

# DRAFT ENVIRONMENTAL IMPACT STATEMENT

## SECTION 4(f) EVALUATION

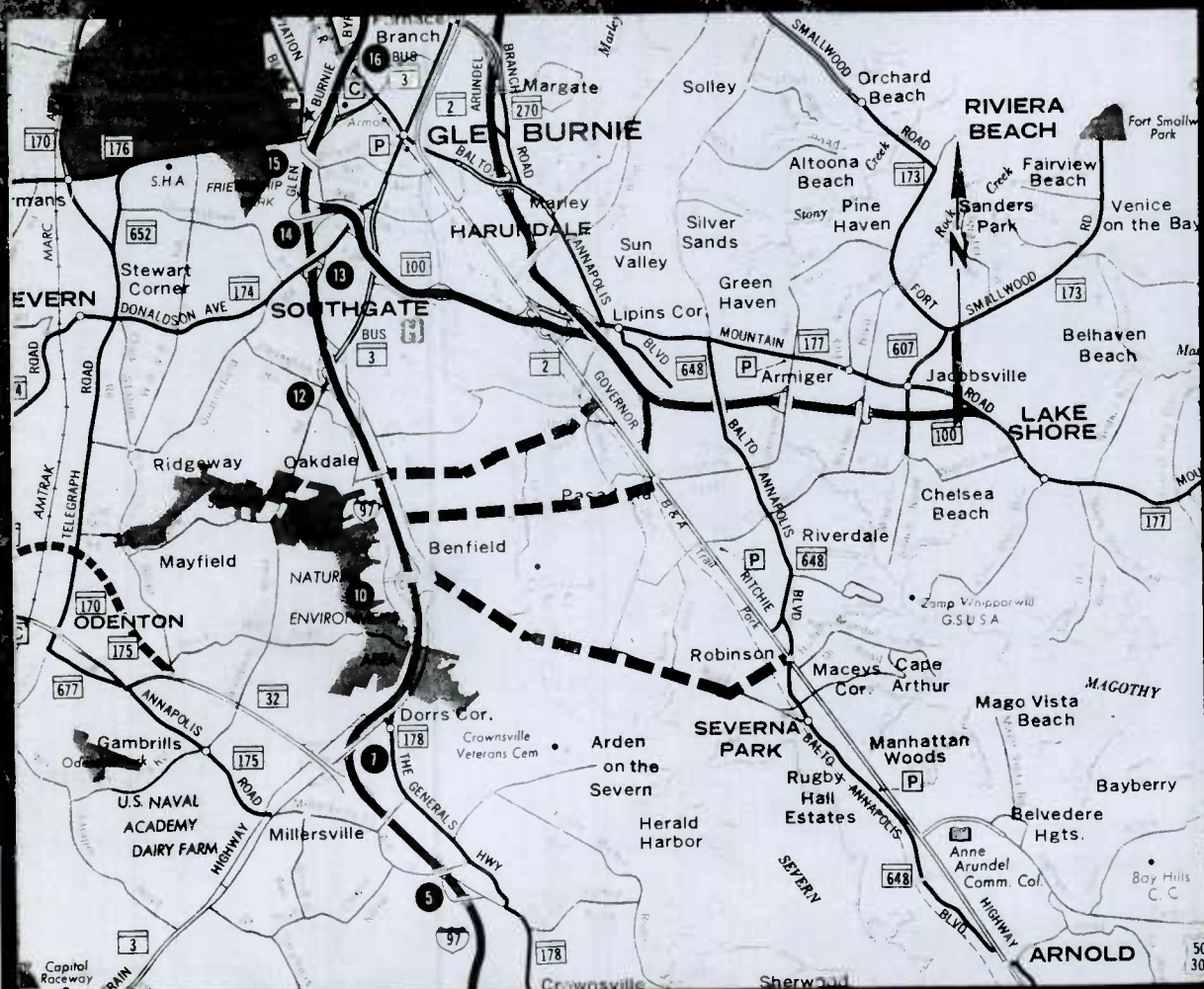
CONTRACT NO. AA 484-101-571

## EAST-WEST BOULEVARD

### CORRIDOR STUDY

FROM VETERANS HIGHWAY TO MD 2

ANNE ARUNDEL COUNTY, MARYLAND



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

and  
MARYLAND DEPARTMENT OF TRANSPORTATION  
STATE HIGHWAY ADMINISTRATION

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REPORT NUMBER: FHWA-MD-EIS-92-01-D

REGION III

**EAST - WEST BOULEVARD  
CORRIDOR STUDY**  
From Veterans Highway to MD 2  
in Anne Arundel County, Maryland

**ADMINISTRATIVE ACTION**

**DRAFT ENVIRONMENTAL IMPACT STATEMENT  
SECTION 4(F) EVALUATION**

Submitted Pursuant to 42 U.S.C. 4332(2) (c),  
49 U.S.C. 303 (c), 23 U.S.C. 128 (a), and  
CEQ Regulations (40 CFR 1500 et seq.)

