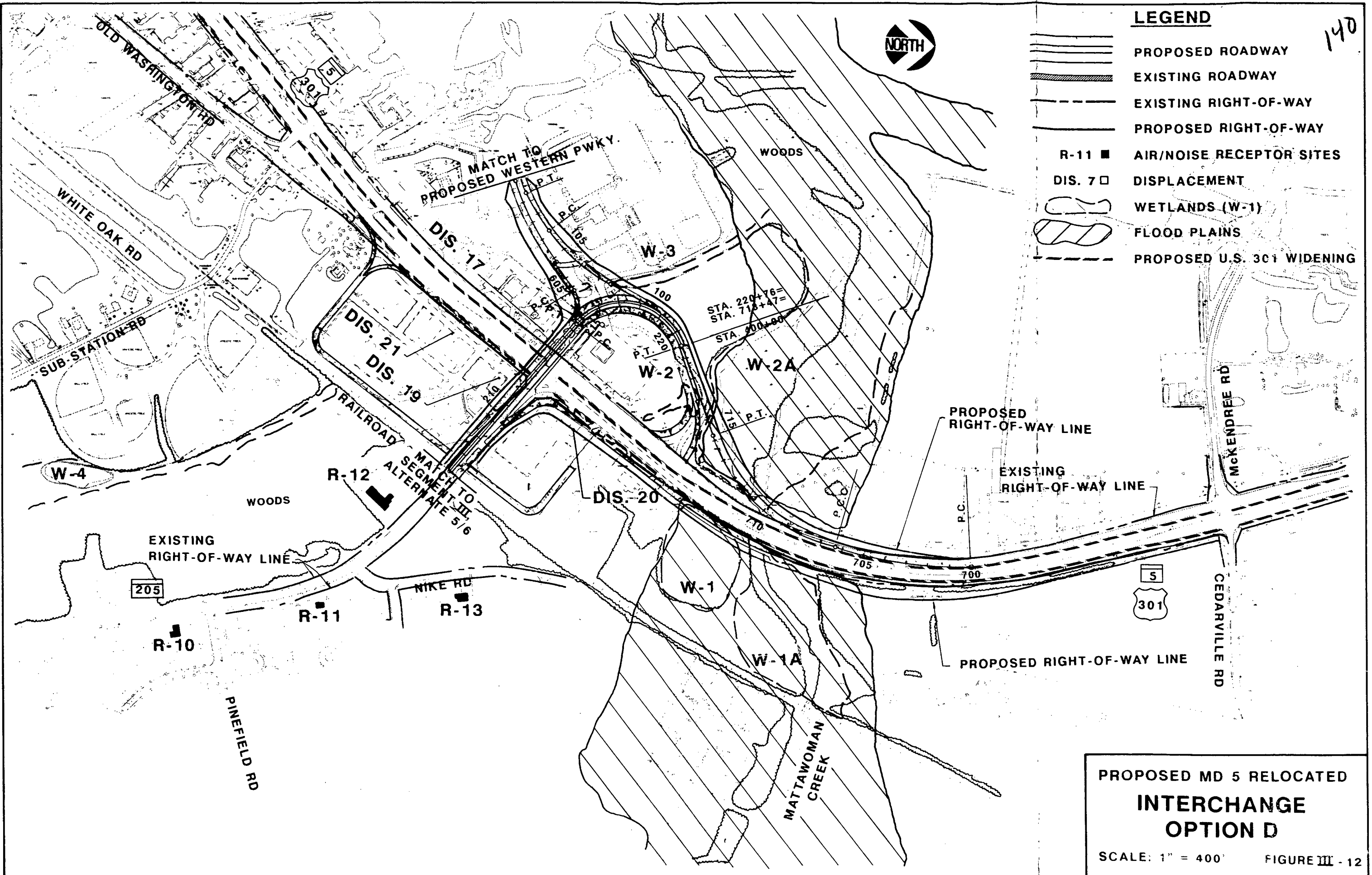


**PROPOSED MD 5 RELOCATED
INTERCHANGE
OPTION C**

SCALE: 1"=400' FIGURE: III - 11

LEGEND

-  PROPOSED ROADWAY
-  EXISTING ROADWAY
-  EXISTING RIGHT-OF-WAY
-  PROPOSED RIGHT-OF-WAY
-  R-11 ■ AIR/NOISE RECEPTOR SITES
-  DIS. 7 □ DISPLACEMENT
-  WETLANDS (W-1)
-  FLOOD PLAINS
-  PROPOSED U.S. 301 WIDENING



PROPOSED MD 5 RELOCATED INTERCHANGE OPTION D
 SCALE: 1" = 400' FIGURE III - 12

IV. ENVIRONMENTAL IMPACTS

IV. ENVIRONMENTAL IMPACTS

A. Social

1. Displacements

a. Relocation Process

Relocation of any individuals, families, or businesses displaced by this project would be accomplished in accordance with the Uniform Relocation Assistance and Acquisition Policies Act of 1970 and amendments of 1987 (Public Law 91-646 and Public Law 100-17), and could be affected in a timely and humane fashion. In the event comparable replacement housing is not available for displaced persons or available replacement housing is beyond their financial means, replacement "housing as a last resort" will be utilized to accomplish the rehousing. A summary of the Relocation Assistance Program of the State of Maryland is given in Appendix A of this document.

b. Description of Displacements

An analysis of the probable displacements that would be caused by the build alternates under consideration has been made by the State Highway Administration, Relocation Assistance Division. The centerline of the alternates has been shifted to minimize relocations. Pertinent information from this study is reproduced below and compared in Table 11 (Summary of Displacements). The relocations associated with each Alternate/Interchange Option are shown on the Alternates mapping (Figures III-2 thru III-12). The Relocation Report is available at SHA District 5 Office, 138 Defense Highway Annapolis, MD 21401.

Alternate 1 (No-Build)

Since the No-Build alternate will only include spot safety and intersection improvements, as needed no residential displacements will occur.

Segment I: Alternate 5

There would be one residential relocation (Dis.1) within this segment to the left of the intersection of MD 205 with MD 5. This will probably require "Housing of Last Resort"

Segment I: Alternate 6

There are no displacements within this segment.

Segment II: Alternate 5/6

There are no commercial or residential displacements within this segment. This alternate would impact the Trinity Memorial Gardens Cemetery and require the relocation of 1500 grave sites, 125 of which are entombed.

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Segment II: Alternate 5/6 Modified

There would be one commercial relocation (Longwood Nursery) and two residential relocations within this segment. (Dis. 2, 3 and 4 respectively).

Segment III: Alternate 5/6

There would be one commercial relocation (Waldorf Jaycees) (Dis. 8), one church (Messiah Lutheran) (Dis. 7) and two residential relocations (Dis. 5 and 6) within this segment. No known grave sites or tombs are present on the church's property.

Relocated Sub-Station Road

Option 2 and 3 would each have one residential relocation. (Dis. 9 and 10 respectively).

Interchange Options

Interchange Option A would relocate two commercial establishments (Cap City and Illusions Nite Club) (Dis. 13 and 14) and four residents (Dis. 11, 12, 15 and 16).

Interchange Option B would relocate the same two commercial establishments (Cap City and Illusions Nite Club) and three residents (Dis. 11, 12 and 15).

Interchange Option C would have three commercial relocations (Exxon, United Bank and Hardees) (Dis. 17, 18 and 19 respectively).

Interchange Option D would have four commercial relocations (Exxon Hardees, Quick Shop and Subway Shop) (Dis. 17, 19, 20 and 21 respectively).

c. Housing Availability

To ascertain the availability of replacement housing in the Study Area, local realtors were contacted and listings in The Washington Post were surveyed. The Study found sufficient housing to exist on the open market for the owner-occupants, but found the rental market to be somewhat restrictive, with limited numbers of dwellings and high monthly rentals. In the event that tenants displaced are paying below market rents for their housing, last resort housing funds may be necessary to provide adequate Decent, Safe and Sanitary housing.

According to the right-of-way/relocation report completed for this project, relocation sites are available within the vicinity of the study area for the church and commercial establishments displaced. The right-of-way/relocation report is available for public review at the State Highway Administration's District 5 Office 138 Defense Highway, Annapolis, Maryland 21401.

2. Title VI Statement

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

TABLE 11

SUMMARY OF DISPLACEMENTS

<u>IMPACTS</u>	<u>SEG I ALT 5</u>	<u>SEG I ALT 6</u>	<u>SEG II ALT 5/6</u>	<u>SEG II ALT 5/6 MOD</u>	<u>SEG III ALT 5/6</u>	<u>REL S-S ROAD OPTION 1-2-3</u>	<u>INT OPT A</u>	<u>INT OPT B</u>	<u>INT OPT C</u>	<u>INT OPT D</u>
<u>DISPLACEMENTS</u>										
Residential	1	0	0	2	2	0-1-1	4	3	0	0
Commercial	0*	0*	0**	1	2***	0-0-0	2	2	3	4
TOTAL	1	0	0	3	4	0-1-1	6	5	3	4
<u>PROPERTIES AFFECTED</u>										
Residential	7	8	14	12	34	4-2-2	14	13	6	4
Commercial	1	1	2	3	7	0-0-0	4	4	15	15
Church	0	0	0	0	1	0-0-0	0	0	0	0
Recreational	0	0	0	0	0	0-0-0	0	0	1	0
TOTAL	8	9	16	15	42	4-2-2	18	17	22	19
<u>RIGHT-OF-WAY (ACRES)</u>										
Residential	9	21	4	2	20	5-2-2	13	12	8	8
Commercial	1	1	1	3	1	0-0-0	7	6	8	9
Church	0	0	0	0	1	0-0-0	0	0	0	0
Recreational	0	0	0	0	0	0-0-0	0	0	5	0
TOTAL	10	22	5	5	22	5-2-2	20	18	21	17
<u>RELOCATED GRAVES</u>	0	0	125**	0	0	0-0-0	0	0	0	0
<u>HISTORICAL/ARCHEOLOGICAL</u>	0	0	0	0	0	0-0-0	0	0	0	0
<u>RAILROAD CROSSINGS</u>	0	0	0	0	1	0-0-0	1	1	2	1

* A barn would be displaced

** A displacement of 1500 grave sites would occur (125 occupied)

*** One displacement would be a church

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

3. Effects on Minority, Elderly and Handicapped Individuals

There is one residential relocation which impacts a minority family within Segment III: Alternate 5/6. There are no effects to the elderly or handicapped.

4. Disruption of Neighborhoods and Communities

Since MD 205 is an existing facility that traverses between neighborhoods, the selection of any alternate or interchange option will not cause the separation of residents from other residents or community facilities, produce any adverse changes in social interaction, or disrupt community cohesion.

Dependent on the alternate selected, some residents will be displaced as discussed in Section (IV.A.b). The number and location of displacements varies by alternate and interchange. The majority of the residents in the study area will experience disruptions in the form of having portions of their property acquired for right-of-way for an interchange, the mainline and/or service roads. Table 11 provides a breakdown of residents affected. In addition, short term inconveniences with access to and from neighborhoods and businesses are anticipated during construction.

The circulation of traffic patterns for the study area residents will be significantly impacted by the build alternates and/or interchanges through the introduction of mainline medians, limited access points to the mainline, the use of service roads, the need for "U" turns by residents who need to perform roadway crossovers, and the new movements introduced by the selected interchange. See the description of alternates and interchange options in Section III for the proposed improvements and Figures III-1 thru III-12 for a graphical reference of each alternate and interchange option.

Alternate 1 (No-Build) does not address the need for additional capacity and as such will add to traffic congestion and the lengthening of peak hours thereby worsening travel time and safety to and from MD 205.

5. Parks and Recreation Facilities

None of the alternates will impact any public park or recreational area.

6. Effects on Access to Services and Facilities

The impacts on access to existing facilities and services produced by the alternates is a minor increase in travel distance, requiring patrons to execute "U" turns at median breaks which are generally provided every 750 to 1500 feet with the exception of the heavy commercial area at the US 301/MD 205 intersection. The selection of any alternate will not impede existing pedestrian mobility and the use of a median will provide a refuge for crossing pedestrians.

Alternate 1 (No-Build)

This Alternate does not address the existing or projected traffic congestion problems. As a result, peak hours would lengthen, access would become inhibited and commuters may seek an alternative route in an effort to avoid delays.

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Mainline Alternates

The mainline alternates all have medians with a minimum cross over spacing of 750'. Access would be available but would require minor routing changes in the form of median "U" turns. With a mainline LOS 'C' and traffic signals at US 301/MD 5, Pinefield Drive, and MD 5, adequate spacing to provide for "U" turns will be available with minor delays.

Interchange Options A and B

Options A and B, which are very similar to one another, would introduce a minor change in accessing services in the US 301/MD 205 intersection quadrants. The change involved is that of a signalized "T" intersection that would be created with existing MD 205 and the approach to the interchange ramps east of the Happy Faces Early Learning Center south of the Conrail tracks. Commuters travelling northbound on MD 205 would now have to make a left turn to remain on MD 205 to access the businesses in the US 301/MD 205 intersection area.

Interchange Options C and D

Options C and D, which are similar to each other in function and design would produce impacts on access to the services in the US 301/MD 205 intersection area. Through the introduction of a structure over existing US 301 and complex directional movements a new traffic pattern would be developed.

Option C

This interchange options will produce the following changes in access to businesses:

- o Direct access to Embassy Dairy from northbound MD 205 would be eliminated. Access to the dairy would now be from Western Parkway.
- o Access from northbound US 301 to MD 205 would be moved south to the intersection of US 301 and Pinefield Road extended.
- o The point of entrance to the Exxon Station from southbound US 301 would have to be moved further south on Exxon's property, and the existing entrance/exit on the north side of the station would be closed to allow for the required grading for the US 301 overpass.
- o Direct access from northbound US 301 to the following businesses would be eliminated by the addition of an acceleration lane for traffic entering northbound US 301 from northbound MD 205: Pinefield Center, Wendy's, Quick Shop, Cap City and the Illusions Nite Club.
- o Access from MD 205 to Dash-In, Pinefield Liquors, Pinefield South Shopping Center, Pinefield Center, Cap City and Illusions Nite Club would be changed to a four-leg signalized intersection approximately 60 feet north of the Conrail tracks.

Option D

This option would produce the displacement of the Quick Shop located in the Pinefield Center. The changes in access to study area facilities and services under this option are similar to Option C, with the exception of slip ramps being provided at the Pinefield South Shopping Center in lieu of extending Pinefield Road through the Chaney Ball fields to US 301.

7. Effects on Access to Emergency Vehicles

With Alternate 1 (No-Build) existing access will be unchanged, the selection of this Alternate is anticipated to worsen emergency response time as fewer lanes will be available for motorists to pull over, and congestion through the study area increases; especially during the peak hours.

The selection of any build alternate will restrict points of access for emergency vehicles through the introduction of medians (a minimum spacing of 750' between median openings is required) and/or service roads. However, improved response time is anticipated due to additional lanes for increased capacity. The additional lanes will enable emergency vehicles to arrive at the scene of an emergency quicker and safer as more room will be available to motorists.

The selection of any build interchange option would change emergency vehicle access in the northern end of the study area resulting in improved response time through the introduction of free-flow movements and a reduction in traffic congestion.

8. Effects on Traffic Operations

Alternate I (No-Build) would provide no major improvements to MD 205. As traffic volumes continue to grow, traffic delays and the length of the peak hours will expand. Detailed traffic reveals that MD 205 will operate at peak hour LOS F in the design year (2015). It can be expected that as the magnitude and duration of congestion increases over time, the rate of accidents will also increase.

A Level-of-Servide Summary (Table 12) for the various segments validate the necessity for the proposed mainline alternatives, intersection improvements and interchange improvements.

TABLE 12
LEVEL-OF-SERVICE SUMMARY
SEGMENT I

<u>Mainline</u>	<u>2015</u>
No Build	F
Build	C

TABLE 12 (CONT'D)
LEVEL-OF-SERVICE SUMMARY

<u>Intersections: Alternate 5</u>		<u>2015 (AM/PM)</u>
1)	MD 205/MD 5 No-Build Build	F/F E/F
2)	MD 205/Poplar Hill-Beantown Road No-Build Build	D/E C/B
<u>Intersections: Alternate 6</u>		<u>2015 (AM/PM)</u>
1)	Proposed MD 5 Relocated/MD 5 No-Build Build	-/ B/C
2)	Proposed MD 5 Relocated/ Poplar Hill-Beantown Road No-Build Build	-/ C/A
3)	Existing MD 205/MD 5 No-Build Build	F/F D/D

SEGMENT II

<u>Mainline</u>	<u>2015</u>
No-Build	F
Build	C

SEGMENT III

<u>Mainline</u>	<u>2015</u>
No-Build	F
Build	C/D*

* The mainline build LOS (2015) would be LOS C from Segment II to Idlewood Trailer Park and LOS D from Idlewood Trailer Park to the intersection of US 301/MD 5.

TABLE 12 (CONT'D)
LEVEL-OF-SERVICE SUMMARY

<u>Intersection</u>	<u>2015 (AM/PM)</u>
1) Idlewood Trailer Park No-Build Build	E/C B/A
2) Council Oak Drive No-Build Build	E/C C/A
3) Sub-Station Road No-Build Build Option 1 Option 2 Option 3	F/E B/A C/B C/B
4) Pinefield Road No-Build Build	F/F D/A
5) Nike Road No-Build Build	F/F D/A
6) US 301-MD 5/MD 205 No-Build Build*	F/F F/F

* The Build condition reflects a mainline build alternate and not an interchange build option. The interchange build alternate is represented within the "Interchange Options" following.

TABLE 12 (CONT'D)
LEVEL-OF-SERVICE SUMMARY
INTERCHANGE OPTIONS

<u>Option A & B</u>	<u>2015 (AM/PM)</u>
1) US 301-MD 5/205 No-Build* Build	F/F F/F**
2) Proposed MD 5/MD 205 Build	B/C
3) Merge: Proposed MD 5/US 301 Build	E/B
4) Diverge: US 301/Proposed MD 5 Build	A/B
* The no-build assumes that a mainline build alternate has been selected but no build interchange option was selected.	

<u>Option C</u>	<u>2015 (AM/PM)</u>
1) Pinefield Road Build	B/C
2) Merge: Proposed MD 5/US 301 Build	E/B
3) Diverge: US 301/Proposed MD 5	A/B

<u>Option D</u>	
1) Proposed MD 5/ Service Road Build	D/D
2) Merge: Proposed MD 5/US 301 Build	E/B
3) Diverge: US 301/Proposed MD 5 Build	A/B

** All intersections along US 301 will have a LOS F due to the anticipated traffic along US 301. A fourth lane along US 301 (in each direction) is needed to provide an adequate level-of-service.