U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
AND  
MARYLAND DEPARTMENT OF TRANSPORTATION  
STATE HIGHWAY ADMINISTRATION

Cooperating Agency: U.S. ARMY CORPS OF ENGINEERS

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HOURS: 8:00 a.m. - 4:30 p.m.

11/4/92

Date

11/6/92

Date

Neil J. Pedersen

Director, Office of Planning  
and Preliminary Engineering

Albert Banows

FEDERAL HIGHWAY ADMINISTRATION  
Division Administrator

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The purpose of this project is to study proposed alternatives for improving east west traffic flow and circulation on local roadways within the Veterans Highway - MD 2 transportation corridor, a distance of approximately 3 miles. The proposed alternatives would be designed to alleviate safety deficiencies and provide adequate capacity for traffic through the design year of 2015.

The environmental impacts associated with this project would include: right-of-way acquisition, displacement of residences, wetland, floodplain and Chesapeake Bay Critical Area involvements, and the possible acquisition of parkland.

Comments on this Draft Environmental Impact Statement are due by January 11, 1993 or 45 days after publication in the Federal Register, whichever is later, and should be sent to Mr. Louis H. Ege, Jr. at the above address.

# SUMMARY



**SUMMARY**

**1. Administrative Action**

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

**2. Description of Proposed Action**

The purpose of the East - West Boulevard Corridor Study is to provide additional east-west traffic capacity and improved roadway geometrics for the area that is bounded on the north and south by Brightview Drive/Obrecht Road and Benfield Boulevard, and lies between the MD 3 (I-97) and MD 2 (Governor Ritchie Highway) transportation corridors in Anne Arundel County, Maryland (See Figure S-1). Anne Arundel County originally proposed the construction of East - West Boulevard, on new location, from Veterans Highway to MD 2 in order to accommodate traffic which would be generated by planned residential development within this project area.

The reconstruction of Brightview Drive/Obrecht Road as a two and four lane facility, and the restriping of Benfield Boulevard as a four lane roadway are also included in this corridor study. These roadways currently provide a connection between Veterans Highway and MD 2. Brightview Drive/Obrecht Road is a narrow two lane county roadway with

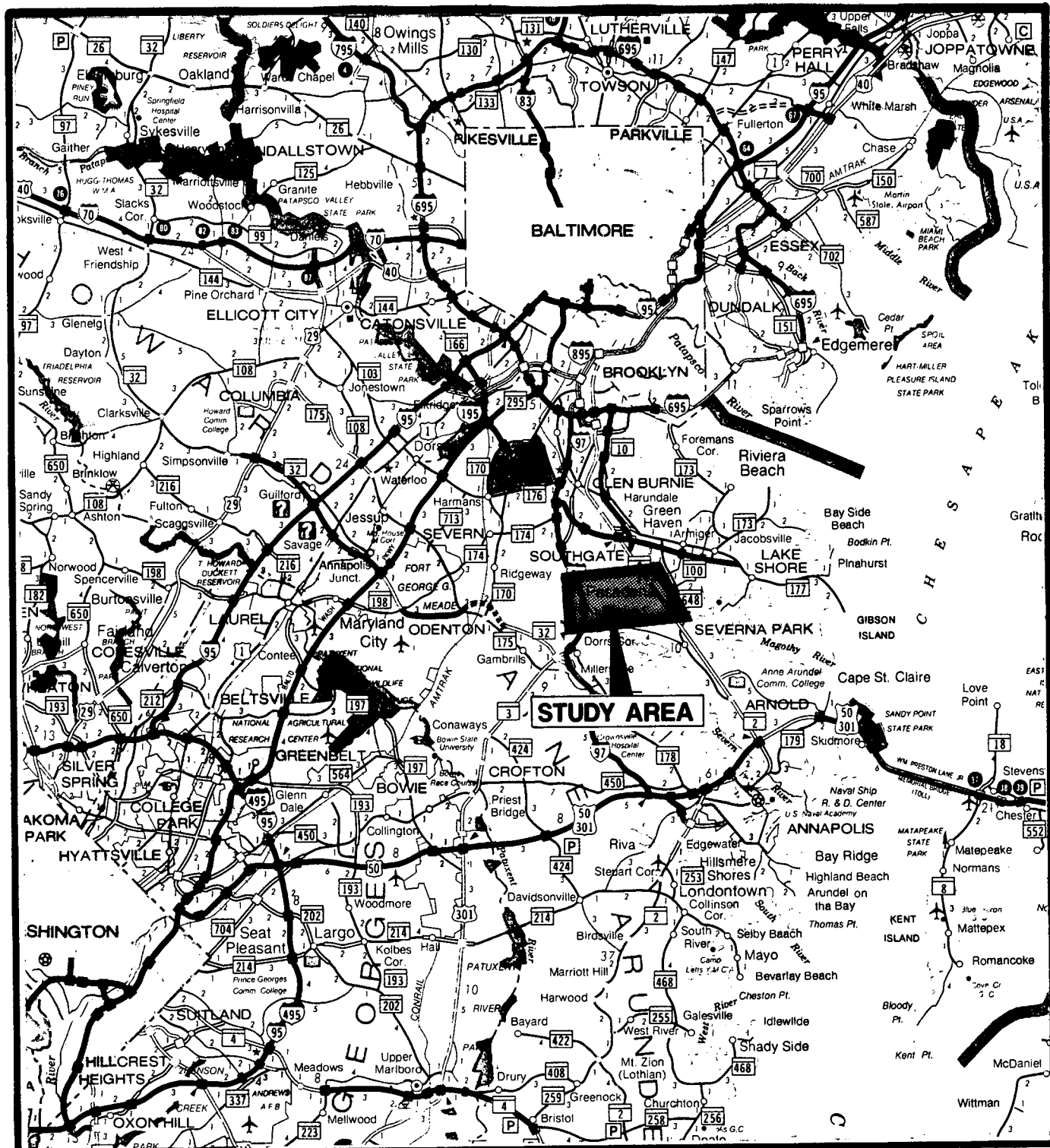
several areas that contain substandard horizontal and vertical geometry (curves).

The Anne Arundel County Master Plan alignment for East - West Boulevard or improvements to Brightview Drive/Obrecht Road would be built as a partially controlled access roadway. If improvements were made to Benfield Boulevard, the access points would remain similar to today's conditions. The new facility would provide long term benefits such as decreased emergency response times and improved traffic circulation. If the Master Plan alignment is selected it would provide an additional cross-county route, consequently reducing travel time and congestion along other local roadways.

### **3. Alternatives Considered**

During Stage I of this project, two and four lane alternatives for the East - West Boulevard alignment from Veterans Highway to MD 2, an alternative alignment that completely avoided impacts to Elvaton Park, and the No-Build Alternative were studied. Elvaton Park is a County owned recreational areas. An Alternates Public Meeting was held in September of 1989 (summary included in Section I of this document) at which these alternatives and their associated potential impacts were presented to the public.

Subsequent to this meeting, a third alternative alignment that would minimize impacts to Elvaton Park and improvements within the Brightview Drive/Obrecht Road and Benfield Boulevard corridors were included with the two and



KEY MAP

MARYLAND STATE HIGHWAY ADMINISTRATION  
**EAST-WEST BOULEVARD**  
 VETERANS HIGHWAY TO MARYLAND ROUTE 2

**PROJECT LOCATION**

DATE  
10/92



FIGURE  
S 1

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four lane Master Plan alternatives for detailed study. The No-Build alternative was also retained.

**No-Build Alternative (Alternative 1)**

No major improvements would be made to the existing local roadways, nor would this alternative provide for any roadways on new location. Normal maintenance would be continued and spot safety improvements would be undertaken where necessary. The No-Build Alternative would not require any major construction or right-of-way costs. In addition, no residential or business displacement would be required. However, as a result of this alternative, congestion along the existing roadways could be expected to worsen as traffic volumes on local roadways increase over time. This would result in diminished safety conditions for motorists that utilize these roadways.