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B. Economic

1. Effects on Local Businesses

Alternate I (No-Build)

This alternate would result in increased congestion, traffic conflicts, and increased travel time for commuter access to and from local businesses. This could create a shift in travel demands to other roadways that could lure away customers.

Mainline Build Alternate

The selection of any build alternate would increase the mainline level of service inducing commuters to remain on this roadway rather than changing their traffic patterns and commercial activity. The limiting of median crossovers would have a negligible impact on local businesses.

The Waldorf Jaycees would be displaced by Segment III: Alternate 5/6. The Longwood Nursery would be displaced by Segment II: Alternate 5/6 Modified. Table 12 provides a summary of impacts identifying which business would be affected.

The railroad would continue to be crossed at-grade. Currently an average of two trains per day cross MD 205, with no plans for future increases.

Interchange Options

An interchange no-build option would not improve traffic congestion as existing movements at the intersection of US 301 and MD 205 would remain unchanged. Therefore as traffic congestion grows more pressure would be put on the signals at US 301 and MD 205 to distribute traffic. This will result in extended traffic delays and may cause motorists to seek undesired alternative routes. This option is viewed as counterproductive in the event a build alternate is selected.

Interchange Option A and B

The selection of either option would cause the displacement and property acquisition of two businesses: Cap City and the Illusions Nite Club. No other businesses would be affected. In addition, minor changes in access on MD 205 will occur as discussed in the previous Section IV A-5.

Overall, the affects on the local businesses is anticipated to be positive by increased traffic capacity and reduced congestion.

Interchange Option C

This option would not cause any displacements. However, several businesses will be impacted by right-of-way acquisitions thus reducing property size and parking capacities. In addition although this option would reduce traffic congestion at the US 301/MD 205 intersection, the changes in access are anticipated to result in some redistribution of patronage to areas where more parking and fewer traffic conflicts exist.

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Interchange Option D

This option would produce the displacement of one (1) business: the Quick Shop which is located in the Pinefield Center near US 301. Also very similarly to Option C, several businesses will be impacted by right-of-way acquisition, changes in access and the potential redistribution of patrons to other areas.

2. Effects on Regional Business

Charles County is a growing part and southern extension of the Washington Metropolitan regional economy. As the County has continued to develop, it has become more dependent on US 301 and its connecting arterials to satisfy transportation needs in order to fuel the exchange of goods, services, and labor forces.

Alternate 1 (No-Build)

The No-Build Alternate would not help address the growing needs of the County and in particular, the study area. This alternate is anticipated to have a minor impact on regional business as additional traffic congestion and reduced safety would deter additional residential and business development in the study area and its southern vicinity, as well as help delay the exchange of goods and services.

Mainline Build Alternates

The selection of a Build Alternate would help address the growth needs of the County and have a positive effect on regional business activities. These alternates would alleviate congestion on MD 205 thereby reducing travel time to and from business districts and through movements, and increasing traffic safety.

No-Build Interchange Option

The selection of the No-Build Option would produce a minor impact on regional business activities as congestion at the US 301/MD 205 intersection would not be significantly improved. Additional congestion at this intersection would result in deficient signalization for traffic volumes thereby exacerbating current back-ups and delaying the exchange of goods and services. This option would also be counterproductive to the selection of a MD 205 Build Alternate.

Interchange Options A through D

These options would alleviate congestion at the US 301/MD 205 intersection and increase the effectiveness of a mainline build alternate. Therefore these options would have a positive effect on regional business through reduced travel time, increased traffic capacity, and the attraction of new development.

3. Effects on the Tax Base

Improvements to MD 205 as presented under the Build Alternates and Interchange Options would help encourage continued development in the study area and vicinity. Increased traffic capacity and safety would accommodate growth and relieve congestion problems. The expansion of residential and commercial areas would have a positive effect on the County's tax base and revenues.

The selection of the No-Build Alternate will only exacerbate existing traffic conditions and may have a detrimental effect on continued development in the study area and its vicinity.

C. Land Use

The selection of any Interchange Option and Mainline Build Alternate is consistent with the County's Comprehensive Land Use Plan (approved 1989) for the year 2010. This plan has designated the study area as a Metro Form development area mixing residential, commercial and industrial uses. Increased traffic capacity and safety will play a vital role in the future development plans for this area.

The selection of the No-Build Alternate would not be consistent with the County's future land use plans as increasing traffic congestion and service problems will help to restrict additional development and add delays to automotive mobility.

D. Historic/Archeological Sites

The Maryland Historic Trust (MHT) has reviewed the study area and stated that there are no historic sites in the study area. Consequently, there are no impacts to historic sites. See the letter from the MHT dated June 30, 1988 in the Comments and Coordination section, page V-6.

A Phase I archeological survey was conducted for this project. The results of the survey found that there were no significant archeological resources in the project area. Correspondence from the Maryland Historic Trust concurring with the findings of the survey are attached in section V, page V-7.

E. Natural Environment

1. Effects on Geology, Topography and Soils

The construction of any Mainline Build Alternates or Interchange Option will not produce an adverse impact to the study area's geology, topography or soils. However, given the erosion potential of the area soils and the perched water table, sediment control structures will be used to minimize erosion and sedimentation.

2. Effects on Water Resources

a. Surface Waters

The surface waters in the study area are all designated as Class I in accordance with the Maryland Department of Natural Resources, Water Resources Administration. Presently, there are three stream crossings with MD 205 and one with US 301 within the study area, each with a hydraulic structure. Beginning at the intersection of MD 205 and MD 5, and moving in a northbound direction, they are located as follows:

- o MD 205 crosses on unnamed second order tributary to the Jordan Swamp, 900 feet south of its intersection with Poplar Hill-Beantown Road. The crossing is a triple cell culvert.
- o MD 205 crosses an unnamed first order tributary 1000 feet north of Mill Road. The crossing is a single cell culvert.
- o MD 205 crosses an unnamed first order tributary 1,100 feet north of Council Oak Drive. The crossing is a single cell culvert.
- o US 301/MD 5 crosses Mattawoman Creek at the political boundary of Charles and Prince Georges counties. The crossing is two parallel bridges for the north and southbound lanes.

Impacts to each of the existing MD 205 stream crossings as well as new stream crossings that will occur from the proposed Alternates are described in Table 13.

TABLE 13
PROPOSED STREAM CROSSINGS

SEGMENT I ALTERNATE 5

- o Unnamed tributary to Jordan Swamp crossing at Station 347+50 on mainline

SEGMENT I ALTERNATE 6

- o Two unnamed tributaries to Jordan Swamp approximately 100 feet west of their confluence at Stations 342+40 and 343+50 on mainline.

SEGMENT II ALTERNATE 5/6

- o Unnamed tributary to Jordan Swamp at Station 401+75 on mainline

SEGMENT III ALTERNATE 5/6

- o Unnamed tributary at Station 451+20 on mainline

INTERCHANGE OPTION A

- o Mattawoman Creek crossing at Station 704+35 on northbound Ramp.
- o Mattawoman Creek crossing at Station 619+00 on southbound Ramp.

INTERCHANGE OPTION B

- o Mattawoman Creek crossing at Station 716+50 on northbound Ramp.
- o Mattawoman Creek crossing at Station 614+30 on southbound Ramp.
- o Mattawoman Creek crossing at Station 815+00 on relocated US 301/MD 5

INTERCHANGE OPTION C

- o Mattawoman Creek crossing at Station 113+20 southbound ramp from US 301/MD 5 mainline.
- o Extension of existing bridge crossing of Mattawoman crossing at Station 307+00 on southbound Ramp.
- o Unnamed tributary to Mattawoman Creek crossing at Station 307+00 on southbound Ramp to US 301/MD 5 overpass.
- o Unnamed tributary to Mattawoman Creek crossing at Station 202+50 on Ramp to southbound Western Parkway.

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TABLE 13 CONT'D

INTERCHANGE OPTION D

- o Mattawoman Creek crossing at Station 709+80 on southbound ramp from US 301/MD 5 mainline.
- o Extension of existing bridge crossing of Mattawoman Creek on US 301/MD 5 at Station 913+60, northbound lane.
- o Unnamed tributary to Mattawoman Creek crossing at Station 605+40 on southbound ramp to US 301/MD 5 overpass.
- o Unnamed tributary to Mattawoman Creek crossing at Station 102+10 on southbound ramp to Western Parkway.

The stream crossing of Mattawoman Creek will be affected by each of the interchange options under consideration. All of the option's impacts are similar inasmuch as they all provide for a new southbound structure over the creek, and the widening of the existing US 301 northbound structure or an additional, new, northbound structure. Stream crossings produced by each of the Interchange Options are also described in Table 13.

Short term impacts from the stream crossings are expected to be minor, and to occur in the form of temporary increases in turbidity, specific conductance, sedimentation and reduced water clarity from the disturbance of contiguous upland areas during construction of the roadway and hydraulic structure.

A hydraulic/hydrologic analysis will need to be performed in the final design phase to determine the necessary structural specifications and guidelines for the installation of new structures. The proposed improvements will require waterway construction permits and include plans for strict conformance for grading, erosion and sediment control, and stormwater management as required by the Maryland Department of Natural Resources, Water Resources Administration and the Maryland Department of the Environment.

Long term impacts are also expected to be minor and occur in the form of increased roadway runoff from the addition of new impervious surface. The updated impacts will be reduced by compliance with regulations from the Department of Natural Resources' Stormwater Management Regulations.

These regulations require stormwater management practices in the following order of preference:

- On site filtration
- Flow attenuation by open vegetation swales and natural depressions.
- Stormwater retention structures
- Stormwater detention structures

b. Water Quality

The Water Quality of the study area is not expected to be impacted by the addition of new impervious surface and an increase in roadway runoff. The general factors which influence the quantity and quality of highway runoff are: traffic volume and pattern, maintenance, and rainfall intensity. Typical pollutants found in highway runoff include:

- o Fine dust and dirt
- o Toxic materials (heavy metals and pesticides) from petrochemicals.
- o Salt and sand

In addition, the implementation of the aforementioned stormwater management regulations will negate water quality impacts.

c. Groundwater

Because of the high water table throughout the study area, and the numerous pockets of water seeps discovered during wetland delineation activities, the potential for minor contamination to shallow water sources from roadway runoff is high. However, given the high quality nature of the area's wetlands and their potential pollutant removal/reduction, the impacts associated with project's alternates and interchange options are expected to be minimal. No impacts to wells are anticipated due to diluting effects of filtration during percolation and an abundant groundwater supply, and the extreme depths at which potable water is found. Recharge to groundwater and the study area aquifers may be incrementally reduced due to the addition of new impervious surface area. However, given the widespread availability of groundwater and the geologic structure of the study area, with respect to water bearing units, no impacts to groundwater or study area aquifers is anticipated.

3. Effects on Floodplains

The 100 year floodplains associated with Mattawoman Creek and the tributaries to the Jordan Swamp will be impacted in separate instances under the project's proposed improvements; i.e. mainline alternates vs. interchange options.

In accordance with the requirements of Executive Order 11988, any encroachment must be evaluated to determine its significance. A significant encroachment would involve one of the following:

- o A significant potential for interruption or termination of a transportation facility that is needed for emergency vehicles or for providing a community's only evacuation route;
- o A significant risk
- o A significant adverse impact on natural and beneficial floodplain values.

A summary of impacts to the study areas floodplains is presented in Table 14.

Segment I Alternates 6

This alternate will not have a significant impact on the Jordan Swamp floodplain as encroachment will be minimal through the implementation of parallel bridges instead of hydraulic structures.

Segment I Alternate 5

This alternate will not have a significant impact on the Jordan Swamp floodplain as encroachment will be minimal through the utilization of existing MD 205 and the widening of the existing hydraulic structure to accommodate the new roadway.

Interchange Options (A,B,C and D)

The proposed interchange options will not have a significant impact on the Mattawoman Creek floodplain as encroachment in the Mattawoman Creek floodplain is expected to be minimal due to the use of bridges instead of hydraulic structures. However, minimal earth fill and structural piers will reside in the floodplain.

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TABLE 14
FLOODPLAIN IMPACT SUMMARY

Improvement	Encroachment Acreage
Segment I Alternate 5	1.0
Segment I Alternate 6	1.0
Segment II Alternate 5/6	0
Segment II Alternate 5/6 Modified	0
Segment III Alternate 5/6	0
Interchange Option A	1.5
Interchange Option B	1.4
Interchange Option C	1.4
Interchange Option D	1.9

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To assure against increased flood risk, detailed surface hydrology and structure design studies would be conducted during the final design stages of the project. These studies would identify the quantity of fill to be placed within the floodplain and the resultant impact on the passage of floodwaters. The studies are normally part of the COE's Section 404 permitting process. Any floodplain encroachment will be reviewed and coordinated with the COE to determine the need for a Section 404 Permit.

All reasonable design measures would be incorporated to reduce flooding impacts. The use of standard design techniques for all waterway openings would dictate the size of a structure in order to limit upstream flood level increases and to approximate existing downstream flow rates. In accordance with the National Flood Insurance Program, this project would be designed to assure that the cumulative effect of the project, when combined with all existing and proposed development, would not increase the water surface elevation of the base flood more than one foot within the community.

Possible siltation due to construction of structures within the floodplain would be minimized by providing erosion-control measures along vulnerable portions of embankments in the floodplain. Use of up-to-date sediment and erosion-control techniques and stormwater management controls would minimize flood risks and impacts to the floodplains.

It has been determined that none of the floodplain crossings would constitute a substantial encroachment as a result of the Build Alternates.

4. Ecology

a. Terrestrial Habitat

Impacts to the study areas woodlands from the mainline alternates have been quantified and are listed in Table 15 by project segment. In addition, the anticipated impacts from each of the proposed interchanges are also quantified in Table 15.

According to the Natural Resources Article, Section 5-103 (State Reforestation Program) the forest area to be removed will have to be replaced at a 1 to 1 ratio (acre) at a cost not to exceed \$500.00 an acre. The Reforestation Program prefers that replacement occur on-site. If on-site replacement is not possible, off-site replacement within the same watershed sub-basin is permitted. In the event that no suitable off-site area is available, a contribution of \$500.00 for each acre deforested is to be deposited in the Reforestation Fund of the Department of Natural Resources (DNR).

Due to the potential woodland takes associated with the project, coordination with the State Forester for his evaluation of the project and any subsequent approvals for on-site or off-site reforestation must be obtained before construction begins. According to the DNR watershed/sub-basin map for the Reforestation Program, the project site is located in the Lower Potomac River area watershed and is in sub-basin no. 1 (DNR designation 02-14-01).

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TABLE 15
WOODLAND IMPACT SUMMARY (ACRES)

Improvement	Woodland Affected
Segment I Alternate 5	2
Segment I Alternate 6	2
Segment II Alternate 5/6	2
Segment II Alternate 5/6 Modified	1
Segment III Alternate 5/6	8
Relocated Sub-Station Rd:	
Option 1	2.8
Option 2	.8
Option 3	.6
Interchange Option A	1
Interchange Option B	1
Interchange Option C	2
Interchange Option D	2

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b. Aquatic Habitat

Wetlands

As previously mentioned in Section IC of this report the aquatic habitat of the study area includes the surface waters and their corresponding wetlands. For the purpose of this section, the impacts to the study area's, aquatic habitat will focus on the impacted "functional values" of the areas wetlands due in part to the fact that impacts to surface waters is addressed separately in Section IV.

Construction of any of the mainline alternates and/or interchange options will require forest clearing and the placement of earth fill and/or structural piers in non-tidal wetland areas. As a result, the proposed project will adversely affect the functional values of the primarily in the following ways:

- o Reduction of habitat area; food and cover needs of birds, mammals, reptiles, etc.
- o Reduction of (short-term and long term) nutrient retention; cleared forest cover in the wetland reduces its retention abilities.
- o Reduction of flood desynchronization as existing drainage patterns are altered and wetland areas reduced.
- o Other functions such as sediment trapping and food chain support will be affected proportionately to the amount of wetlands lost.

A section 404 permit will be required from the U.S. Army Corps of Engineers (COE) if any of the mainline "build" alternates and/or interchange options are selected for final design. In addition, wetland replacement on a 1:1 basis will be studied. Depending on the final selection of the proposed improvements and its corresponding impacts, mitigation techniques will be employed in order to reduce the need for off site replacement, and the minimization of disruption to aquatic habitat.

c. Wetlands

The wetlands identified in the study area are listed and summarized in Tables 6 and 7 as to their location, classification, dominant vegetation and functions they perform. In addition, a summary of impacts for the Alternates and Interchange Options is provided in Table 16. The results of the field surveys and a review of the project's proposed alternates and Interchange Options revealed that 12 wetland areas are potentially impacted by the various alternates and interchange Options. The following is a brief description and functional assessment of the individual wetland areas potentially affected by the proposed mainline improvements and/or Interchange Options.

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TABLE 16
WETLAND IMPACT SUMMARY (ACRES)

Wetland Site #	Wetland Size	Segment I Alternate 5	Segment I Alternate 6	Segment II Alternate 5/6
6	6.51*	--	--	--
6A	N/A*	--	--	--
7	N/A*	--	--	--
8	N/A*	.64	2.01	--

TOTAL .64 2.01 0

Wetland Site #	Wetland Size	Segment II Modified Alternate 5/6 Modified	Segment III 5/6	Reloc. Sub. Sta. Options 1-2-3
4	N/A*	--	.05	.36 -0-0
5	11.63	--	1.16	---
5A	.08	--	.02	---
6	6.51*	--	--	---
6A	N/A*	--	.21	---

TOTAL 0 1.44 .36-0-0

INTERCHANGE OPTIONS

Wetland Site #	Total Site Size (Acreage)	A	B	C	D
1	2.96	.48	.48	.55	.25
1A	5.35	.13	.13	.29	.29
2	.26*	--	.01	.26	.26
2A	N/A*	.33	.50	1.15	1.04
3	.48*	--	--	.12	.14
4	N/A*	--	--	.09	--

TOTAL .94 1.12 2.46 1.98

* Denotes continuous non-isolated wetland site.

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WETLAND SITE 1 (W-1)

This site is affected in varying degrees by all and only the Interchange Options associated with the proposed project. This wetland is located along the east side of US 301/MD 5 approximately 850 feet north of the intersection of MD 205 and US 301/MD 5. This wetland is approximately 3 acres in size and consists of a large open pond and a surrounding wooded area (PF00W1B). The primary functions of W-1 is habitat for wildlife and aquatic wildlife, flood desynchronization and sediment trapping and nutrient retention.

Interchange Option A

This option would impact approximately .48 acres of W-1 due to the northbound directional ramp from the proposed mainline to northbound US 301/MD 5. An alignment shift to the east to avoid this wetland would increase impacts to wetland site 1A by approximately 1.5 acres, and produce disruptions to the Conrail railroad which borders site W-1 to the east. In an effort to minimize impacts of the proposed alignment of the ramp, a structural crossing of this site is planned.

Interchange Option B

The impacts associated with this option are identical to Option A (.48 acres disrupted), as well as the techniques of avoidance and minimization.

Interchange Option C

This option would impact approximately .55 acres of W-1 due to the east side widening of northbound US 301/MD 5 to provide an acceleration lane for the proposed MD 5 to northbound US 301/MD 5 at-grade directional movement. An alignment shift to east of this lane widening to avoid W-1 would displace the Illusions night club and increase impacts to the adjacent wetland site W-1A by approximately 2 acres. In an effort to minimize the impacts of the proposed alignment of the acceleration lane, a structural crossing of this site is planned.

Interchange Option D

The impacts associated with this Option are identical to Option A. However, the impacts (.25 acres disrupted) are less, due to the similarity of the techniques of avoidance and minimization for this option to Option C.

WETLAND SITE 1A (W-1A)

This site is affected in varying degrees by all and only the Interchange options associated with the proposed project. This wetland is located along the east side of US 301/MD 5 approximately 1150 feet north of the intersection of MD 205 and US 301/MD 5 and is adjacent to the north side of site W-1. The site consists of Mattawoman creek and the marshy wooded area that surrounds the creek, and is approximately 5.4 acres in size. This site is classified as PF01R/R2SB2. The primary functions of this wetland is habitat for wildlife and aquatic wildlife, nutrient retention, food chain support, and groundwater recharge.

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Interchange Option A

This Option would impact approximately .13 acres of site W-1A due to the northbound directional ramp from the proposed mainline to northbound US 301/MD 5. This wetland is unavoidable by an alignment shift to the east or west because Mattawoman Creek bisects US 301/MD 5 in a perpendicular fashion. In an effort to minimize impacts of the proposed alignment of the ramp, a structural crossing of this site is planned.

Interchange Option B

The impacts associated with this Option are identical to Option A (.13 acres disturbed) as well as the techniques of avoidance and minimization.

Interchange Option C

This Option would impact approximately .29 acres of W-1A due to the east side widening of northbound US 301/MD 5 to provide an acceleration lane for the proposed mainline (at grade) directional movement to northbound US 301/MD 5. Impacts to this wetland are unavoidable by an alignment shift to the east or west because Mattawoman Creek bisects US 301/MD 5 in a perpendicular fashion. In an effort to minimize impacts, a structural crossing of part of this site is planned.

Interchange Option D

The impacts associated with this Option are identical to Option C (.29 acres disturbed) as well as the techniques of avoidance and minimization.

WETLAND SITE 2 (W-2)

This site is affected only by Interchange Options C and D. This wetland is located on the west side of US 301/MD 5 approximately 450' north of the intersection of existing MD 205 and US 301/MD 5. This site consists of a drainage swale into a vegetated basin with riser piping to spill over into Mattawoman Creek. This site is man made for storm water management purposes of (PEMIF). This wetland is considered to be of low quality and its primary functions are that of flood desynchronization and sediment trapping.

Interchange Option C

This Option would impact approximately .26 acres of W-2 due to the southbound ramp from US 301/MD 5 to MD 205. An alignment shift to the west avoid W-2 would increase impacts to the adjacent high-quality wetland of Site 2A (which is a westward extension of Mattawoman Creek and its wetland area), by .2 acres.

Interchange Option D

This Option would impact approximately .26 acres of W-2 due to the southbound ramp from US 301/MD 5 to MD 205 and the interior ramp from northbound 205 to US 301/MD 5 which provides for the west side of southbound and northbound access to US 301/MD 5. An alignment shift to the west to avoid this wetland would produce a westward shift in the exterior ramp (US 301/MD 5 southbound to MD 205) further into the adjacent high-quality wetland Site 2-A. This would increase the impacts to W-2A by .46 acres.

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WETLAND SITE 2-A (W-2A)

This site is affected by all of the interchange options and is located just north of Site W-2 on the west side of US 301/MD 5. This site consists of Mattawoman Creek and the marshy wooded that surrounds it. This site is the westward extension of site W-1A, and is a continuous wetland system with drainage to the west. This wetland is classified as PF01E/R2SB2. The primary functions of this wetland is habitat for wildlife and aquatic wildlife, nutrient retention, food chain support and groundwater recharge.

Interchange Option A

This option would impact approximately .33 acres of site W-2A due to the southbound directional ramp from US 301/MD 5 to southbound MD 205. Impacts to this wetland are unavoidable by a ramp alignment shift to the west or east because Mattawoman Creek bisects US 301/MD 5 in a perpendicular fashion. In an effort to minimize the impacts of the proposed alignment on this site a structural crossing of the site is planned.

Interchange Option B

This option would impact approximately .50 acres of site W-2A due to the realignment of the southbound lanes of US 301/MD 5 to the west to provide room for a median take off and overpass of the northbound US 301/MD 5 lanes. The impacts associated with this Option are unavoidable due to the perpendicular bisecting of US 301/MD 5 and Mattawoman Creek. An alignment shift to the west would exacerbated the wetland impact and a shift further to the east is not possible as design standards could not be met.

Interchange Option C

This Option would impact approximately 1.15 acres of W-2A due to the southbound ramp from US 301/MD 5 to the overpass of US 301/MD 5 to MD 205. Impacts to this site are unavoidable given the perpendicular bisecting of the site with US 301/MD 5. An alignment shift to the west would increase impacts to the site, and a shift to the east would violate design standards of the ramp as it transitions to the loop behind the Chaney Building to overpass US 301/MD 5. In an effort to minimize impacts, a structural crossing of Mattawoman Creek is planned.

Interchange Option D

This Option would impact approximately 1.04 acres of W-2A due to the southbound ramp from US 301/MD 5 to the overpass of US 301/MD 5 to MD 205. This Option is very similar to Option C in design and as such the impacts to W-2A are unavoidable. As with Option C, in an attempt to minimize impacts, a structural crossing of Mattawoman Creek is planned.

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WETLAND SITE 3 (W-3)

This site is affected almost identically and only by Interchange Options C and D. This wetland is a tributary with steep banks and is located west of the Chaney building and adjacent to the north side of Embassy Dairy; approximately 450 feet due west of the intersection of US 301/MD and MD 205. This wetland is approximately .48 acres in size and consist of a channel only (R2SB2). The drainage is to the west to a confluence with Mattawoman Creek. The primary functions of W-3 is sediment trapping and groundwater discharge.

Interchange Option C

This Option would impact approximately .12 acres of W-3 due to the southbound directional ramp to Western Parkway from the southbound loop ramp around the Chaney Building. An alignment shift of this ramp to the west would not avoid this site and would increase impacts to this site and Embassy Dairy. A shift to the east to avoid W-3 would violate the design standards of the ramp and not provide sufficient room for the opposite movement ramp which is adjacent, and to the south of this ramp.

Interchange Option D

This option would impact approximately .14 acres of W-3 due to the southbound directional ramp to Western Parkway from the southbound loop ramp around the Chaney building. Similarly to Option C, an alignment shift of the ramp to the west would not avoid this site and would increase impacts to the site and Embassy Dairy. A shift to the east to avoid W-3 would violate the design standards of the ramp and not provide sufficient room for the opposite movement ramp which is adjacent and south of this ramp.

WETLAND SITE 4 (W-4)

This site is affected by the mainline (Alternate 5/6 Segment III), the relocation of Sub-Station Road (Option 1), and Interchange Option C. This wetland is located on the south side of MD 205 and is in back of the Pinefield South Shopping Center and extends from the shopping center eastward in a parallel fashion to MD 205 for approximately 2400 feet before turning north to intersect MD 205 approximately 300 north of the intersection of MD 205 and Sub-Station Road. This wetland consists of a meandering, unnamed, intemittant stream which flows to the west, and a large ponded area just east of the Chaney Ball Fields and the surrounding marshy wooded area. This site is classified as PF01B. The primary functions of this wetland is habitat for wildlife and aquatic wildlife, nutrient retention, food chain support and groundwater recharge.

Alternate 5/6 Segment III

This alternate would impact approximately .05 acres of site W-4 due to widening of the southbound lanes of MD 205. An alignment shift to the east to avoid the wetland would cause the relocation of two residences in the Mattawoman Estates subdivision and require large property takes from four other homes for the required right-of-way. In an effort to minimize impacts the proposed alternate will maintain the existing northbound lanes of MD 205 through this area to minimize the widening to the south.

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Relocated Sub-Station Road (Option 1)

This improvement would impact approximately .36 acres of this site due to the realignment of Sub-Station Road. The proposed alignment would relocate the tie-in point of Sub-Station Road to MD 205 to a point approximately 850 feet north of the existing tie-in. Under this option impacts to W-4 are unavoidable due to the parallel nature of W-4 to MD 205. An alignment shift to the east or west would not avoid or substantially improve impacts to W-4. There are two other options under consideration for this improvements which do not affect any of the projects' wetlands. However; these options would each produce one residential displacement.

Interchange Option C

This Option would impact approximately .09 acres of this site due to the extension of Pinefield Drive to the west of MD 205 to a tie-in with US 301/MD 5 which would replace the Sub-Station Road/US 301-MD 5 intersection. Impacts to this site are unavoidable as W-4 is continuous and parallel to MD 205 in this area and the proposed extension of Pinefield Road is perpendicular to MD 205 and W-4.

WETLAND SITE 5 (W-5)

This site is affected only by Alternate 5/6 in Segment III of the project. This wetland is located along the north side and adjacent to MD 205, just south of the intersection of MD 205 and Schlagle Road. This site consists of a heavily wooded marsh-like area with numerous water seeps. W-5 is approximately 11.6 acres in size and is classified as PF01E. The primary functions of this wetland are habitat for wildlife and aquatic wildlife, nutrient retention, food chain support.

Alternate 5/6 Segment III

This alternate would impact approximately 1.16 acres of site W-5 due to new alignment. An alignment shift to the west to avoid this site would increase impacts to the adjacent wetland site W-5A and cause the relocation of three (3) residences. A shift further to the east would increase the impacts to W-5 by .2 acres as the site becomes larger to the east.

WETLAND SITE 5A (W-5A)

This site is affected by only Alternate 5/6 in Segment III of the project. This wetland is located on the west side of and perpendicular to MD 205. The site consists of a vegetated drainage channel which is approximately five feet wide and is approximately .08 acres in size. The site is classified as PEMIC and it primary functions are flood desynchronization, sediment trapping and nutrient retention (short term).

Alternate 5/6 Segment III

This alternate would impact approximately .02 acres of site W-5A due to the new alignment. An alignment shift to the east to avoid site W-5A would increase impacts to site W-5 by nearly 3 acres. An alignment shift further to the west would increase the impacts to W-5A as well cause three (3) residential relocations.

WETLAND SITE 6 (W-6)

This site is located in Segment III of the project and will not be impacted by any of the planned improvements. This wetland is located on the east side of MD 205 approximately 1000 feet north of the intersection of MD 205 and Mill Road and lies directly opposite of wetland site 6A (W-6A). This site consists of a partly wooded marsh-like area of which a large portion has standing water. The site is classified as PF01B and its primary functions are habitat for wildlife and aquatic wildlife, nutrient retention, food-chain support and groundwater recharge.

WETLAND SITE 6A (W-6A)

This site is affected by only Alternate 5/6 in Segment III of the project. This wetland is located on the west side of MD 205 approximately 1000 feet north of the intersection of MD 205 and Mill Road and lies directly opposite of site W-6. The site consists of a natural stream channel and a flat, contiguous wooded area that is approximately 130 feet wide. Similarly to Site W-6, it is classified as PF01B. The primary functions of this site are habitat for wildlife and aquatic wildlife, nutrient and groundwater recharge.

Alternate 5/6 Segment III

This Alternate will impact approximately .21 acres of W-6A due to the proposed widening of the southbound lanes to the west. An alignment shift to the east to avoid this site would impact approximately .3 acres of site W-6 and cause the relocation of three (3) residences.

WETLAND SITE 7 (W-7)

This site is located in Segment I of the project and will not be impacted by any of the planned improvements. This wetland is located on the west side of MD 205 approximately 1300 feet north of the intersection of MD 205 and MD 5 and lies directly opposite of wetland site 8 (W-8). Site W-7 is a revenue wetland that is a tributary to the Jordan Swamp. The site is classified as R2SB2 and its primary functions are groundwater discharge, food chain support, habitat for aquatic wildlife and flood desynchronization.

WETLAND SITE 8 (W-8)

This site is affected by Alternate 5 and Alternate 6 in Segment I of the project. This wetland is located on the east side of MD 205 and is the eastward extension of Site W-7. This wetland consists of a well defined meandering stream channel, an adjacent marshy scrub area on the north side and a surrounding area of woodland. The site is classified as PF01E/R2SB2 and its primary functions are habitat for wildlife and aquatic wildlife, nutrient retention, food chain support and groundwater recharge.

Alternate 5 Segment I

This alternate will impact approximately .64 acres of W-8 due to the proposed widening of the northbound lanes of MD 205. An alignment shift to the west to avoid W-8 would impact approximately .64 acres of site W-7 and possibly cause the relocation of one resident and violate the design standards of the roadway. An alignment shift further to the east would increase impacts to site W-8 by approximately .9 acres. In an effort to minimize impacts to this site, a structural crossing of the stream channel (ie an extension of the existing structure to the east) is planned. Additionally, ongoing investigations into changing the typical section are continuing. A 6-lane divided curbed roadway, with a 20' median similar to Segment II is being studied. Altering the typical section from an open section to a closed section would reduce the wetland impact to approximately .40 acres.

Alternate 6 Segment I

This alternate will impact approximately 2.01 acres of W-8 due to the proposed realignment of MD 205 and new intersection with MD 5. Under this alternate, impacts site W-8 are unavoidable as the improvement would cross W-8 in a perpendicular fashion. This site is continuous to the west and east beyond the study area limits and is more sensitive as it traverses to the east to the Jordan Swamp. In an effort to minimize impacts to W-8 the crossing of the wetland was shifted to the east to a point where the wetland limits were narrower. Also, a structural crossing of the wetland is planned for both the north and southbound lanes. Additionally, ongoing investigations into changing the typical section are continuing. The typical section for Alternate 6 would involve extending the closed typical section with a 20' median (similar to Segment II) through to the southern limits of the tributary to Jordan Swamp and then transition to an open section roadway for the proposed intersection with existing MD 5. Altering the typical section from an open section to a closed section through the wetland would reduce the wetland impact to approximately 1.53 acres.

WETLAND SITES 4, 5, 5A, 6, 6A, 7 & 8

In addition to the wetland mitigation measures described above, a revision of the typical section to reduce wetland impacts was performed. A 30' median is preferred for this roadway, this was reduced to 20' (acceptable). The reduction of the median reduced the wetland impacts by approximately .54 to .56 (dependent on if Alternate 5 or Alternate 6 is selected) acres and also helped reduce right-of-way impacts.

d. Wildlife

Wildlife in the study area is not anticipated to be significantly impacted by the selection of a build Alternate and/or Interchange Option due to the abundance of habitat that exists in the study area. However, some withdraw in wildlife activity is expected as habitat areas are taken for roadway construction.

e. Threatened and Endangered Species

Correspondence from the U.S. Fish and Wildlife Service states that there are no known Federally or Maryland listed endangered or threatened plant or wildlife species present within the study limits. However, as stated in Section II-5 the presence of rare birds has been recorded in the vicinity of the study area, as reported by the Department of Natural Resources (DNR), Forest, Park and Wildlife Service.

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As a result, DNR surveyed the study area on June 12, 1989 for the presence of the species mention in Section II-5. According to their findings, neither species was observed in or near the project area. In addition, DNR stated that they have "no comment" in regard to the project's impact on threatened or Endangered species. Correspondence with these agencies is attached in Appendix B.

f. Farmland Soils

Impacts to farmland soils will only occur under each of the interchange options. Impacts to prime farmland soils and soils of statewide importance are quantified and listed in Table 17. As stated in Section IC the necessary coordination with the SCS has been completed.

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TABLE 17
 FARMLAND IMPACT SUMMARY

Improvement	Prime (acre) Farmlands	Statewide (acre) Importance	Soil Class*
Interchange Option A	.71		OhA
	.13		SgB2
		.72	SgC2
		.27	B1B2
Interchange Option B	.39		OhA
	.13		SgB2
		1.1	SgC2
		1.28	B1B2
Interchange Option C	.27		OhA
	.11		SgB2
		.69	SgC2
		.78	B1B2
Interchange Option D	.25		OhA
	.10		SgB2
		.67	SgC2
		.51	B1B2

* Soil classes were taken from US Department of Agriculture, Soil Conservation Service Soil Survey of Charles County, 1974, and Prince Georges County 1967.

F. Noise

1. Prediction Methodology

The method used to predict the future noise levels from the proposed MD 5 Relocated improvements was developed by the Federal Highway Administration (FHWA) of the U.S. Department of Transportation. The FHWA Highway Traffic Noise Prediction Model (FHWA Model) incorporates data pertaining to normal traffic volume increases over time, utilizes an experimentally and statistically determined reference sound level for three classes of vehicles (auto, medium duty trucks, and heavy duty trucks), and applies a series of adjustments to each reference level to arrive at the predicted sound level. The adjustments include: 1) traffic flow corrections, taking into account the number of vehicles, average vehicle speed, and a specified time period of consideration; 2) distance adjustment comparing a reference distance and actual distance between receiver and roadway, including roadway width and number of traffic lanes; and 3) adjustment for various types of physical barriers that would reduce noise transmission from source (roadway) of receiver.