**Build Alternatives**

Five build alternatives and three options have been retained for detailed study. These alternatives are contained within three study corridors; the Anne Arundel County Master Plan Alignment (East - West Boulevard) corridor, Brightview Drive/Obrecht Road corridor, and Benfield Boulevard corridor.

**Master Plan Alignment Corridor (Alternative 2)**

Two alternatives and three options have been developed within this corridor, which is approximately 3 miles in length. Alternatives 2A and 2B and the associated options

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essentially follow the same alignment from Veterans Highway to MD 2, where they tie in at Mission Street. Two additional concepts for the alignment along Mission Street have been evaluated.

The typical section for Alternative 2A consists of a two lane roadway, with 10 foot shoulders, located within the center of a 110 foot right-of-way. The typical section for Alternative 2B is comprised of a four lane curbed roadway, with a 20 foot median, that is also contained within a 110 foot right-of-way. All of the Alternative 2 Options include Concept 1, which proceeds along the centerline of Mission Street. Concepts 2 and 3 include northern and southern shifts through Mission Street respectively.

The current Anne Arundel County Master Plan alignment is designated Option 1. This option would directly impact Elvaton Park, which is located between Woodland Road and West Pasadena Road. With Option 2, impacts to the park would be avoided by shifting the center line of Option 1 approximately 110 feet to the south. The northern right-of-way line of Option 2 would be contiguous with the southern boundary of Elvaton Park.

Option 3 was developed as a park minimization alternative and would slightly impact the southwest and southeast corners of Elvaton Park.

A 1,300 foot section of East - West Boulevard was built as part of the Shipley's Choice Community which is located north of Benfield Boulevard and east of Veterans Highway and is identified in Figure 2 in **Section I - Need For the**

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Project, and on several other figures within this document. The typical section for the existing portion of East - West Boulevard contains a 50 foot curbed street within an 80 foot right-of-way. As in most residential neighborhoods, the existing roadway does not contain any pavement markings for lane designations. The existing right-of-way within the Shipley's Choice Community would be maintained. A median within this section could not be accommodated with the construction of two travel lanes in each direction.

**Brightview Dr./Obrecht Rd. Corridor (Alternative 3)**

As an alternative to the Master Plan alignment, Alternative 3 involves the reconstruction of Brightview Drive/Obrecht Road from Veterans Highway to MD 2, a distance of approximately 3 miles. A new connection to MD 2 from Jumpers Hole Road has been developed as part of this alternative. Two (Alternative 3A) and four (Alternative 3B) lane alternatives similar to those proposed for Alternative 2, within a 110 foot right-of-way have been included for study in this corridor.

**Benfield Boulevard Corridor (Alternative 4B)**

As another alternative alignment to provide a suitable connection between Veterans Highway and MD 2, improvements along Benfield Boulevard have been investigated. Currently, Benfield Boulevard is a two to three lane roadway with varying width shoulders. The proposal investigated for this alternative includes restriping Benfield Boulevard as a four

lane undivided roadway. In most areas there is enough existing pavement for the desired improvement.

East of Evergreen Road the proposed improvements would include restriping to transition into the existing three lane roadway. The approximate length of this proposal is just over 2.5 miles and all construction would be contained within the existing right-of-way. No construction would take place east of or along Evergreen Road.

#### **4. Areas of Controversy - Unresolved Issues**

Previous attempts by Anne Arundel County to restripe Benfield Boulevard were met with strong community opposition and was not pursued by the County. However, as an alternative to the new construction of East - West Boulevard or reconstruction of Brightview Drive/Obrecht Road, this alternative was added to this study.

Approximately 450 people attended the Alternates Public Meeting. Although several community associations voiced their support for the East - West Boulevard alignment because they believed that it would relieve traffic congestion along Benfield Boulevard, the majority of the audience was opposed to this alignment.

The citizens were particularly concerned about the potential impacts to Elvaton Park, the need for the new roadway, and the implications of the four lane alternative. The implications included safety concerns for children along the four lane roadway alignment, and the possible attraction of truck traffic and other through traffic.



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The citizens were also troubled by the potential for impacts to the Elvaton Acres community which is contained mostly within an area bounded by Woodland Road, Obrecht Road, Jumpers Hole Road, and West Pasadena Road. These impacts would include the acquisition of property and buildings, displacement of residents, and disruption of neighborhood cohesion. The Elvaton Acres community is identified in Figure 2 in Section I - Need For the Project and on several other figures within this document.