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

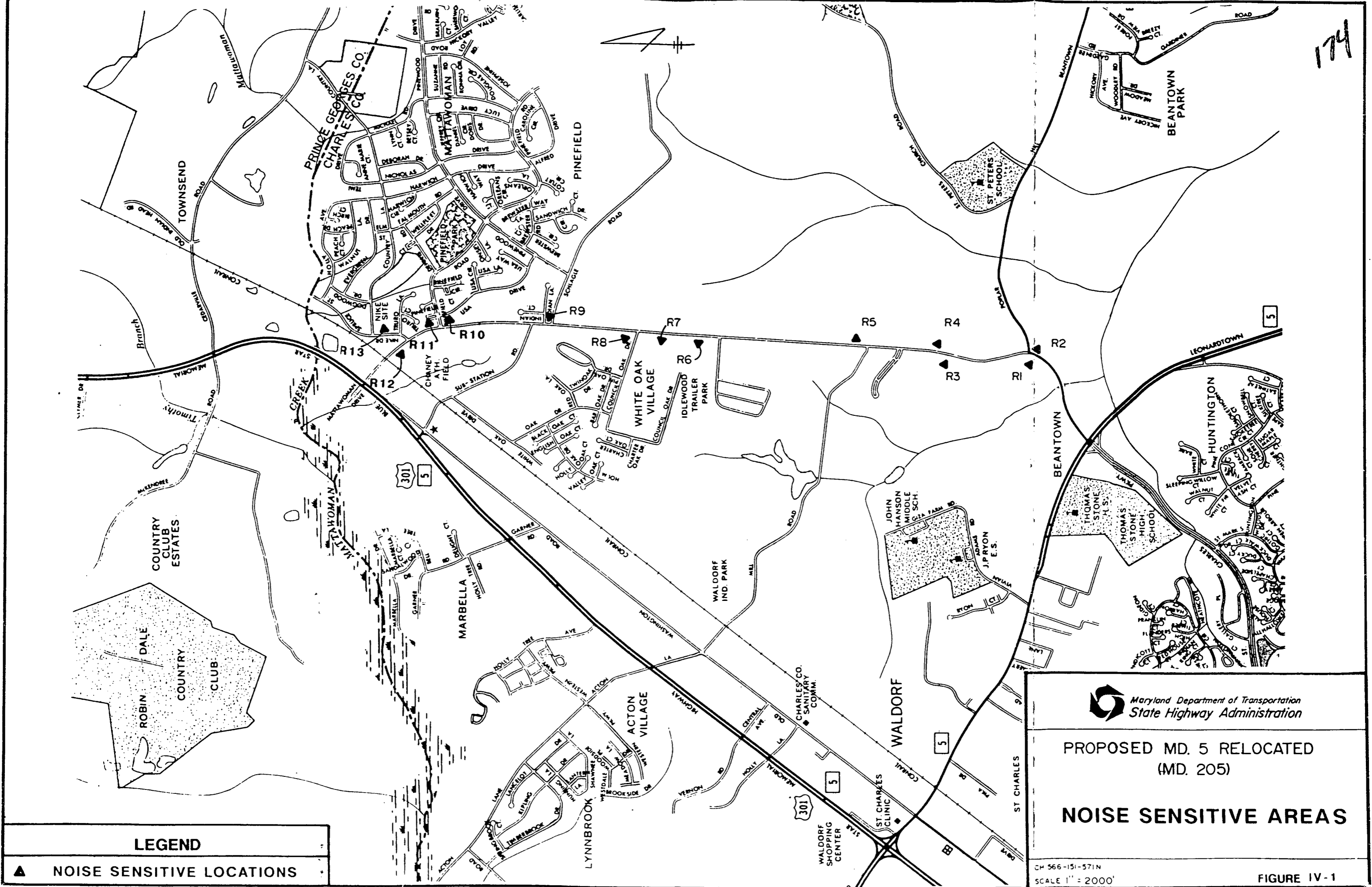
Both predicted Build and No-Build scenarios for the design year (2015) were modeled to assess future noise impacts. All noise predictions was performed with the STAMINA 2.0/OPTIMA Noise Barrier Cost Reduction Traffic Noise Prediction Model (Rep. No. FHWA-RD-77-108). Variables in the model include:

2. Prediction Results

Table 18 through Table 20 provide a breakdown of the ambient measurements taken, the predicted noise levels for existing condition as well as predicted noise levels for the Build and No-Build conditions. In the computations for the adjusted noise levels where attention is needed (ie. Leq with a noise barrier) the required barrier length and height, cost and the number of residences protected by the barrier.

3. Impact Analysis and Feasibility of Noise Control

The determination of environmental noise impact is based on the relationship between the predicted noise levels, the established noise abatement criteria, and the ambient noise levels in the project area. The applicable standard is the Federal Highway Administration's Noise Abatement Criteria/Activity Relationship published in 23 CFR 772. Noise impacts occur when the Federal Highway Administration Noise Abatement Criteria (FHWA NAC) are approached or exceeded (67 dBA for residential areas) and or when a substantial (10 dBA or more) increase over Ambient Level would occur.



LEGEND

▲ NOISE SENSITIVE LOCATIONS

Maryland Department of Transportation
State Highway Administration

PROPOSED MD. 5 RELOCATED
(MD. 205)

NOISE SENSITIVE AREAS

CH 566-151-571N
SCALE 1" = 2000'

FIGURE IV-1

TABLE 18
NOISE ANALYSIS

SEGMENT I ALTERNATE 5
2015 YEAR

NSA	Description	Measured Ambient Leq	Predicted Ambient Leq	No Build	Build	Leq w/ Barrier	Barrier Length Height(ft)	Barrier Cost(\$x1000)	Residences Protected	Cost Per Residence (\$x1,000)
1	Residence	61	62	58	63	--	--	--	--	--
2	Residence	59	59	56	61	--	--	--	--	--

SEGMENT I ALTERNATE 6
2015 YEAR

NSA	Description	Measured Ambient Leq	Predicted Ambient Leq	No Build	Build	Leq w/ Barrier	Barrier Length Height(ft)	Barrier Cost(\$x1000)	Residences Protected	Cost Per Residence (\$x1,000)
1	Residence	61	--	--	62	--	--	--	--	--
2	Residence	59	--	--	62	--	--	--	--	--

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TABLE 19
NOISE ANALYSIS

SEGMENT II ALTERNATE 5/6

2015 YEAR

NSA	Description	Measured Ambient Leq	Predicted Ambient Leq	No Build	Build	Leq w/ Barrier	Barrier Length Height(ft)	Barrier Cost(\$x1,000)	Residences Protected	Cost Per Residence (\$x1,000)
3	Residence	60	62	59	64	--	--	--	--	--
4	Residence	63	63	61	65	--	--	--	--	--
5	Residence	68	68	65	69	65	380/16	164	1	164

SEGMENT II ALTERNATE 5/6 MODIFIED

2015 YEAR

NSA	Description	Measured Ambient Leq	Predicted Ambient Leq	No Build	Build	Leq w/ Barrier	Barrier Length Height(ft)	Barrier Cost(\$x1,000)	Residences Protected	Cost Per Residence (\$x1,000)
3	Residence	60	--	--	63	--	--	--	--	--
4	Residence	63	--	--	67	63	360/16	156	1	156
5	Residence	68	--	--	69	65	380/16	164	1	164

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TABLE 20

SEGMENT III ALTERNATE 5/6

2015 YEAR

NSA	Description	Measured Ambient Leq	Predicted Ambient Leq	No Build	Build	Leq w/ Barrier	Barrier Length Height(h)	Barrier Cost(\$x1,000)	Residence Protected(\$x1,000)	Cost Per Residence (\$x1,000)
6	Residence	67	66	63	67	59	340/14	129	1	129
7	Church	60	62	60	60	--	--	--	--	--
8	Residence	72	73	71	68	61	385/14	146	2	73
9	Residence	70	68	67	70	62	760/12	246	6	41
10	Residence	68	69	68	70	65	480/14	182	6	30.5
11	Residence	69	68	66	68	63	635/14	240	6	40
12	School	67	65	65	70	65	230/16	200	1(=10 Residences)	20
13	Residence	63	61	61	64	--	--	--	--	--

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The factors which are evaluated when determining whether mitigation is considered reasonable and feasible are:

- o Whether a substantial noise increase would result from the highway project - minimum of 5 dBA increase of Build over No-Build levels in the design year of the project;
- o Whether a feasible method is available to reduce the noise;
- o Whether the noise mitigation is cost effective for those receptors that are impacted - approximately \$40,000 per residence;
- o Whether the mitigation is acceptable to affected property owners; and
- o Whether the majority of the impacted residences were constructed before or after the opening of the highway.

For the purpose of comparison, a total of \$27 per square foot is assumed to estimate total barrier cost. This cost figure is based upon current cost experience by SHA and includes the costs of panels, footings, drainage, landscaping and overhead.

Alternate 1 (No Build)

A total of 13 noise sensitive areas (NSA's) are associated with this alternate. None of the NSA's will experience an increase of 10dBA over ambient levels according to project 2015 Leq. noise levels. However noise abatement criteria would be exceeded at NSA's 8, 9 and 10.

Segment I Alternate 5

There are two NSA's associated with this alternate: NSA's 1 and 2. Neither NSA has a projected 2015 Leq. noise level over the noise abatement criteria or will experience a 10dBA increase over ambient noise levels.

Segment I Alternate 6

Similarly to Segment I Alternate 5, NSA's 1 and 2 are associated with this alternate. Neither NSA has a projected 2015 Leq. noise level over the noise abatement criteria or will experience a 10dBA increase over ambient levels.

Segment II Alternate 5/6

There are three (3) NSA's associated with this alternate: NSA's 3, 4, and 5. None of the NSA's associated with this alternate will experience a 10dBA increase over ambient levels. The projected 2015 Leq. noise levels for these NSA's indicate that NSA 5 will exceed the noise abatement criteria.

Segment II Alternate 5/6 Modified

Similarly to Segment II Alternate 5/6, there are three (3) NSA's associated with this alternate: NSA 3, 4 and 5. None of the NSA's associated with this alternate will experience a 10dBA increase over ambient levels. The projected 2015 Leq. noise levels indicate that NSA 5 will exceed the noise abatement criteria and NSA 4 approaches the criteria.

SEGMENT III ALTERNATE 5/6

There are 9 NSA's associated with this alternate: NSA's 6-14. None of the NSA's associated with this alternate will experience a 10dBA increase over ambient levels. The projected 2015 Leq. noise levels for this alternate indicate that NSA's 6, 8, 9, 10, 11, 12 and 13 will exceed the noise abatement criteria. The projected increases for the NSA's in this segment of the project generally reflect marginal increases over the ambient levels or decreases due to the nature of the proposed horizontal and vertical geometry. In many instances the proposed alignment shifts are widened away from the existing roadway and NSA's thereby providing natural attenuation to the predicted noise levels for the design year. The NSA's which benefit from this alternate's design are NSA's 6, 7, 8, 9, 11, 12 and 14. In contrast, however, NSA 13 will experience the alignment being shifted or expanded towards them.

The following is a site by site discussion of NSA's that will experience noise level impacts as projected from the 2015 (design year) Build Alternate. Figure IV-1 depicts the location of the NSA's associated with this project.

NSA 4 (Segment II Alternate 5/6 Modified)

NSA 4 has a projected noise level which equals the noise abatement criteria of 67 dBA. Therefore, abatement measures were considered. This NSA will have frontage access onto the proposed alternate and is impacted by an alignment shift towards the NSA. This residence will be located 50 feet from the slope limits associated with Alternate 5/6 Modified thereby making the placement of an earth berm for noise attenuation unfeasible.

A barrier at this location as would an earth berm would have to be segmented to maintain the property's access to the proposed roadway. The barrier examined had a total length of 360 feet and was 16 feet tall resulting in a cost of \$155,520. This barrier would reduce projected noise levels 4 dBA at the first floor and provide protection for only one home. The projected cost of \$155,520 and noise reduction of only 4 dBA is not considered physically effective. Noise mitigation for this NSA is not considered feasible or reasonable.

NSA 5 (Segment II Alternate 5/6 Segment II Alternate 5/6 Modified)

NSA 5 has a projected noise level of 69 dBA which is 2 dBA above the noise abatement criteria of 67dBA, therefore noise abatement measures were considered. This NSA will have frontage access onto the proposed alternates. The effect of either alignment on this NSA is vertically identical. The possibility of a an earth berm was examined and was deemed unfeasible due to space restrictions for the required grading for an earth berm.

A noise barrier and an earth berm would have to be segmented to maintain the property's access to the proposed roadway. The barrier considered was segmented and had a total length of 380 feet and was 16 feet tall resulting in a cost of \$164,160. This barrier would reduce the projected noise levels by 4 dBA at the first floor and provide protection for only one residence. This barrier would exceed the allowable limit of \$40,000 per residence, and would not provide an adequate reduction in projected noise levels. Mitigation for this NSA is not considered to be feasible or reasonable.

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NSA 6 (Segment III Alternate 5/6)

This NSA has a projected noise level which equals the noise abatement criteria of 67dBA, therefore noise mitigation was examined. This NSA will have frontage access onto the proposed alternate, but is not impacted by an alignment shift towards the NSA. The proposed alignment will actually be widened to the east side of existing MD 205 away from the NSA. The possibility of an earth berm for noise abatement was considered and deemed unfeasible due to space restrictions for the required grading of the berm.

A noise barrier and an earth berm would have to be segmented to maintain the property's access to the proposed roadway. The barrier examined was segmented and had a total length of 340 feet and was 14 feet tall resulting in a cost of \$128,520. This barrier would reduce the project noise levels by 8 dBA at the first flood and provide protection for only one residence. This barrier is considered to be physically effective as it would provide the minimum 5 dBA reduction in projected noise levels. However, a barrier at this site is not considered to be reasonable as it provides noise attenuation for only one residence and exceeds the cost effective limit of \$40,000 per residence.

NSA 8 (Segment III Alternater 5/6)

This NSA has a projected 2015 Leq. noise levels of 68 dBA which would exceed the noise abatement criteria of 67dBA; therefore, noise mitigation was considered. This NSA will have frontage access onto the proposed alternate. The proposed roadway by this NSA will be shifted to the opposite side (east side) of the NSA thereby helping to minimize noise impacts. An earth berm for noise mitigation at this NSA was considered and deemed unfeasible due to space restrictions for the required grading for on earth berm.

A noise barrier and an earth berm at this NSA would have to be segmented to maintain the property's access to the proposed roadway. A continuous barrier could potentially affect 3 points of access: 2 private residential, 1 public residential (Council Oak Drive). The barrier examined at this NSA was segmented and had a total length of 385 feet and was 14 feet tall resulting in a total cost of \$145,530. This barrier would reduce the projected noise levels by 7 dBA at the first floor and provide protection for two residences.

Only two residences have projected 2015 noise levels that will exceed 67 dBA; both residences will receive the minimum 5 dBA reduction in projected noise levels. Therefore barrier is considered to be physically effective. However; a barrier at this site is not considered to be reasonable as it provides noise attenuation for only two residences at a cost of \$72,765 per residence. This cost exceeds the cost effective limit of \$40,000 per residence.

NSA 9 (Segment III Alternate 5/6)

This NSA has a projected 2015 Leq. noise level of 70 dBA which exceeds the noise abatement criteria of 67dBA; therefore noise mitigation was considered. This NSA which is known as the Mattawoman Estates subdivision would have access to the proposed roadway via Indian Lane. The proposed roadway by this NSA would be shifted to the opposite side of the NSA (west side of MD 205) thereby helping to minimize noise impacts.

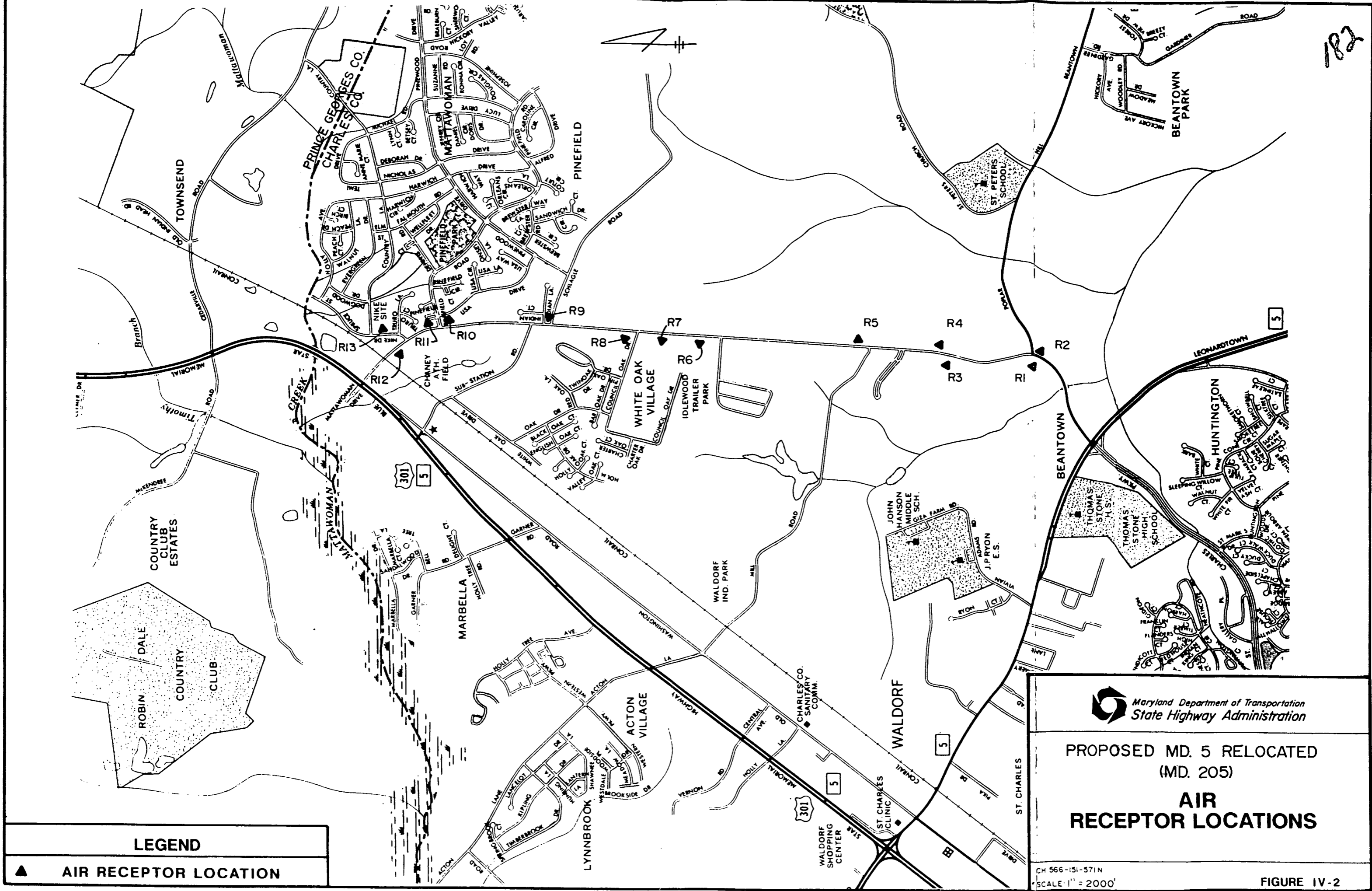
An earth berm at this NSA was considered and deemed unfeasible due to space restrictions required for the grading of the berm. A noise barrier and an earth berm at this NSA would have to be segmented at Indian Lane to maintain the subdivisions access onto the proposed roadway. The barrier considered at this NSA was segmented and had a total length of 760 feet and was 12 feet tall resulting in a total cost of \$246,240. One residence has a projected 2015 noise level that will exceed 67 dBA, and six residences have 2015 projected noise levels which approach 67 dBA for a total of one impacted residence. The one impacted residence plus five of the six residences which approach 67 dBA will receive a reduction of 5 dBA or more in projected noise levels. This barrier is considered to be physically effective as it would produce the minimum 5 dBA reduction in projected noise levels, with a cost per residence of \$41,040.