## **5. Related Projects in the Study Area**

### **State Highway Administration Projects**

There are several minor SHA Special Projects located within the study area. These projects include:

- MD 2 - from US 50 to MD 100, synchronize timing of the existing traffic signals via telemetry cable
- MD 2 - from Whites Road to Elvaton Road, resurfacing and minor safety improvements
- MD 2 - from Relocated Whites Road to 1500 feet south of Cypress Creek Road, widen both sides of MD 2 to the inside, resurfacing and minor safety improvements.

These projects are scheduled to be advertised for construction in Fiscal Year 1993 and 1994.

### **Local Projects**

An extension of the existing section of East - West Boulevard, that is located in the Shipley's Choice Community and was described earlier, is currently being constructed by the developer of Shipley's Choice. The developer's project

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will extend the two lane 50 foot street section of East - West Boulevard eastward approximately 1,000 feet. This new section will also be contained within 80 feet of right-of-way. In addition, the developer is also extending Governor William Stone Parkway northward to form an intersection with the eastern extension of East - West Boulevard (Figure I-6).

Anne Arundel County has completed design plans for the extension of East - West Boulevard westward from the existing section in the Shipley's Choice Community to tie into Veterans Highway (Old MD 3). The typical section for this extension would provide a two lane roadway, with shoulders, within an 80 foot right-of-way. The county plans to begin construction of this portion of roadway in the Spring of 1993. If Alternative 2B (the four lane section) is selected, SHA would acquire an additional 30 feet of right-of-way and reconstruct the County's roadway to accommodate the four lane divided section.

The county also has several other projects within the study area that are either being studied, or are included in their future development plans. These projects include:

- Jumpers Hole Road - realignment from Elvaton Road to south of Waterford Road. The realignment would include a new T-intersection with Obrecht Road.
- Earleigh Heights Road - realignment between Jumpers Hole Road and MD 2 to provide access for the Brittingham Farms Subdivision, which is currently under construction.
- Governor William Stone Parkway (Future) - extension from East - West Boulevard to Oakwood Road.

**6. Permits Required**

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

- US Army Corps of Engineers - Section 404 Permit
- Maryland Department of Natural Resources - Non-tidal Wetlands Permit
- Maryland Department of Natural Resources - Waterway Construction Permit
- Maryland Department of Natural Resources - Coastal Zone Consistency Statement
- Maryland Department of the Environment - Approved Sediment and Erosion Control Plan
- Maryland Department of the Environment - Approved Stormwater Management Plan
- Maryland Department of the Environment - Water Quality Certificate
- Chesapeake Bay Critical Areas Commission - Approval of Improvements Within the Critical Area.

**7. Summary of Environmental Impacts**

Table S-1 compares the environmental impacts associated with each alternative under consideration.

**Social - Economic**

Improvements within the Master Plan Alignment corridor are consistent with the 1978 General Development Plan for Anne Arundel County as amended in 1986. The No-Build Alternative, improvements within the Brightview Drive/Obrecht Road corridor, and improvements to Benfield Boulevard are not consistent with this development plan.

The existing land use in the project area is a

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combination of wooded and residential areas with much of the area recently or currently being developed. The only large undeveloped area within any of the corridors is a 146 acre parcel formerly used for sand and gravel operations. This area is located at the eastern end of the Alternative 2 alignments.

No residential or business displacements would occur with the Benfield Boulevard Alternative (4B). The Master Plan Alignment alternatives (Alternative 2) and improvements within the Brightview Drive/Obrecht Road corridor (Alternative 3) would require up to 10 and 12 residential displacements respectively. One vacant business displacement would be required for Alternatives 2 (all Options) and no business displacements would be required with Alternative 3.

No property acquisition is required from the Earleigh Heights Station and Store which is eligible for the National Register of Historic Places (NRE). There are no other potentially significant standing historic sites located within any of the study corridors. Phase I archeological investigations have been undertaken within each of the project corridors. There are no historic or prehistoric archeological sites which are considered NRE.

The B&A Trail would be crossed by Alternatives 2A & B and 3A & B. The B&A Trail is considered a 4(f) resource. Elvaton Park, also a 4(f) resource, would be affected by Alternatives 2A and 2B with Option 1.

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## Natural

No new major stream crossings would be required as a result of this project. Just over one acre of the 100 year floodplain associated with the Magothy River would be crossed by the Alternative 3 alignment. Within the project impact area, no state or federally listed threatened or endangered plant or animal species were identified during field investigations.