NSA 10 (Segment III Alternate 5/6)

This NSA has a projected 2015 Leq. noise level of 70 dBA which exceeds the noise abatement criteria of 67dBA; therefore noise abatement measures were considered. This NSA is a group of MD 205 frontage homes adjacent to the Pinefield sub-division south of Pinefield Road. The proposed roadway by this NSA would be shifted to the opposite side (west side of MD 205) thereby helping to minimize noise impacts.

An earth berm at this NSA was considered and deemed unfeasible due to space restrictions required for the grading of the berm. A noise barrier as would an earth berm would have to be segmented several times at the residences driveways in order to maintain the properties access onto the proposed roadway. The barrier examined at this NSA was segmented and had a total length of 480 feet and was 14 feet tall resulting in a total cost of \$181,440.

Six residences have projected 2015 noise levels that will exceed 67 dBA. Of the six impacted residences all six will receive the minimum 5 dBA reduction in projected noise levels from the above described barrier. Therefore; a barrier at this NSA is considered to be physically effective. This barrier would result in a cost of \$30,240 per residence.



Maryland Department of Transportation
 State Highway Administration

PROPOSED MD. 5 RELOCATED
 (MD. 205)
**AIR
 RECEPTOR LOCATIONS**

CH 566-131-371N
 SCALE: 1" = 2000'

FIGURE IV-2

LEGEND

▲ AIR RECEPTOR LOCATION

NSA 11 (Segment III Alternate 5/6)

This NSA has a projected 2015 Leq. noise level of 68 dBA which exceeds the noise abatement criteria of 67dBA; therefore noise mitigation was considered. This NSA is a northerly extension of NSA 11; north of Pinefield Road. Similarly to NSA 11 this NSA will have frontage access onto the proposed road and is adjacent to the Pinefield subdivision. Also, the proposed roadway by this NSA is shifted to the opposite side (west of MD 205) thereby helping to reduce noise impacts. An earth berm at this NSA was considered and deemed unfeasible due to space restrictions for grading and the proximity of the NSA residences to the proposed roadway. A noise barrier as would an earth berm at this location would have to be segmented several times at the residences driveways in order to maintain the properties access onto the proposed roadway. The barrier considered at this NSA was segmented and had a total length of 635 feet and was 14 feet tall resulting in a total cost of \$240,030.

Six residences have projected 2015 noise levels that will exceed 67 dBA. Of the six impacted residences all six will receive the minimum 5 dBA reduction in projected noise levels from the above described barrier. Therefore; a barrier at this NSA is considered to be physically effective. This barrier would result in a cost of \$40,005 per residence.

NSA 12 (Segment III Alternate 5/6)

This NSA has a projected 2015 Leq. noise level of 70 dBA which exceeds the noise abatement criteria of 67dBA; therefore noise mitigation was considered. This NSA is the Happy Faces Learning Center, a preschool. This NSA also will have frontage access onto the proposed roadway; and will experience a noise level impact from the proposed roadway being shifted towards it (west side of MD 205).

An earth berm was considered at this site and deemed unfeasible due to space restrictions for grading and the proximity of the NSA to the proposed road. A noise barrier as would an earth berm at this location would have to be segmented at this NSA's entrance to maintain the property's access onto the proposed roadway. The barrier examined at this NSA was segmented and had a total length of 230 feet and was 16 feet tall resulting in a cost of \$199,360. This barrier would enable the preschool to receive the minimum 5 dBA reduction in projected noise levels. Therefore this barrier is considered to be physically effective. In addition, this barrier is considered to be feasible as it would provide the necessary attenuation for the preschool which is the equivalent of 10 residences. This would result in a cost per residence of \$19,936.

4. Construction Impacts

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

- o Bulldozers
- o Graders
- o front End Loaders
- o Dump and Other Diesel Trucks
- o Compressors

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Construction activities are anticipated to occur during normal working hours on weekdays. Therefore, noise intrusion related to construction should not occur during critical sleep or outdoor recreation periods.

Measures which should be considered to help minimize increased noise levels during construction include the following:

- o Equip internal combustion engines used for any purpose on or related to the job with properly operating mufflers;
- o Conduct truck loadings, unloading, and hauling so that noise is kept to a minimum;
- o Route construction equipment and vehicles in areas that will cause the least disturbance to nearby receptors where possible; and
- o When feasible, place continuously operated diesel-powered equipment, such as compressors or generators, in areas far from or shielded from noise sensitive areas.

Summary

Noise barriers have been analyzed for this project. Based on the information available, it appears that barriers at NSA's 10, 11 and 12 may be reasonable and feasible and may be approved for construction. A final decision on each barrier will be made during the design phase of the project when more detailed design information will be developed.

Other Types of Mitigation

Noise mitigation measures other than noise barriers and earth berms were considered for this project. These measures included the possibility for traffic management (ie. truck restrictions), the alteration of the horizontal and vertical geometry of the proposed road and the acquisition of property or buffer zones.

Placing truck restrictions on the proposed roadway would be detrimental to the mining operations of Charles County Sand and Gravel. This company has mining and shipping activities on both the east and west sides of MD 205 in the vicinity of Mill Road. MD 205 is this company's only outlet to other major transportation arteries. Also forcing truck traffic through the heart of Waldorf via MD 5 and MD 5/US 301 would exacerbate current traffic congestion on those roads. Therefore, placing truck restrictions on the proposed roadway is considered unfeasible.

Alterations to the horizontal and vertical geometry of the proposed roadway were also considered. As mentioned in the site by site discussions of the impacted NSA's the horizontal geometry was shifted away from noise sensitive areas to help minimize possible impacts. Alterations to the vertical geometry was considered and deemed unfeasible due to the potential extreme costs involved with potential residential relocations. In addition, public opposition to such an action is expected to be high.

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G. Air Quality

1. Objectives and Type of Analysis

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

A microscale carbon monoxide pollutant diffusion simulation analysis, based on free-flow conditions, was conducted. This analysis consisted of calculating 1 hour and 8 hour carbon monoxide concentrations resulting from automobile emissions at various receptor sites. All calculations were performed for 1995 (year of completion) and 2015 (year of design). The emission factors were calculated using the Environmental Protection Agency's (EPA) MOBILE 3 computer program. Line source carbon monoxide dispersion estimates were calculated using the fourth generation California Line Source Dispersion Model, CALINE 4.

2. Analysis Inputs

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

Background Levels

In order to calculate the total concentration of CO which occurs at particular receptor sites during worst-case meteorological conditions, background CO levels are considered in addition to the levels directly attributable to the facility under consideration.

Carbon monoxide concentrations occurring within the immediate vicinity of a street or highway are generally considered to be comprised of two components: (1) a concentration occurring from nearby roadways and (2) a background component that is attributable to other emission sources including more distant roadways. The CO background concentration used in this analysis were provided by SHA and were derived from the application of rollback methodology to on-site monitoring conducted by the Maryland Department of the Environment (MDE) Air Management Administration at their Suitland, MD monitoring site during the 1985 year. The background levels used are presented below in Table 21.

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TABLE 21

BACKGROUND CARBON MONOXIDE (CO) PPM

<u>YEAR</u>	<u>1 HR.</u>	<u>8 HR.</u>
1995	9.9	3.0
2015	10.0	3.1

Traffic Data

The appropriate traffic data (dated February 1989) was utilized as supplied by the Project Planning Division of the State Highway Administration.

Emission Factors

EPA low altitudes emission factors were calculated using the EPA MOBILE 3 computer program. The appropriate traffic data was utilized with credit for a vehicle inspection and maintenance (I/M) emission control program included in the emission calculations. Mechanic training and a 20% stringency level were assumed for the I/M conditions. The I/M program was applied only the light duty gasoline vehicles and the type of I/M test selected was for vehicles in idle. No other alternative I/M credits were used.

Additional assumptions used were the MOBILE 3 national averages for Light Duty Vehicles (LDV) age distributions and tampering rates, no anti-tampering program and Federal Test Procedure (FTP) conditions for engine operating modes. The FTP classifies engine operating modes into the following categories:

- OF the non-catalytic converter equipped engines, 20.6 percent are assumed to be cold started, the remainder hot started (warmed-up).
- Of the catalytic converter equipped engines, 20.6 percent are assumed to be cold started, and 27.3 percent are assumed to be hot started, with the remainder being hot stabilized.

Meteorological Conditions

Meteorological conditions used in the analysis are the worst case conditions as prescribed in the Maryland State Highway Administration Standards for Specifications for Consulting Engineers, Vol. II issued by the Maryland State Highway Administration.

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Worst-case meteorological inputs of 1 meter/second (2.2 MPH) wind speed and Pasquill-Gifford Stability Class F (stable conditions) were utilized for all peak hour CO dispersion analyses. For the 8-hour analysis, the above conditions were assumed for the peak hour and hours after 5 p.m. For the portion of the 8-hour period occurring prior to 5 p.m., wind speeds of 2 meters/second and Stability Class D were used. (The 8-hour analysis encompassed the period from 12 p.m. to 8 p.m.)

Since CO emissions are highest when temperatures are coldest, winter temperatures were utilized. Ambient temperatures of 20°F and 35°F were used in calculating emission factors for the peak 1-hour and peak 8-hour periods, respectively. The mixing height used was 305 meters (1000 ft).

The wind direction utilized as part of this analysis was selected in order to produce the maximum CO concentration at any given receptor. Wind directions varied for each receptor and were selected through a systematic scan of CO concentrations associated with worst-case wind directions.

3. Receptor Sites

The receptor sites selected for the microscale carbon monoxide pollutant diffusion analysis are described in Table 22, and are depicted on the Alternates mapping in Section III and summarized in Figure IV-2. Receptors were determined by proximity of roadway, types of adjacent land use, the presence of other augmenting factors and changes in traffic patterns on the roadway network.

Thirteen (13) receptor sites were selected for this analysis and are considered as being indicative of CO Concentrations in sensitive areas. The sites chosen consist of eleven (11) residences, one (1) church and a preschool. These sites were field verified during study visits.

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TABLE 22
DESCRIPTION OF RECEPTORS

<u>Site No.</u>	<u>Description/Location</u>
1	Residence, single family detached house on the west side of MD 205 approximately 450' south of Poplar Hill-Beantown Road.
2	Residence, single family detached house on the east side of MD 205 approximately 250' south of Poplar Hill-Beantown Road.
3	Residence, single family detached house on the west side of MD 205, Box 191A MD 205.
4	Residence, single family detached house on the east side of MD 205 across from Site 3, Box 196A MD 205.
5	Residence, single family detached house on the east side of MD 205 approximately 250' north of Mill Road, Box 201A MD 205.
6	Residence, single family detached house on the west side of MD 205 approximately 650' north of the Idlewood Trailer Park, Box 211 MD 205.
7	Trinity Baptist Church, west side of MD 205, Box 212 MD 205.
8	Residence, single family detached house west side of MD 205, 518 Council Oak Drive.
9	Residence, single family detached house east side of MD 205, 101 Indian Lane.
10	Residence, single family detached house east side of MD 205, Box 2003 MD 205.
11	Residence, single family detached house, Box 1907 MD 205.
12	Preschool, Happy Faces Learning Center, west side of MD 205, approximately 300' north of Nike Road.
13	Residence, single family detached house east side of Nike Road, 246 Nike Road.

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4. Results of Microscale Analysis

The results of the calculations of carbon monoxide concentrations at each of the receptor sites for the No-Build and Build Alternates are shown in Table 23. The values presented consist of predicted carbon monoxide concentrations that would be attributed to traffic on various roadway links plus projected background levels. A comparison of the values with the S/NAAQS shows that no violations are projected to occur for the No-Build or Build Alternates in 1995 or 2015 for the 1-hour or 8-hour concentrations of carbon monoxide. The projected carbon monoxide concentrations vary between alternates depending on receptor locations as a function of the roadway locations, traffic volumes and emission factors associated with each alternate.

Only interchange Option A and B were considered for analysis purposes since these options result in worse case concentrations for applicable receptors.

The Build alternate results in lower CO concentrations for 1 hour levels than the no-build alternate in 1995 or 2015. For 8 hour concentrations, the No-build and Build concentrations are similar (i.e. less than 1 PPM difference). In almost every case, the predicted concentrations consist mostly of background concentrations and remain well below the S/NAAQS.

In conclusion, the No-build and Build alternates will not result in violations of the 1 HR or 8 HR S/NAAQS for 1995 or 2015.

5. Construction Impacts

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

The Maryland Bureau of Air Quality Control was consulted to determine the adequacy of the Specifications in terms of satisfying the requirement of the Regulations Governing the Control of Air Pollution in the State of Maryland. The Maryland Air Management Administration found that the specifications are consistent with the requirements of these regulations. Therefore, during the construction period, all appropriate measures (Code of Maryland Regulations 26.11.06.03 D) will be taken to minimize the impact on the air quality of the area.

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TABLE 23

MAXIMUM 1 AND 8 HOUR PREDICTED CO CONCENTRATIONS (PPM) *

SEGMENT I: ALTERNATE 5

REC.	1995				2015			
	NO BUILD		BUILD		NO BUILD		BUILD	
	1 HR.	8 HR.	1 HR.	8 HR.	1 HR.	8 HR.	1 HR.	8 HR.
1	13.4	3.6	11.1	3.7	13.5	3.7	11.8	4.0
2	14.5	3.7	11.5	3.8	14.2	3.8	12.3	4.2

TABLE 23 CONT'D

MAXIMUM 1 AND 8 HOUR PREDICTED CO CONCENTRATIONS (PPM)*

SEGMENT I: ALTERNATE 6

REC.	1995				2015			
	NO BUILD		BUILD		NO BUILD		BUILD	
	1 HR.	8 HR.	1 HR.	8 HR.	1 HR.	8 HR.	1 HR.	8 HR.
1	12.9	3.4	10.9	3.5	12.4	3.4	11.5	3.5
2	12.4	3.4	10.8	3.5	12.6	3.4	11.5	3.5

* Includes Background Concentrations

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

TABLE 23 CONT'D

Maximum 1 and 8 hour predicted CO Concentrations (PPM)*

SEGMENT II: ALTERNATES 5/6 AND ALTERNATES 5/6 MODIFIED

REC.	1995 NO BUILD		1995 BUILD		2015 NO BUILD		2015 BUILD	
	1 HR.	8 HR.	1 HR.	8 HR.	1 HR.	8 HR.	1 HR.	8 HR.
3	14.8	3.5	10.9	3.6	12.5	3.4	11.7	3.6
4	18.7	3.9	11.7	4.0	14.5	3.7	13.0	4.1
5	13.8	4.1	11.4	4.0	13.7	3.6	12.5	3.9

SEGMENT III: ALTERNATE 5/6

REC.	1995 NO BUILD		1995 BUILD		2015 NO BUILD		2015 BUILD	
	1 HR.	8 HR.	1 HR.	8 HR.	1 HR.	8 HR.	1 HR.	8 HR.
6	13.4	3.7	11.0	4.0	14.5	3.6	12.8	3.9
7	11.7	3.4	10.5	3.5	12.3	3.3	11.5	3.5
8	13.7	3.9	11.1	4.2	14.9	3.7	13.1	4.0
9	16.9	4.0	12.7	4.1	15.6	3.7	13.6	4.2
10	18.6	4.2	13.0	4.4	17.0	3.9	14.7	4.5
11	19.9	4.5	13.1	4.7	18.6	4.1	15.0	4.7
12	19.6	4.5	13.0	4.6	18.7	4.1	14.9	4.7
13	16.7	4.1	12.1	4.2	16.5	3.8	13.5	4.2
14	15.1	3.8	11.7	3.9	15.1	3.6	12.6	3.8

* Includes Background Concentrations

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

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6. Conformity with Regional Air Quality Planning

The project area is located in Maryland's Air Quality Control Area V (Southern Maryland). This project is in an area where the State Implementation Plan (SIP) does not contain any transportation control measures. The study area is located in a CO attainment area within Area V (ie. Charles County). Therefore, the conformity requirements of 23 CFR 770 do not apply to this project.

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V. COMMENTS AND COORDINATION

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SUMMARY

1. An "Alternates Public Workshop" was held on November 22, 1988 between 5:00 p.m. and 9:00 p.m. at John Hanson Middle School in Waldorf, Maryland. A 5-lane roadway and 4-lane divided roadway were presented. Both alternates were discontinued upon the acquisition of detailed traffic that revealed an unacceptable level-of-service. Four interchange options were presented and retained for this document.

2. A "Quarterly Interagency Meeting" was held on October 18, 1989 at this Maryland State Highway Administration Headquarters. The roadway alternatives and interchange options as described in this document were presented.

3. The following pages is the comments and coordination of cooperating agencies throughout this project:



Maryland Department of Transportation
State Highway Administration

195
Richard H. Traino
Secretary-
Hal Kassoff
Administrator

September 14, 1989

MEMORANDUM

TO: Mr. Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering

FROM: Cynthia D. Simpson *CDS*
Assistant Division Chief
Project Planning Division

SUBJECT: Contract No. CH 566-151-571
MD 5 Relocated, US 301 to MD 5
PDMS No. 082039
Wetland Field Review

An agency field review was held on August 22, 1989 to seek the Corp's concurrence with wetland boundaries and to discuss alternatives developed and impacts.

The following people were in attendance:

Paul Wettlaufer	U.S. Army Corps of Engineers
Victor Janata	SHA Project Planning
David Coyne	" " "
Barbara Allera-Bohlen	" " "
Fred Doerfler	SHA Highway Design
Susan Jacobs	" " "
David Pelton	" " "
Michael Rothenheber	Johnson, Mirmiran & Thompson
William Fletcher	" " "
Joyce Kimble	" " "
Charles Butler	" " "

Representatives of the Department of Natural Resources, the U.S. Fish and Wildlife Service and the Environmental Protection Agency were invited but did not attend the meeting.

The U.S. Army Corps of Engineers concurred with delineations of the following sites: 1, 1A, 2, 3, 4, 5A, 6 and 6A.

The U.S. Army Corps of Engineers reduced the northern delineation boundaries of sites 2A and 8.

V-2
My telephone number is (301) 333-1177

1912

Mr. Louis H. Ege, Jr.
September 14, 1989
Page 2

On September 1, 1989 the U.S. Army Corps of Engineers inspected the delineation of site 7 and reinvestigated the delineation of site 5. They contacted Barbara Allera-Bohlen of the Environmental Evaluation Section and indicated concurrence with the existing delineations of these sites.

Attached are the minutes of the field meeting.

CDS:BA:cd
Attachments

cc: Attendees

- Mr. Herman Rodrigo
- Mr. Quasim Taherian
- Mr. Michael Slattery
- Mr. Pete Stokley
- Mr. John Nichols
- Mr. Bill Schultz
- Mr. Elder Ghigiarelli
- Mr. Charles Adams
- Mr. Steve Silva
- Mr. Ed Stein



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Johnson, Mirmiran and Thompson, P.A.
PLANNERS ENGINEERS LANDSCAPE ARCHITECTS SURVEYORS

MEMORANDUM

TO: The File
FROM: Chuck Butler
DATE: August 23, 1989
SUBJECT: Corps of Engineers Wetland Field Review for MD 5 Relocated.

On Tuesday August 22, 1989, a field review of the delineated wetlands was held with the following persons in attendance:

Victor Janata	SHA, Project Planning
David Coyne	SHA, Project Planning
Barbara Allera-Bohlen	SHA, Environmental Management
Susan Jacobs	SHA, Highway Design
David Pelton	SHA, Highway Design
Fred Doerfler	SHA, Highway Design
Paul Wettloufer	US Army Corps of Engineers
Michael J. Rothenheber	Johnson, Mirmiran & Thompson, P.A.
William Fletcher	Johnson, Mirmiran & Thompson, P.A.
Joyce Kimble	Johnson, Mirmiran & Thompson, P.A.
Charles Butler	Johnson, Mirmiran & Thompson, P.A.

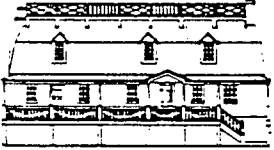
1. All persons in attendance were given an information handout for the field review which included a summary of impacts chart and 100 scale photogrammetric mapping of worst case impacts by the proposed mainline alternates and interchange options at each wetland site. All adjustments and concurrences made by the C.O.E. to the site delineation were referenced to this mapping.
2. This project contains twelve (12) individual wetland sites that are potentially impacted by four (4) interchange options and seven (7) mainline alternates. Of the 12 sites, eleven (11) were actually inspected by the C.O.E. The C.O.E. review of the wetland sites was limited to areas of proposed impact. The total boundary of each wetland delineated was not reviewed. The inspection resulted in the C.O.E. concurring with JMT's delineation for the following sites: 1, 1A, 2, 2A, 3, 4, 5A, 6 and 6A.
3. The C.O.E. reduced the northern delineation boundary of Site 2A. The original delineation encompassed a portion of the pasture adjacent to the northern bank of Mattawoman Creek. The C.O.E.'s delineation confined the wetlands to basically the streambank. The C.O.E. concurred with the delineation on the southern side of Site 2A.

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4. The C.O.E. was undecided about the delineation at Site 5, and stated that an additional trip would be made to review the site again.
5. The C.O.E. reduced the northern delineation boundary at Site 8 to follow just west of two utility poles on the southern side of MD 205 to a point near the intersection of two small tributaries and the second pole. The revised delineation will now continue from this point eastward along the 150 contour line as shown on the photogrammetric mapping used for the Alternates. The southern delineation boundary was acceptable to the C.O.E.
6. JMT raised a question with the C.O.E. about corps jurisdiction and the potential roadway impacts at Site 8, due to the fact that the current land use is agricultural and therefore is not under their jurisdiction. The C.O.E. stated that if the current land use is changed for construction of the proposed roadway then the Corps would have jurisdiction over the portion of wetland that would be affected by the right-of-way required for the proposed roadway.
7. The C.O.E. did not review Site 7 due to time constraints, but stated that an additional trip would be made to review the delineation on the same day that Site 5 is reinvestigated.
8. On September 1, 1989 the C.O.E. inspected the delineation at Site 7, and reinvestigated the delineation at Site 5 by themselves. As a result, the C.O.E. contacted Barbara Allera-Bohlen of SHA's Environmental Management Section with their concurrence on JMT's delineations at both sites.

cc: All Attendees
Daniel T. Cheng
Matt Wolniak

MARYLAND
HISTORICAL



TRUST

PROJECT
DEVELOPMENT

William Donald Schaefer
Governor

JUL 6 12 17 PM '88
Jacqueline H. Rogers
Secretary, DHCD

June 30, 1988

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

Re: Contract CH 556-151-571
Mattawoman-Beantown Road
Charles County, Maryland
PDMS 082039

Dear Ms. Simpson:

Thank you for your letter concerning the subject project. Our office concurs that neither the Pickerall House (#1) nor the Grove Tenant Farm (#2) appear eligible for inclusion on the National Register.

Sincerely,

George J. Andreve
Project Review and Compliance Administrator
Office of Preservation Services

GJA/AT/lm

cc: Ms. Rita Suffness
Mr. Paul Wettlaufer
Dr. Ralph Eshelman
Mr. George Dyson

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

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MARYLAND
HISTORICAL



TRUST

PROCESSED
DEVELOPMENT
AUG 2 2 30 PM '89

William Donald Schaefer
Governor

Jacqueline H. Rogers
Secretary, DHCD

July 28, 1989

RECEIVED

AUG 7 1989

JOHNSON, MIRMIRAN & THOMPSON

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. CH 566-201-571
MD 5 Relocated (Mattawoman-Beantown Road)
from U.S. 301 to MD 5
PDMS No. 082039
Charles and Prince George's Counties, MD

Dear Mr. Ege:

Thank you for sending us a copy of the report on the Phase I archeological survey conducted for the above-referenced project. The report was prepared by Berger Burkavage, Inc.

The report presents the necessary documentation on the survey's goals, methodology and results. The level of investigations and resulting report are consistent with state and federal standards for archeological work. Based on the information in the report, we concur that construction of the proposed project will have no effect upon significant archeological resources. Further archeological investigations are not warranted for this project.

Thank you for your assistance.

Sincerely,

Elizabeth J. Cole
Administrator
Archeological Services
Office of Preservation Services

EJC/lm

cc: Ms. Rita Suffness
Dr. Ira Beckerman
Berger Burkavage, Inc.
Dr. Ralph E. Eshelman
Mr. George Dyson
Ms. Shirley Baltz
Mr. Joseph McNamara

Department of Housing and Community Development
House 21 State Circle Annapolis, Maryland 21401 (301) 974-5000

WALDORF RESTAURANT, INC.
P.O. Box 548
Waldorf, MD 20604

PROJECT
DEVELOPMENT
DIVISION

FEB 9 2 43 PM '89

201

February 3, 1989

RECEIVED

Chuck B.
M. E.

JUN 30 1989

Maryland Dept. of Transportation
State Highway Administration
707 North Calvert Street
Baltimore, MD 21203-0717

JOHN J. BARRON & TROMPSON

Attention: Louis H. Ege, Jr.
Deputy Director
Project Development Division

Re: Contract No. CH 566-101-571
MD 205 (MD 5 Relocated)
Charles County

Dear Sir:

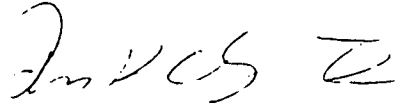
In reply to your letter of January 18, 1989, please be advised as follows:

1. This area is private property owned by Waldorf Restaurant, Inc.
2. The property is used seasonally by the Waldorf Youth League (spring through summer).
3. The approved use of the ballfields is temporary (through the summer of 1989).
4. There is no written agreement with the Charles County Parks and Recreation Department.
5. As far as we know, there are no governmental bodies which have a proprietary interest in the land.

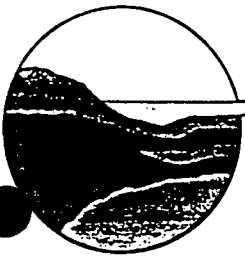
If you have additional questions, please advise.

Very truly yours,

WALDORF RESTAURANT, INC.


Francis H. Chaney, II

FHC, II:cmj



Maryland Department of Natural Resources

FEB 11 1989

Tidewater Administration
Tawes State Office Building
580 Taylor Avenue
Annapolis, Maryland 21401

RECEIVED 1 13 1989

William Donald Schaefer
Governor

Torrey C. Brown, M.D.
Secretary

February 8, 1989

Mr. Charles Butler
Johnson, Mirmiran and Thompson, PA
810 Gleneagles Court
Suite 200
Baltimore, MD 21204

Dear Mr. Butler:

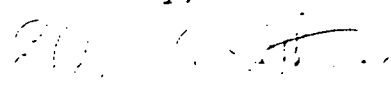
I have reviewed the correspondence which you enclosed with your 27 December 1988 letter to Mr. Larry Lubbers. The fisheries information in that correspondence is current and accurate.

You may wish to contact the Maryland Heritage Program in the Forest, Park and Wildlife Service concerning the potential presence of rare or sensitive aquatic plants and animals in Jordan Swamp. This Program can be reached at 974-2870 or by writing to the following address:

Tawes State Office Building (B-2)
580 Taylor Avenue
Annapolis, Md. 21401

If you need any additional information, please contact me at 974-2784.

Sincerely,


Elder A. Ghigiarelli
Chief, Project Review

EAG:MED:swp

Telephone: (301) 974-2784
DNR TTY for Deaf: 301-974-3683



United States Department of the Interior

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

PROJECT
DEVELOPMENT
DIVISION
FEB 24 11 50 AM '88

203

February 23, 1988

Ms. Cynthia D. Simpson
Maryland Department of Transportation
707 North Calvert St.
Baltimore, MD 21203-0717

Dear Ms. Simpson:

This responds to your February 10, 1988 request for information on the presence of species which are Federally listed or proposed for listing as endangered or threatened within the area of Contract No. CH 552-101, Mattawoman Beantown Road widening, Charles County, Maryland. We have reviewed the information you enclosed and are providing comments in accordance with Section 7 of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.).

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

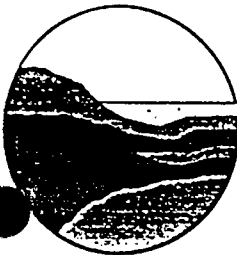
This response relates only to endangered species under our jurisdiction. It does not address other FWS concerns under the Fish and Wildlife Coordination Act or other legislation.

Thank you for your interest in endangered species. If you have any questions or need further assistance, please contact Judy Jacobs of our Endangered Species staff at (301) 269-5448.

Sincerely yours,

G. A. Moore

Glenn Kinser
Supervisor
Annapolis Field Office



Maryland Department of Natural Resources

PROJECT DEVELOPMENT DIVISION

207

Tidewater Administration
Tawes State Office Building
580 Taylor Avenue
Annapolis, Maryland 21401

MAR 2 10 58 AM '88

William Donald Schaefer
Governor

Torrey C. Brown, M.D.
Secretary

February 29, 1988

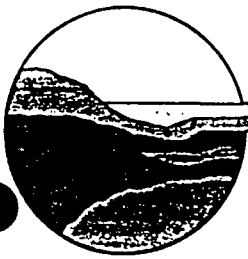
MEMORANDUM

To: Cynthia A. Simpson, SHA
From: Larry Lubbers, Fisheries Division
Subject: Contract No. CH 552-101, Mattawoman Beantown Road between U.S. Route 301 and Maryland Route 5 including part of Maryland Route 382 in Charles County.

The attached letter to the Army Corps of Engineers reviews the information that we have already provided to both the Corps and SHA. As we pointed out in 1975 there are spawning runs of anadromous fish in the lower reaches of Zekiah Swamp.

LL/kb

Telephone: _____
DNR TTY for Deaf: 301-974-3683



Maryland Department of Natural Resources

PROJECT
DEVELOPMENT
DIVISION

205

Forest, Park and Wildlife Service
Tawes State Office Building
Annapolis, Maryland 21401

MAR 14 10 25 AM '88

William Donald Schaefer
Governor

Torrey C. Brown, M.D.
Secretary

Donald E. MacLauchlan
Director

88-2-313

March 4, 1988

Cynthia D. Simpson, Chief
Environmental Management
Maryland Department of Transportation
State Highway Administration
707 North Calvert Street
Baltimore, Maryland 21203-0717

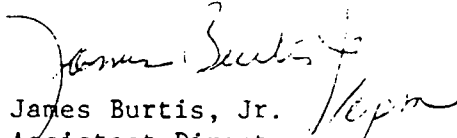
RE: Contr. No. CH 552-101
Mattawoman Beantown Road between
U.S. Route 301 and Maryland Rt. 5
including part of Md. Rt. 382
Charles County

Dear Ms. Simpson:

This is in response to your request of February 10, 1988 for information regarding the above referenced project. There are no known Federal or State threatened or endangered plant or wildlife species present at this project site.

If you have any questions regarding this matter please feel free to call me.

Sincerely,

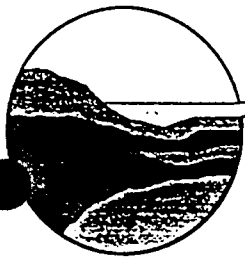

James Burtis, Jr.
Assistant Director

JB:epm

cc: Therres
Boone

Telephone: _____
DNR TTY for Deaf: 301-974-3683

206



Maryland Department of Natural Resources

PROJECT

Tidewater Administration
Tawes State Office Building
580 Taylor Avenue
Annapolis, Maryland 21401

MAR 14 7 52 AM '89

William Donald Schaefer
Governor

March 9, 1989

Torrey C. Brown, M.D.
Secretary

RECEIVED

MAR 16 1989

000004, WRM1281

Ms. Cynthia Simpson, Chief
Environmental Management
Maryland State Highway Association
707 N. Calvert Street
Baltimore, Maryland 21203-0717

RE: Wetlands at MD Rte 5/MD 382 Intersection just south
of Mattawoman-Beantown Road, Jordan Swamp Run
Drainage

Dear Ms. Simpson:

This is in response to a request made by staff of your office for a description of the functions and values of wetlands draining to Jordan Swamp Run, south of the terminus of Mattawoman-Beantown Road at MD 382. I visited the area on February 3, 1989. Please note that an area of wetland plantings exists adjacent to Jordan Swamp Run, to the south of the new MD 382.

Much of the area to the north and east of Jordan Swamp Run is currently agricultural field. To the south of Jordan Swamp Run and extending east from the agricultural field toward MD Rte 5, much of the land is forested. This area would best be described as a palustrine, forested, broad-leaved deciduous, temporarily to seasonally flooded (PF01A-C) wetland with scattered patches of scrub/shrub and emergent wetland. In these more open patches, vegetation indicates historic disturbance (probably pasture). Several seeps were also evident here. The area exhibits a diversity of species general indicative of high quality, healthy wetland habitat.

Jordan Swamp Run is an anadromous finfish spawning and nursery waterway. Resident and anadromous fish species that are known to inhabit this stream include: Creek Chub (Erimyzon

Telephone: _____

DNR TTY for Deaf: 301-974-3683

oblongus), Fallfish (Semotilus corporalis), Rosyside Dace (Clinostomus funduloides), Largemouth Bass (Micropterus salmoides), Tessellated Darter (Etheostoma olmstedi), Yellow Perch (Perca flavescens), and White Perch (Morone americana). These species are generally indicative of good water quality and healthy stream habitat.

Jordan Swamp Run, its lower order streams and their associated floodplain/wetlands function in a water quality capacity by trapping sediments and toxics that might be bound to them, taking up excess nutrients that contribute to the eutrophication of higher order streams (and eventually the Bay), and moderating peak flows of water during storm events. The aforementioned seeps also serve a hydrologic recharge function and help to maintain appropriate stream temperatures. These wetlands are important habitat areas that are not quickly or easily replaced due to their lengthy maturation time. Lower order streams and drainage ways also serve as loci of energy and function in nutrient processing and cycling. They are production areas for large particles of allochthonous material that are processed by specialized consumers (mostly aquatic insects) that, in turn, provide food sources and nutrient inputs for organisms further downstream. So, these wetlands and streams are very important in terms of maintaining ecosystem function as a whole.

The entire watershed between topographical contours of 100 msl and 185 msl consist of Bibb silt loam and is nearly level. This soil unit is classified as a poorly drained hydric soil by the USDA. The water table is at or near the soil surface for long periods throughout the growing season, and undrained areas are seasonally ponded. These areas also flood when the streams overflow.

The pH of soils in this area is very strongly to extremely acidic, ranging from 5.0 to 4.5. Due to the acidic nature of these soils, grading activities could pose a substantial threat to stream water quality. Moreover, Bibb soil is poor substrata for roadway construction because of the high water table (0-1 foot) high potential frost action and flood hazard. These same constraints will affect the stability of box culverts since trenched and filled areas will be subject to slumping and low bearing strength.

Jordan Swamp Run drains directly into Zekiah Swamp Run and, subsequently, into Zekiah Swamp. The Zekiah Swamp is the largest hardwood swamp in Maryland. It has been designated as an

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Area of Critical State Concern by the Maryland Department of State Planning and is described in the Designation Report as being prime habitat for beaver, mink, osprey, herons, wood duck, Maryland Diamondback Terrapin, and overwintering Wilson's snipe, and for such rare species as the bald eagle, and red cockaded woodpecker (now classified as extirpated). The Smithsonian Institute's 1974 survey of ecologically important plants, animals, biotic communities, and natural areas of the Chesapeake Bay region determined that the Zekiah Swamp was the highest rated natural area of 232 areas in the Chesapeake Bay Region and was determined to be one of the most important remaining ecological areas of its type on the eastern seaboard. It is a general objective of the Maryland Coastal Zone Management Program to protect coastal terrestrial areas of significant resource value (Coastal Zone Management Program for the State of Maryland, 1978 p.84 (5)). These are areas that have particular scenic, scientific, geologic, hydrologic, biological, or ecosystem maintenance importance. The Zekiah Swamp and its associated headwaters are a prime example of such areas.

It is my understanding that a full interchange is being contemplated in the subject area. Due to the importance of the wetlands in this area, I urge SHA to thoroughly explore alternatives to the placement of fill in the wetlands for the construction of an interchange. It is imperative that wetland impacts within the Zekiah watershed be minimized. Potential additional stress to this ecosystem must be viewed in the context of existing stresses due to mining operations, roadway construction, and commercial and residential development currently occurring in the watershed. When viewed in this context, the potential impact on the Zekiah Swamp ecosystem is clearly understood.

I hope that what I have provided is sufficient to address your immediate needs. If you require further assistance, please contact me at (301) 974-2784.

Sincerely,

Michael E. Slattery
Michael E. Slattery,
Environmental Biologist
Power Plant and Environmental
Review Division

MES/db

References

Klein, Richard D. 1981. The Department of Natural Resources Compilation of Maryland's Fishery Resources. MD. Dept. Natural Resources, Annapolis, MD.

Smithsonian Institution Center for Natural Areas, Ecology Program 1974. Natural Areas of the Chesapeake Bay Region: Ecological Priorities. Washington, D.C.

United States Department of Commerce. 1978. Final Environmental Impact Statement Proposed Coastal Management Program for the State of Maryland. Office of Coastal Resource Management, NOAA, Washington, D.C. 463 pp.