There are non-tidal wetland areas present within each of the project corridors. Up to three acres of wetlands may be impacted within the Brightview Drive/Obrecht Road corridor (Alternative 3). Alternative 2 would impact less than half an acre of wetlands. Improvements along Benfield Boulevard would impact less than a tenth of an acre of wetlands.

The Benfield Boulevard corridor passes through the Chesapeake Bay Critical Area Boundary associated with the Severn River which is listed as a State scenic river. No additional impervious surfaces would be created within this critical area boundary. Coordination with the Chesapeake Bay Critical Area Commission has been initiated and would continue should an alternative which occurs within the critical area be selected.

All of the alternative corridors are located within Maryland's Coastal Zone Management Area. Coordination with the Maryland Department of Natural Resources has been initiated.

Strict enforcement of the State Highway

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Administration's sediment and erosion control procedures and the Maryland Department of the Environment's stormwater management regulations would minimize water quality effects during and after construction.

There are prime farmland soils and soils of statewide importance within the project corridors. There are no active farms in any of the project corridors. Coordination with the U.S. Soil Conservation Service is underway.

### Air and Noise

A detailed air quality and noise analysis has been performed for all of the alternative corridors. No violations of State and National Ambient Air Quality Standards would occur.

Alternative 2A has three, Alternative 2B has six, Alternative 3A and 3B have two, and Alternative 4B has six noise sensitive areas which either have noise levels that are, equal to or exceed Federal Highway Administration Noise Abatement criteria of 67 dBA, or greater than 10 DBA over existing levels.

TABLE S-1

## SUMMARY OF IMPACTS

|  | Alt.1<br>No-<br>build | Alt. 2A                |                        |                        | Alt. 2B                |                        |                       | Alt.<br>3A             | Alt.<br>3B             | Alt.<br>4B |
|--|-----------------------|------------------------|------------------------|------------------------|------------------------|------------------------|-----------------------|------------------------|------------------------|------------|
|  |                       | Opt.<br>1              | Opt.<br>2              | Opt.<br>3              | Opt.<br>1              | Opt.<br>2              | Opt.<br>3             |                        |                        |            |
| <b>Social-Economic Impacts</b>   |                       |                        |                        |                        |                        |                        |                       |                        |                        |            |
| 1. Residential Reloc.  | 0                     | 2*                     | 10*                    | 3*                     | 2*                     | 10*                    | 3*                    | 11                     | 12                     | 0          |
| 2. Minority Reloc.   | 0                     | 0                      | 0                      | 0                      | 0                      | 0                      | 0                     | 0                      | 0                      | 0          |
| 3. Business Displacement   | 0                     | 0                      | 0                      | 0                      | 1                      | 1                      | 1                     | 0                      | 0                      | 0          |
| 4. Number of Public<br>Recreational or<br>Parklands Affected<br>(Acreage)  | 0                     | 2<br>3.88 <sub>1</sub> | 1<br>0.12 <sub>1</sub> | 2<br>0.82 <sub>1</sub> | 2<br>3.97 <sub>1</sub> | 1<br>0.12 <sub>1</sub> | 2<br>0.9 <sub>1</sub> | 1<br>0.46 <sub>2</sub> | 1<br>0.46 <sub>2</sub> | 1<br>0     |
| 5. Historic Sites<br>(Acreage Required)  | 0                     | 0                      | 0                      | 0                      | 0                      | 0                      | 0                     | 0                      | 0                      | 0          |
| 6. Archeo. Sites Impacted  | 0                     | 0                      | 0                      | 0                      | 0                      | 0                      | 0                     | 0                      | 0                      | 0          |
| 7. Consistency with Local<br>Land Use Plans  | No                    | Yes                    | Yes                    | Yes                    | Yes                    | Yes                    | Yes                   | No                     | No                     | No         |
| 8. Required Right-of-Way<br>(Acres);   | 0                     | 36.0                   | 28.5                   | 35.3                   | 36.0                   | 28.5                   | 35.3                  | 18.5                   | 18.5                   | 0          |
| <b>Air and Noise</b>   |                       |                        |                        |                        |                        |                        |                       |                        |                        |            |
| 1. Sites Exceeding<br>State/National Ambient<br>Air Quality Standards<br>(2015)  | 0                     | 0                      | 0                      | 0                      | 0                      | 0                      | 0                     | 0                      | 0                      | 0          |
| 2. Noise Sensitive Areas<br>Exceeding FHWA Noise<br>Abatement Criteria<br>(2015)/or Having<br>Noise Levels Increase<br>by 10dBA or More Over<br>Ambient Levels | 0                     | 2                      | 2                      | 2                      | 6                      | 6                      | 6                     | 2                      | 2                      | 6          |