Maryland Department of Natural Resources

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Forest, Park and Wildlife Service
Tawes State Office Building
Annapolis, Maryland 21401

William Donald Schaefer
Governor

REC-111
Torrey C. Brown, M.D.
Secretary

Chuck
Dunn

MEB
Donald E. MacLauchlan
Director

5-212

March 13, 1989

Mr. Charles P. Butler
JOHNSON, MIRMIRAN AND THOMPSON, PA
810 Gleneagles Court
Suite 200
Baltimore, MD 21204

Re: Upgrading of Mattowman Beantown Rd. -
Charles Co. , MD

Dear Mr. Butler:

This is in response to your request for information regarding the above referenced project. There are no known federal or state threatened or endangered plant or wildlife species present at this project site.

If you have any questions regarding this matter please feel free to call me at (301) 974-3195.

Sincerely,

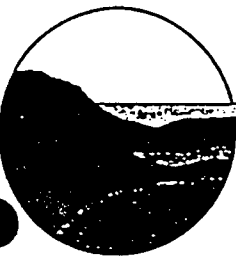
James Burtis, Jr.
James Burtis, Jr.
Assistant Director

JB:dec

cc: Robert Miller
Jonathan McKnight

89.02.060

Telephone: _____
DNR TTY for Deaf: 301-974-3683



Maryland Department of Natural Resources

211

Forest, Park and Wildlife Service
Tawes State Office Building
Annapolis, Maryland 21401

William Donald Schaefer
Governor

Torrey C. Brown, M.D.
Secretary

Donald E. MacLauchlan
Assistant Secretary

June 13, 1989

RECEIVED

JUN 16 1989

87112.03

JOHNSON, MIRMIRAN & THOMPSON

Chuck

Mike R.

Mr. Charles P. Butler
JOHNSON, MIRMIRAN AND THOMPSON, P.A.
810 Gleneagles Court, Suite 200
Baltimore, MD 21204

Re: MD 205 in Charles Co.
JMT Job No. 87112.03

Dear Mr. Thompson:

I spoke with Ann Rasberry about the two lists she generated for your response to this information request and the fact that several species on Heritage's list showed up on her computer printouts. The two lists she gave you represent two different types of information: the atlas data are known observations; the wildlife database data are only potential occurrences. Therefore, the rare birds on the atlas printout are much more significant than the rare species on the second list.

The rare birds on the atlas printout include least bittern (Ixobrychus exilis) which is State-listed as in need of conservation, common barn-owl (Tyto alba) which is on Heritage's watchlist, and loggerhead shrike (Lanius ludovicianus) which is State-listed as endangered and is a candidate for federal listing. These rare birds have been documented through the atlas project as being in the vicinity of the Mattawoman project site; however, it is unclear whether the project would directly impact these species since their exact locations are unknown. Unfortunately, we have not yet incorporated the atlas data into Heritage's database and had previously responded with a "no comment" on this project.

The possibility of loggerhead shrikes breeding on the project site are remote. However, since it is a State endangered species and a federal candidate, I feel it is important to determine its status in the area. I hope to survey the area within a week, both for this species and the others. I will send you a follow-up memo as soon as possible.

Telephone: _____
DNR TTY for Deaf: 301-974-3683

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Mr. Charles P. Butler
June 13, 1989
Page 2

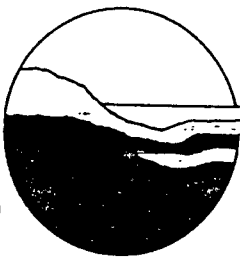
If you have any questions regarding this please feel free to contact me at (301) 974-3195.

Sincerely,

James Burtis, Jr.

James Burtis, Jr.
Director

ENCLOSURE



Maryland Department of Natural Resources

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Forest, Park and Wildlife Service
Taves State Office Building
Annapolis, Maryland 21401

William Donald Schaefer
Governor

RECEIVED

Torrey C. Brown, M.D.
Secretary

August 3, 1989

AUG 21 1989

Donald E. MacLauchlan
Director

JOHNSON, MIRMIRAN & THOMPSON

Mr. Charles P. Butler
JOHNSON, MIRMIRAN AND THOMPSON, P.A.
810 Gleneagles Court
Suite 200
Baltimore, MD 21204

Re: Proposed MD 5 Relocated (Mattawoman - Beantown Md.
Follow-up James Burtis memo of June 13, 1989
Presence of Rare Species at Mattawoman Creek

Dear Mr. Butler:

On June 12, 1989 Lynn Davidson surveyed the Mattawoman Creek project site for the least bittern (*Ixobrychus exilis*) and loggerhead shrike (*Lanius ludovicianus*). She did not find either of these species, or any other rare birds in the vicinity of the project site. Therefore, although we have general concerns about the impact on wetlands in this area, we still have "no comment" in regard to the project's impact on Threatened or Endangered species.

If you have any further questions regarding this matter please feel free to contact Ms. Lynn Davidson, Natural Heritage Program at (301) 974-2870.

Sincerely,

James Burtis, Jr.
Director

JB:dec

Telephone: _____
DNR TTY for Deaf: 301-974-3683



THE PRINCE GEORGE'S COUNTY GOVERNMENT
DEPARTMENT OF ENVIRONMENTAL RESOURCES



August 30, 1989

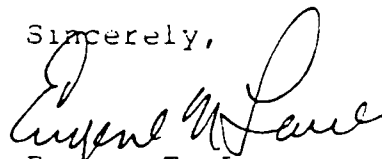
Mr. Louis H. Ege, Jr.
Deputy Director
Office of Planning and Preliminary Engineering
Maryland Department of Transportation
State Highway Administration
707 North Calvert Street
Baltimore, Maryland 21203-0717

Dear Mr. Ege:

Prince George's County has reviewed the site location of the relocation of MD Route 5 (Mattawoman-Beantown Road). We concur with the State Highway Administration's (SHA) determination that the site is not located within the County's Chesapeake Bay Critical Area.

Thank you for providing the County an opportunity to review the project location. We are pleased that SHA is considering the Chesapeake Bay Critical Area when planning and designing State roads.

Sincerely,



Eugene T. Lauer
Director



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JOHN C. NORTH, II
CHAIRMAN

STATE OF MARYLAND
CHESAPEAKE BAY CRITICAL AREAS COMMISSION

SARAH J. TAYLOR, PhD
EXECUTIVE DIRECTOR

WEST GARRETT PLACE, SUITE 320
275 WEST STREET
ANNAPOLIS, MARYLAND 21401
974-2418 or 974-2426

COMMISSIONERS

August 31, 1989

Thomas Osborne
Anne Arundel Co.

James E. Gutman
Anne Arundel Co.

Ronald Karasic
Baltimore City

Ronald Hickernell
Baltimore Co.

Albert W. Zahniser
Calvert Co.

Thomas Jarvis
Caroline Co.

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G. Steele Phillips
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Wallace D. Miller
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Robert R. Price, Jr.
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Shepard Krech, Jr.
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William Corkran, Jr.
Talbot Co.

William J. Bostian
Wicomico Co.

Russell Blake
Worcester Co.

Mr. Louis H. Ege, Jr.
Deputy Director
Office of Planning and
Preliminary Engineering
State Highway Administration
707 North Calvert Street
Baltimore, Maryland 21203

Dear Mr. Ege:

Thank you for sending us notification of the State Highway Administration projects listed below. We concur with the determination of the Environmental Evaluation Section that these projects are not in the Critical Area, and are therefore not subject to Critical Area Commission review. The above-referenced projects are:

Contract No.	AA 936-151-570	MD 3 Reconstruction
"	" B 813-101-471	US 1 Silver Spring Road
"	" B 881-101-471	MD 45, MD 145
"	" CH 566-151-571	MD 5 Relocated
"	" H 888-101-471	US 1 Business
"	" H 899-101-471	MD 152, US 1
"	" H 873-101-470	US 1 Hickory/MD 23
"	" H 896-101-471	MD 161 Bridge Replacement
"	" H 887-101-471	MD 7, Stepney Road
"	" SM 752-251-271	MD 471, Bridge No. 18028
"	" S 365-101-171	MD 362 Extended

Again, we appreciate your consideration.

CABINET MEMBERS

Wayne A. Cawley, Jr.
Agriculture

Robert Schoepfle
Employment and Economic Development

Robert Perciasepe
Environment

Ardath Cade
Housing and Community Development

Torrey C. Brown, M.D. CC:
Natural Resources

Ronald Kreitner
Planning

AR:msl

Cynthia Simpson
Thomas Osborne
Eugene Lauer
William Carroll

David Flowers
Jackie Magness
Jon Grimm
Ron Adkins

Sincerely,

Abi Rome

Abi Rome
Natural Resources Planner

PROJ. FILED
DEVELOPMENT
DIV.
SEP 5 9 51 AM '89

VI. SELECTED REFERENCES

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SELECTED REFERENCES

1. DiLisio, James E. Maryland. Boulder, Colorado: Westview Press, 1983.
2. Flood Plain Management Study for Zekiah Swamp and Tributaries Charles and Prince George's County, Maryland. College Park, Maryland: U.S. Department of Agriculture, Soil Conservation Service, 1985.
3. Hopkins, Herbert T., Gary T. Fisher, and Laurence J. McGreevy. Reconnaissance of the Ground-Water, Surface-Water System in the Zekiah Swamp Run Basin, Charles County and Prince Georges Counties, Maryland. Towson, Maryland: Maryland Geological Survey, Tri-County Council for Southern Maryland, Coastal Resources Division of the Maryland Tidewater Administration, for the U.S. Geological Survey, 1986.
4. The Physical Features of Charles County. Baltimore, Maryland: State of Maryland Board of Natural Resources, Department of Geology, Mines and Water Resources, 1948.
5. Soil Survey of Charles County, Maryland. Washington, D.C.: United States Department of Agriculture, Soil Conservation Service, 1974.
6. Geologic Map of Maryland. Baltimore, Maryland: Maryland Geological Survey, 1968.
7. U.S. Bureau of the Census 1980 Census of Population and Housing. Washington, D.C.: U.S. Department of Commerce, Bureau of the Census, 1980.
8. "Charles County". Regardie's Regional Report. Washington, D.C., May, 1988.
9. The Guide to Charles County. La Plata, Maryland: Charles County Chamber of Commerce, 1988.
10. Map of Charles County, Maryland, Existing Zoning Map. La Plata, Maryland: Charles County Planning Commission, 1987.
11. Charles County Maryland Comprehensive Plan Land Use Concept Plan, 2010 La Plata, Maryland: Redman/Johnston Associates, Ltd. for Charles County Department of Planning and Zoning, 1988.
12. Maryland Statistical Abstract, 1988-89. Annapolis, Maryland: Office of Research, Maryland Department of Economic and Employment Development, 1988.

VII. APPENDIX A

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

All State Highway Administration projects must comply with the provisions of the "Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970" (Public Law 91-646 and Public Law 100-17) and amendments as published in the Annotated Code of Maryland entitled Real Property Article Subtitle 2, Relocation and Assistance Section 12-201 to 12-212. The Maryland Department of Transportation, State Highway Administration, Relocation Assistance Division, administers the Transportation Relocation Assistance Program in the State of Maryland.

The provisions of the Federal and State Law require the State Highway Administration to provide payments and services to persons displaced by a public project. The payments that are provided include replacement housing payments and/or moving costs. The maximum limits of the replacement housing payments are \$22,500 for owner-occupants and \$5,350 for tenant-occupants. Certain payment may also be made for increase mortgage interest costs and/or incidental expenses, provided that the total of all housing benefits does not exceed the above mentioned limits. In order to receive these payments, the displaced person must occupy decent, safe and sanitary replacement housing. In addition to the replacement housing payments described above, there are also moving expense payments to persons, businesses, farms and non-profit organizations up to 50 miles. Actual moving expenses for residences include actual moving costs or a schedule moving expenses payment, up to \$1,050.

The moving cost payments to business are broken down into several categories, which include actual moving expense payments, fixed payments "in lieu of" actual moving expenses, limited to \$20,000 and reestablishment expenses, limited to \$10,000. The owner of a displaced business is entitled to receive a payment for actual reasonable moving and related expenses in moving his business, or persona, property; actual direct losses of tangible personal property; and actual reasonable expenses for searching, limited to \$1,000, for a replacement site.

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 agency determines a longer distance is necessary. The expenses claimed for actual cost commercial 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 obtained. The allowable expenses of a self-move may include amounts paid for equipment hired, the cost of using the business' own vehicles or equipment, wages paid to person who physically participate in the move, the cost of actual supervision of the move, replacement insurance for the personal property moved, costs of licenses or permits required, and other related expenses.

In addition to the actual moving expenses mentioned above, the displaced business is entitled to receive a payment for the actual direct losses of tangible personal property that the business is entitled to relocate but elects not to move. These payments may only be made after an effort by the owner to sell the personal property involved. The costs of the sale area also reimbursable moving expenses. If the business elects to move or discontinue it's operation 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, but with no allowance for storage.

They are also entitled to reasonable cost incurred in attempting to sell an item that is not to be relocated.

If an item of personal property which is used as part of a business or farm operation is not moved but is promptly replaced with a substitute item that performs a comparable function at the replacement site, the displaced person is entitled to payment 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 but with no allowance for storage.

In lieu of the payments described above, the business may elect to receive a payment equal to the average annual net earnings of the business. Such payment shall not be less than \$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 is not being acquired, and the business contributes materially to the income of a displaced owner during the two taxable years prior to displacement. The business is not operated at the displacement site or swelling solely for the purpose of renting such dwelling or site to others.

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 area also factors.

In order to determine the amount of the "in lieu of" moving expenses payment, the average annual net earnings of the business is considered to be one-half of the net earnings, before taxes during the two taxable years immediately preceding the taxable year in which the business is relocated. If the two taxable years are not representative, the State may use another two-year period that would be more representative. Average annual net earnings include any compensation paid by the business to the owner, his spouse, or his dependents during the period. Should a business be in operation less than two years, the owner of the business may stall 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

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years in question.

For displaced farms and non-profit organization, the actual reasonable moving costs generally up to 50 miles, actual direct losses of tangible personal property, and searching costs are paid. The "in lieu of" actual moving cost payments provide that the State may determine that a displaced farm may be paid from a minimum of \$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 partial acquisition. A non-profit organization is eligible to receive "in lieu of" actual moving cost payments, a 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 person, businesses, farms and non-profit organization is available in the "Your Land and Highway" brochure that will be distributed at the public hearings for this project and will also be given to displaced persons individually in the future.

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

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

VIII. APPENDIX B

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MANAGEMENT SUMMARY
PHASE I ARCHAEOLOGICAL INVESTIGATIONS
OF MARYLAND ROUTE 5 RELOCATED
MATTAWOMAN - BEANTOWN ROAD,
FROM U.S. ROUTE 301 TO MARYLAND ROUTE 5
CHARLES AND PRINCE GEORGES COUNTIES, MARYLAND

STATEWIDE ARCHAEOLOGICAL SERVICES
CONTRACT NO. W 818-101-671(n)
PDMS NO. 032119

PREPARED FOR:

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

PREPARED BY:

THE CULTURAL RESOURCE GROUP
BERGER BURKAVAGE, INC.

APRIL 1989

This document summarizes the results of the Phase I archaeological survey of the proposed alternatives for Maryland Route 5 relocated Mattawoman-Beantown Road, from U.S. Route 301 to Maryland Route 5, Charles and Prince Georges Counties, Maryland. Included in the survey were Alternative 2,3,4 and 4-Modified, as well as Interchange Options A, B, C and D. Altogether the proposed improvements involve approximately three miles of roadway alignments. The Cultural Resource Group of Berger Burkavage, Inc. conducted this study for the Maryland Department of Transportation, State Highway Administration, under Contract Number W 818-101-671(N) PDMS No. 032119. A more detailed report covering these archaeological investigations will be completed by May 5, 1989, and will comply with the guidelines established by the Maryland Historical Trust and the Maryland Geological Survey's Division of Archaeology.

The Phase I investigative process was begun with archival research focusing on both prehistoric and historic resources. An examination of historical documents and maps, as well as, archaeological reports, was conducted at the Maryland Historical Trust, Annapolis; and the Maryland Geological Survey's Division of Archaeology, the Maryland Historical Society, and the Enoch Pratt Free Library, Baltimore. The purpose of this background effort was to determine if documented archaeological and historical sites were in the project boundaries, and furthermore, to help gain a preliminary perspective as to the distribution of known sites in the region from which to create a context for the interpretation of newly discovered site areas.

Based on the historic and prehistoric background studies the project area was divided into high, moderate and low probability segments with respect to the expected occurrence of archaeological sites. the areas of highest probability were seen as the crossing of the two streams located on both the northern and southern ends of the project corridor. In addition the pedestrian survey of the area revealed the presence of a series of small swamps and bogs in the flat, poorly drained divide between the two stream systems. The higher better drained sections around the swamp were also tested as the background research indicated that prehistoric sites are known to occur in these types of topographic setting. Shovel test transects were also placed across moderate to low probability areas. A total of 104 shovel tests units were distributed at seven areas along the project alignment.

The archaeological investigations for the project did not identify any prehistoric archaeological sites within the project corridor. Several twentieth century properties were tested - one was a recently burned down farmstead - but no buried archaeological remains were recovered. No historic archaeological resources, besides modern roadside trash deposits, were encountered within the confines of the project boundaries.

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Based on the results of the background research and field investigations it appears as if the potential for archaeological resources is extremely low. No further fieldwork is recommended for this project.

IX. APPENDIX C



United States
Department of
Agriculture

Soil
Conservation
Service

P.O. Box 269
La Plata, MD 20646

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RECEIVED

February 15, 1989

FEB 16 1989

Mr. Charles Butler
Environmental Manager
Johnson, Mirmiran and Thompson, P.A.
810 Gleneagles Court
Suite 200
Baltimore, MD 21204

Dear Mr. Butler:

Enclosed you will find Charles County soil maps for the area you designated in your letter of January 13, 1989.

This route contains the following soils:

AuD3	BrB2	SaE
BlA	EK	WoB2
BlB2	LE	
BlC2	RdB2	
BlC3	RyB2	
Bo	ShA	

The soil units named ShA (sassafras) and WoB2 (woodstown) are listed as prime farmland soils for Charles County, Md.

The soil units named BlA (Beltsville), BlB2 (Beltsville), BlC2 (Beltsville), BrB2 (Bourne), RdB2 (Rumford) and RyB2 (Rumford) are listed as soils of statewide importance for Charles County, Md.

If I can be of any further assistance, please let me know.

J. H. Kimmons
J.H. Kimmons

cc: R. Dills (w/o encl.)



The Soil Conservation Service
is an agency of the
United States Department of Agriculture



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FARMLAND CONVERSION IMPACT RATING

PART I (To be completed by Federal Agency)		Date Of Land Evaluation Request	
Name Of Project Mattawoman-Beantown Road		Federal Agency Involved USDA/SCS	
Proposed Land Use Highway		County And State Charles County, Maryland	

PART II (To be completed by SCS)		Date Request Received By SCS March 21, 1989	
Does the site contain prime, unique, statewide or local important farmland? (If no, the FPPA does not apply - do not complete additional parts of this form).		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Major Crop(s)		Acres Irrigated	Average Farm Size
Name Of Land Evaluation System Used		Farmable Land In Govt. Jurisdiction Acres: %	Amount Of Farmland As Defined in FPPA Acres: %
		Name Of Local Site Assessment System	Date Land Evaluation Returned By SCS

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

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

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

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

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

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

Reason For Selection:



United States
Department of
Agriculture

Soil
Conservation
Service

APR 25 1989

*check
7 AM* 229

April 20, 1989

Mr. Charles P. Butler
Environmental Manager
Johnson, Mirmiran and Thompson, P.A.
810 Gleneagles Court, Suite 200
Baltimore, MD 21204

Dear Mr. Butler:

Enclosed is the Farmland Conversion Impact Rating (AD-1006) for MD 205 Farmland Impacts, JMT Job No. 87112.03.

Please note that an AD-1006, with Part I completed, is to be sent to the Soil Conservation Service (SCS) along with the maps and other information. I had an extra copy of the form and filled in Part I for this project.

If you have any questions or need additional information, please contact me.

Sincerely,

Larry S. Holmes
District Conservationist

LSH:hmd

Enc.



The Soil Conservation Service
is an agency of the
Department of Agriculture

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FARMLAND CONVERSION IMPACT RATING

I (To be completed by Federal Agency):		Date Of Land Evaluation Request 3-22-89
Name Of Project MD 205 JME Job No. 87112.03	Federal Agency Involved FHWA	
Proposed Land Use Highway	County And State Prince George's, Maryland	

PART II (To be completed by SCS)		Date Request Received By SCS 3-27-89
Does the site contain prime, unique, statewide or local important farmland? (If no, the FPPA does not apply - do not complete additional parts of this form).		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
		Acres Irrigated: None Average Farm Size: 98 acres
Major Crop(s) Corn, Soybeans, Tobacco, Small Grains	Farmable Land In Govt. Jurisdiction Acres: 145621 % 46.7	Amount Of Farmland As Defined in FPPA Acres: 111,985 % 35.9
Name Of Land Evaluation System Used P.G. Co., Land Eval. System	Name Of Local Site Assessment System FPPA	Date Land Evaluation Returned By SCS 4-14-89

PART III (To be completed by Federal Agency)		Alternative Site Rating			
		Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly	2.44	2.9	1.85	1.53	
B. Total Acres To Be Converted Indirectly					
C. Total Acres In Site	2.44	2.9	1.85	1.53	

PART IV (To be completed by SCS) Land Evaluation Information					
A. Total Acres Prime And Unique Farmland	.84	.52	.38	.35	
B. Total Acres Statewide And Local Important Farmland	1.6	2.38	1.47	1.18	
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted	.001	.001	.001	.001	
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value	54	55	54.5	54.5	

PART V (To be completed by SCS) Land Evaluation Criterion					
Relative Value Of Farmland To Be Converted (Scale of 0 to 100 Points)		63	59	60	60

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

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

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

X. APPENDIX D

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The following is a list of species which may be found in the study area:

red-spotted newt
 spotted salamander
 marbled salamander
 northern two-lined
 salamander
 four-toed salamander
 redback salamander
 eastern mud salamander
 northern red salamander
 eastern spadefoot
 American toad
 Fowler's toad
 northern cricket frog
 northern spring peeper
 gray treefrog
 chorus frog
 bullfrog
 pickerel frog
 wood frog

Notophthalmus viridescens
 Ambystoma maculatum
 Ambystoma opacum
 Eurycea bislineata
 Hemidactylium scutatum
 Plethodon cinereus
 Pseudotriton montanus
 Pseudotriton ruber
 Scaphiopus holbrooki
 Bufo americanus
 Bufo fowleri
 Acris crepitans
 Hyla crucifer
 Hyla versicolor
 Pseudacris triseriata
 Rana catesbeiana
 Rana palustris
 Rana sylvatica

common snapping turtle
 eastern mud turtle
 painted turtle
 redbelly turtle
 red-eared slider
 spotted turtle
 eastern box turtle
 northern fence lizard
 ground skink
 five-lined skink
 six-lined racerunner
 eastern worm snake
 northern black racer
 black rat snake
 eastern hog-nosed snake
 mole kingsnake
 northern water snake
 eastern ribbon snake
 eastern garter snake

Chelydra serpentina
 Kinosternon subrubrum
 Chrysemys picta
 Chrysemys rubiventris
 Chrysemys scripta
 Clemmys gutta
 Terrapene carolina
 Sceloporus undulatus
 Scincella lateralis
 Eumeces fasciatus
 Cnemidophorus sexlineatus
 Carphophis amoenus
 Coluber constrictor
 Elaphe obsoleta
 Heterodon platyrhinos
 Lampropeltis calligaster
 Nerodia sipedon
 Thamnophis sauritus
 Thamnophis sirtalis

least bittern
 great blue heron
 great egret
 snowy egret
 cattle egret

Ixobrychus exilis
 Ardea herodias
 Casmerodius albus
 Egretta thula
 Bubulcus ibis

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green-backed heron	Butorides striatus
black-crowned night-heron	Nycticorax nycticorax
Canada goose	Branta canadensis
wood duck	Aix sponsa
American black duck	Anas rubripes
mallard	Anas platyrhynchos
hooded merganser	Lophodytes cucullatus
black vulture	Coragyps atratus
turkey vulture	Cathartes aura
osprey	Pandion haliaetus
northern harrier	Circus cyaneus
sharp-shinned hawk	Accipiter striatus
Cooper's hawk	Accipiter cooperii
red-shouldered hawk	Buteo lineatus
broad-winged hawk	Buteo platypterus
red-tailed hawk	Buteo jamaicensis
American kestrel	Falco sparverius
merlin	Falco columbarius
ring-necked pheasant	Phasianus colchicus
wild turkey	Meleagris gallopavo
northern bobwhite	Colinus virginianus
clapper rail	Rallus longirostris
Virginia rail	Rallus limicola
king rail	Rallus elegans
sora	Porzana carolina
common moorhen	Gallinula chloropus
American coot	Fulica americana
killdeer	Charadrius vociferus
greater yellowlegs	Tringa melanoleuca
lesser yellowlegs	Tringa flavipes
spotted sandpiper	Actitis macularia
American woodcock	Scolopax minor
laughing gull	Larus atricilla
ring-billed gull	Larus delawarensis
herring gull	Larus argentatus
Forster's tern	Sterna forsteri
rock dove	Columba livia
mourning dove	Zenaidura macroura
black-billed cuckoo	Coccyzus erythrophthalmus
yellow-billed cuckoo	Coccyzus americanus
common barn-owl	Tyto alba
eastern screech-owl	Otus asio
great horned owl	Bubo virginianus
barred owl	Strix varia
common nighthawk	Chordeiles minor
chuck-will's-widow	Caprimulgus carolinensis
whip-poor-will	Caprimulgus vociferus
chimney swift	Chaetura pelagica
ruby-throated hummingbird	Archilochus colubris
belted kingfisher	Ceryle alcyon
red-headed woodpecker	Melanerpes erythrocephalus
red-bellied woodpecker	Melanerpes carolinus

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downy woodpecker	Picoides pubescens
hairy woodpecker	Picoides villosus
pileated woodpecker	Dryocopus pileatus
northern flicker	Colaptes auratus
eastern wood pewee	Contopus virens
acadian flycatcher	Empidonax virescens
willow flycatcher	Empidonax traillii
least flycatcher	Empidonax minimus
eastern phoebe	Sayornis phoebe
great crested flycatcher	Myiarchus crinitus
eastern kingbird	Tyrannus tyrannus
horned lark	Eremophila alpestris
purple martin	Progne subis
tree swallow	Tachycineta bicolor
northern rough-winged swallow	Stelgidopteryx serripennis
bank swallow	Riparia riparia
cliff swallow	Hirundo pyrrhonota
barn swallow	Hirundo rustica
blue jay	Cyanocitta cristata
American crow	Corvus brachyrhynchos
fish crow	Corvus ossifragus
Carolina chickadee	Parus carolinensis
tufted titmouse	Parus bicolor
red-breasted nuthatch	Sitta canadensis
white-breasted nuthatch	Sitta carolinensis
brown creeper	Certhia americana
Carolina wren	Thryothorus ludovicianus
house wren	Troglodytes aedon
winter wren	Troglodytes troglodytes
marsh wren	Cistothorus palustris
golden-crowned kinglet	Regulus satrapa
ruby-crowned kinglet	Regulus calendula
blue-gray gnatcatcher	Polioptila caerulea
eastern bluebird	Sialia sialis
veery	Catharus fuscescens
wood thrush	Hylocichla mustelina
American robin	Turdus migratorius
gray catbird	Dumetella carolinensis
northern mockingbird	Mimus polyglottos
brown thrasher	Toxostoma fufum
cedar waxwing	Bombycilla cedrorum
loggerhead shrike	Lanius ludovicianus migrans
European starling	Lanius ludovicianus
white-eyed vireo	Vireo griseus
solitary vireo	Vireo solitarius
yellow-throated vireo	Vireo flavifrons
warbling vireo	Vireo gilvus
red-eyed vireo	Vireo olivaceus
Nashville warbler	Vermivora ruficapilla
blue-winged warbler	Vermivora pinus
northern parula	Parula americana

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yellow warbler	Dendroica petechia
chestnut-sided warbler	Dendroica pensylvanica
magnolia warbler	Dendroica magnolia
Cape May warbler	Dendroica tigrinae
black-throated blue warbl	Dendroica caerulescens
yellow-rumped warbler	Dendroica coronata cornata
black-throated green warbler	Dendroica virens
blackburnian warbler	Dendroica fusca
yellow-throated warbler	Dendroica dominica
pine warbler	Dendroica pinus
prairie warbler	Dendroica discolor
palm warbler	Dendroica palmarum
bay breasted warbler	Dendroica castanea
blackpoll warbler	Dendroica striata
black-and-white warbler	Mniotilta varia
American redstart	Setophaga ruticilla
prothonotary warbler	Protonotaria citrea
worm-eating warbler	Helmitheros vermivorus
ovenbird	Seiurus aurocapillus
northern waterthrush	Seiurus noveboracensis
Louisiana waterthrush	Seiurus motacilla
Kentucky warbler	Oporornis formosus
common yellowthroat	Geothlypis trichas
hooded warbler	Wilsonia citrina
Wilson's warbler	Wilsonia pusilla
Canada warbler	Wilsonia canadensis
yellow-breasted chat	Icteria virens
summer tanager	Piranga rubra
scarlet tanager	Piranga olivacea
northern cardinal	Cardinalis cardinalis
rose-breasted grosbeak	Pheucticus ludovicianus
blue grosbeak	Guiraca caerulea
indigo bunting	Passerina cyanea
rufous-sided towhee	Pipilo erythrophthalmus
American tree sparrow	Spizella arborea
chipping sparrow	Spizella passerina
field sparrow	Spizella pusilla
vesper sparrow	Poocetes gramineus
grasshopper sparrow	Ammodramus savannarum
fox sparrow	Passerella iliaca
song sparrow	Melospiza melodia
white-crowned sparrow	Zonotrichia leucophrys
white-throated sparrow	Zonotrichia albicollis
dark-eyed junco	Junco hyemalis
bobolink	Dolichonyx oryziborus
red-winged blackbird	Agelaius phoeniceus
eastern meadowlark	Sturnella magna
common grackle	Quiscalus quiscula
brown-headed cowbird	Molothrus ater
orchard oriole	Icterus spurius
northern oriole	Icterus galbula

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evening grosbeak
purple finch
house finch
common redpoll
pine siskin
American goldfinch
house sparrow

Coccothausates vespertinus
Carpodacus purpureus
Carpodacus mexicanus
Carduelis flammea
Carduelis pinus
Carduelis tristis
Passer domesticus

masked shrew
pygmy shrew
short-tailed shrew
least shrew
eastern mole
star-nosed mole
little brown myotis
Keen's myotis
silver-haired myotis
eastern pipistrelle
big brown bat
red bat
hoary bat
evening bat
eastern cottontail
eastern chipmunk
woodchuck
gray squirrel
fox squirrel
red squirrel
southern flying squirrel
white-footed mouse
meadow vole
pine vole
muskrat
southern bog lemming
Norway rat
house mouse
meadow jumping mouse
red fox
eastern gray fox
raccoon
long-tailed weasel
mink
striped skunk
white-tailed deer

Sorex cinereus
Microsorex hoyi
Blarina brevicauda
Cryptotis parva
Scalopus aquaticus
Condylura cristata
Myotis lucifugus
Myotis keenii
Lasionycteris noctivagans
Pipistrellus subflavus
Eptesicus fuscus
Lasiurus borealis
Lasiurus cinereus
Nycticeius humeralis
Sylvilagus floridanus
Tamias striatus
Marmota monax
Sciurus carolinensis
Sciurus niger
Tamiasciurus hudsonicus
Glaucomys volans
Peromyscus leucopus
Microtus pennsylvanicus
Microtus pinetorum
Ondatra zibethicus
Synaptomys cooperi stonei
Rattus norvegicus
Mus musculus
Zapus hudsonius
Vulpes vulpes
Urocyon cinereoargenteu
Procyon lotor
Mustela frenata
Mustela vison
Mephitis mephitis
Odocoileus virginianus

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The following birds have been observed in breeding habitat in or immediately adjacent to the study area during their breeding seasons.

least bittern	<i>Ixobrychus exilis</i>
great blue heron	<i>Ardea herodias</i>
cattle egret	<i>Bubulcus ibis</i>
green-backed heron	<i>Butorides striatus</i>
Canada goose	<i>Branta canadensis</i>
wood duck	<i>Aix sponsa</i>
mallard	<i>Anas platyrhynchos</i>
black vulture	<i>Coragyps atratus</i>
turkey vulture	<i>Cathartes aura</i>
Cooper's hawk	<i>Accipiter cooperii</i>
red-shouldered hawk	<i>Buteo lineatus</i>
broad-winged hawk	<i>Buteo platypterus</i>
red-tailed hawk	<i>Buteo jamaicensis</i>
American kestrel	<i>Falco sparverius</i>
ring-necked pheasant	<i>Phasianus colchicus</i>
wild turkey	<i>Meleagris gallopavo</i>
northern bobwhite	<i>Colinus virginianus</i>
king rail	<i>Laterallus jamaicensis</i>
killdeer	<i>Charadrius vociferus</i>
American woodcock	<i>Scolopax minor</i>
rock dove	<i>Columba livia</i>
mourning dove	<i>Zenaida macroura</i>
black-billed cuckoo	<i>Coccyzus erythrophthalmus</i>
yellow-billed cuckoo	<i>Coccyzus americanus</i>
common barn-owl	<i>Tyto alba</i>
eastern screech-owl	<i>Otus asio</i>
great horned owl	<i>Bubo virginianus</i>
barred owl	<i>Strix varia</i>
common nighthawk	<i>Chordeiles minor</i>
whip-poor-will	<i>Caprimulgus vociferus</i>
chimney swift	<i>Chaetura pelagica</i>
ruby-throated hummingbird	<i>Archilochus colubris</i>
belted kingfisher	<i>Ceryle alcyon</i>
red-headed woodpecker	<i>Melanerpes erythrocephalus</i>
red-bellied woodpecker	<i>Melanerpes carolinus</i>
downy woodpecker	<i>Picoides pubescens</i>
hairy woodpecker	<i>Picoides villosus</i>
pileated woodpecker	<i>Dryocopus pileatus</i>
northern flicker	<i>Colaptes auratus</i>
eastern wood-pewee	<i>Contopus virens</i>
acadian flycatcher	<i>Empidonax virescens</i>
eastern phoebe	<i>Sayornis phoebe</i>
great crested flycatcher	<i>Myiarchus crinitus</i>
eastern kingbird	<i>Tyrannus tyrannus</i>
horned lark	<i>Eremophila alpestris</i>
purple martin	<i>Progne subis</i>
tree swallow	<i>Tachycineta bicolor</i>
northern rough-winged swallow	<i>Stelgidopteryx serripennis</i>

bank swallow
 barn swallow
 blue jay
 American crow
 fish crow
 Carolina chickadee
 tufted titmouse
 white-breasted nuthatch
 Carolina wren
 house wren
 blue-gray gnatcatcher
 eastern bluebird
 wood thrush
 American robin
 gray catbird
 northern mockingbird
 brown thrasher
 cedar waxwing
 loggerhead shrike
 European starling
 white-eyed vireo
 yellow-throated vireo
 warbling vireo
 red-eyed vireo
 blue-winged warbler
 northern parula
 yellow warbler
 yellow-throated warbler
 pine warbler
 prairie warbler
 cerulean warbler
 black-and-white warbler
 American redstart
 prothonotary warbler
 worm-eating warbler
 ovenbird
 Louisiana waterthrush
 Kentucky warbler
 common yellowthroat
 hooded warbler
 yellow-breasted chat
 summer tanager
 scarlet tanager
 northern cardinal
 blue grosbeak
 indigo bunting
 rufous-sided towhee
 chipping sparrow
 field sparrow
 vesper sparrow
 grasshopper sparrow
 song sparrow

Riparia riparia
 Hirundo rustica
 Cyanocitta cristata
 Corvus brachyrhynchos
 Corvus ossifragus
 Parus carolinensis
 Parus bicolor
 Sitta carolinensis
 Thryothorus ludovicianus
 Troglodytes aedon
 Polioptila caerulea
 Sialia sialis
 Hylocichla mustelina
 Turdus migratorius
 Dumetella carolinensis
 Mimus polyglottos
 Toxostoma rufum
 Bombycilla cedrorum
 Lanius ludovicianus
 Sturnus vulgaris
 Vireo griseus
 Vireo flavifrons
 Vireo gilvus
 Vireo olivaceus
 Vermivora pinus
 Parula americana
 Dendroica petechia
 Dendroica dominica
 Dendroica pinus
 Dendroica discolor
 Dendroica cerulea
 Mniotilta varia
 Setophaga ruticilla
 Protonotaria citrea
 Helmitheros vermivorus
 Seiurus aurocapillus
 Seiurus motacilla
 Oporornis formosus
 Geothlypis trichas
 Wilsonia citrina
 Icteria virens
 Piranga rubra
 Piranga olivacea
 Cardinalis cardinalis
 Guiraca caerulea
 Passerina cyanea
 Pipilo erythrophthalmus
 Spizella passerina
 Spizella pusilla
 Poecetes gramineus
 Ammodramus savannarum
 Melospiza melodia

red-winged blackbird
eastern meadowlark
common grackle
brown-headed cowbird
orchard oriole
northern oriole
house finch
American goldfinch
house sparrow

Agelaius phoeniceus
Sturnella magna
Quiscalus quiscula
Molothrus ater
Icterus spurius
Icterus galbula
Carpodacus mexicanus
Carduelis tristis
Passer domesticus

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