\* Alternative 2A and 2B, all options, include Concept 1 for an alignment along the centerline of Mission Street. Concept 2 provides a northern shift through Mission Street and requires the acquisition of 1 additional residence and a vacant business site. Concept 3 consists of a southern shift which requires an additional 2 residential displacements.

<sub>1</sub> Associated with B&A Trail Crossing and Elvaton Park, <sub>2</sub> Associated with B&A Trail Crossing.

<sub>3</sub> Amount of revertible easement is not included.



TABLE S-1 Cont.

## SUMMARY OF IMPACTS

|   | Alt.1<br>No-<br>build | Alt. 2A     |             |             | Alt. 2B     |             |             | Alt.<br>3A  | Alt.<br>3B  | Alt.<br>4B |
|---|-----------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|------------|
|   |                       | Opt.<br>1   | Opt.<br>2   | Opt.<br>3   | Opt.<br>1   | Opt.<br>2   | Opt.<br>3   |             |             |            |
| <b>Natural Environmental Impacts</b>                |                       |             |             |             |             |             |             |             |             |            |
| 1. Woodlands Affected (Acreage)                     | 0                     | 24.94       | 23.40       | 26.03       | 26.93       | 24.97       | 27.16       | 7.33        | 7.61        | 0.05       |
| 2. New Stream Crossings                             | 0                     | 0           | 0           | 0           | 0           | 0           | 0           | 1           | 1           | 0          |
| 3. Stream Relocations                               | 0                     | 0           | 0           | 0           | 0           | 0           | 0           | 1           | 1           | 0          |
| 4. Non-tidal Wetlands Affected (Acreage)            | 0                     | 0.39        | 0.39        | 0.39        | 0.41        | 0.41        | 0.41        | 2.91        | 2.96        | 0.01       |
| 5. Tidal Wetlands Affected (Acreage)                | 0                     | 0           | 0           | 0           | 0           | 0           | 0           | 0           | 0           | 0          |
| 6. 100 Year Floodplains Affected (Acreage)          | 0                     | 0           | 0           | 0           | 0           | 0           | 0           | 1.16        | 1.16        | 0          |
| 7. Prime Farmland Soils Affected (Acreage)          | 0                     | 1.48        | 2.00        | 1.45        | 1.49        | 1.96        | 1.50        | 0           | 0           | 0          |
| 8. Effect on Threatened or Endangered Species       | None                  | None        | None        | None        | None        | None        | None        | None        | None        | None       |
| 9. Chesapeake Bay Critical Area Involvement         | No                    | No          | No          | No          | No          | No          | No          | No          | No          | Yes        |
| 10. Hazardous Waste Involvement                     | None                  | None        | None        | None        | None        | None        | None        | None        | None        | None       |
| <b>Approximate Costs (1992 Dollars in Millions)</b> |                       |             |             |             |             |             |             |             |             |            |
| 1. Preliminary Engineering                          | 0                     | 1.1         | 1.3         | 1.2         | 2.0         | 2.0         | 2.0         | 1.0         | 1.9         | 0.19       |
| 2. Right-of-Way                                     | 0                     | 1.9         | 3.6         | 2.9         | 2.0         | 3.8         | 2.9         | 7.1         | 7.2         | ---        |
| 3. Construction                                     | 0                     | 8.3         | 9.9         | 8.9         | 15.1        | 15.5        | 15.4        | 7.7         | 14.4        | 1.4        |
| <b>Total</b>  | <b>0</b>              | <b>11.3</b> | <b>14.8</b> | <b>13.0</b> | <b>19.1</b> | <b>21.3</b> | <b>20.3</b> | <b>15.8</b> | <b>23.5</b> | <b>1.6</b> |

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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. It's use is in keeping with the provisions of 1500.4(k) and 1506.2 and .6 of the Council of Environmental Quality Regulations, effective July 31, 1979, which recommend that duplication of Federal, State and Local procedures be integrated into a single process.

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

ENVIRONMENTAL ASSESSMENT FORM

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

|   | <u>YES</u>    | <u>NO</u>     | <u>COMMENTS</u> |
|---|---------------|---------------|-----------------|
| 12. Will the action affect the use of any natural or manmade features that are unique to the county, state, or nation?  | <u>X</u>      | <u>      </u> | <u>IV-C</u>     |
| 13. Will the action affect the use of an archeological or historical site or structure?   | <u>      </u> | <u>X</u>      | <u>III/IV-B</u> |
| B. Water Use Considerations   |               |               |                 |
| 14. Will the action require a permit for the change of the course, current, or cross-section of a stream or other body of water?                              | <u>X</u>      | <u>      </u> | <u>IV-C</u>     |
| 15. Will the action require the construction, alteration, or removal of a dam, reservoir, or waterway obstruction?  | <u>      </u> | <u>X</u>      | <u>      </u>   |
| 16. Will the action change the overland flow of stormwater or reduce the absorption capacity of the ground?   | <u>X</u>      | <u>      </u> | <u>IV-C</u>     |
| 17. Will the action require a permit for the drilling of a water well?  | <u>      </u> | <u>X</u>      | <u>      </u>   |
| 18. Will the action require a permit for water appropriation?   | <u>      </u> | <u>X</u>      | <u>      </u>   |
| 19. Will the action require a permit for the construction and operation of facilities for treatment or distribution of water?                                 | <u>      </u> | <u>X</u>      | <u>      </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>      </u> | <u>X</u>      | <u>      </u>   |

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

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|  | <u>YES</u> | <u>NO</u> | <u>COMMENTS</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. Socio-Economic

|   |          |          |                 |
|---|----------|----------|-----------------|
| 31. Will the action result in a pre-emption or division of properties or impair their economic use?                               | <u>X</u> | _____    | <u>IV-A</u>     |
| 32. Will the action cause relocation of activities, structures, or result in a change in the population density or distribution?  | <u>X</u> | _____    | <u>IV-A</u>     |
| 33. Will the action alter land values?  | _____    | <u>X</u> | <u>IV-A</u>     |
| 34. Will the action affect traffic flow and volume?   | <u>X</u> | _____    | <u>II</u>       |
| 35. Will the action affect the production, extra-action, harvest or potential use of a scarce or economically important resource? | _____    | <u>X</u> | _____           |
| 36. Will the action require a license to construct a sawmill or other plant for the manufacture of forest products?               | _____    | <u>X</u> | _____           |
| 37. Is the action in accord with federal, state, regional and local comprehensive or functional plans-including zoning?           | <u>X</u> | _____    | <u>III/IV-A</u> |
| 38. Will the action affect the employment opportunities for persons in the area?  | _____    | <u>X</u> | <u>IV-A</u>     |

25

|   | <u>YES</u> | <u>NO</u> | <u>COMMENTS</u> |
|---|------------|-----------|-----------------|
| 39. Will the action affect the ability of the area to attract new sources of tax revenue?   | _____      | <u>X</u>  | <u>IV-A</u>     |
| 40. Will the action discourage present sources of tax revenue from remaining in the area, or affirmatively encourage them to relocate elsewhere?  | _____      | <u>X</u>  | _____           |
| 41. Will the action affect the ability of the area to attract tourism?  | _____      | <u>X</u>  | _____           |
| F. Other Considerations   |            |           |                 |
| 42. Could the action endanger the public health, safety or welfare?   | _____      | <u>X</u>  | _____           |
| 43. Could the action be eliminated without deleterious affects to the public health, safety, welfare or the natural environment?  | <u>X</u>   | _____     | _____           |
| 44. Will the action be of statewide significance?   | _____      | <u>X</u>  | _____           |
| 45. Are there any other plans or actions (federal, state, county or private) that, in conjunction with the subject action could result in a cumulative or synergistic impact on the public health, safety, welfare, or environment? | _____      | <u>X</u>  | _____           |
| 46. Will the action require additional power generation or transmission capacity?   | _____      | <u>X</u>  | _____           |
| 47. This agency will develop a complete environmental effects report on the proposed action.  | _____      | <u>X</u>  | <u>*</u>        |

\* The development of this DEIS satisfies the reporting requirements of the National Environmental Policy Act and the Maryland Environmental Policy Act.



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# I. NEED FOR THE PROJECT

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**I. Need for the Project.**

**A. Purpose**

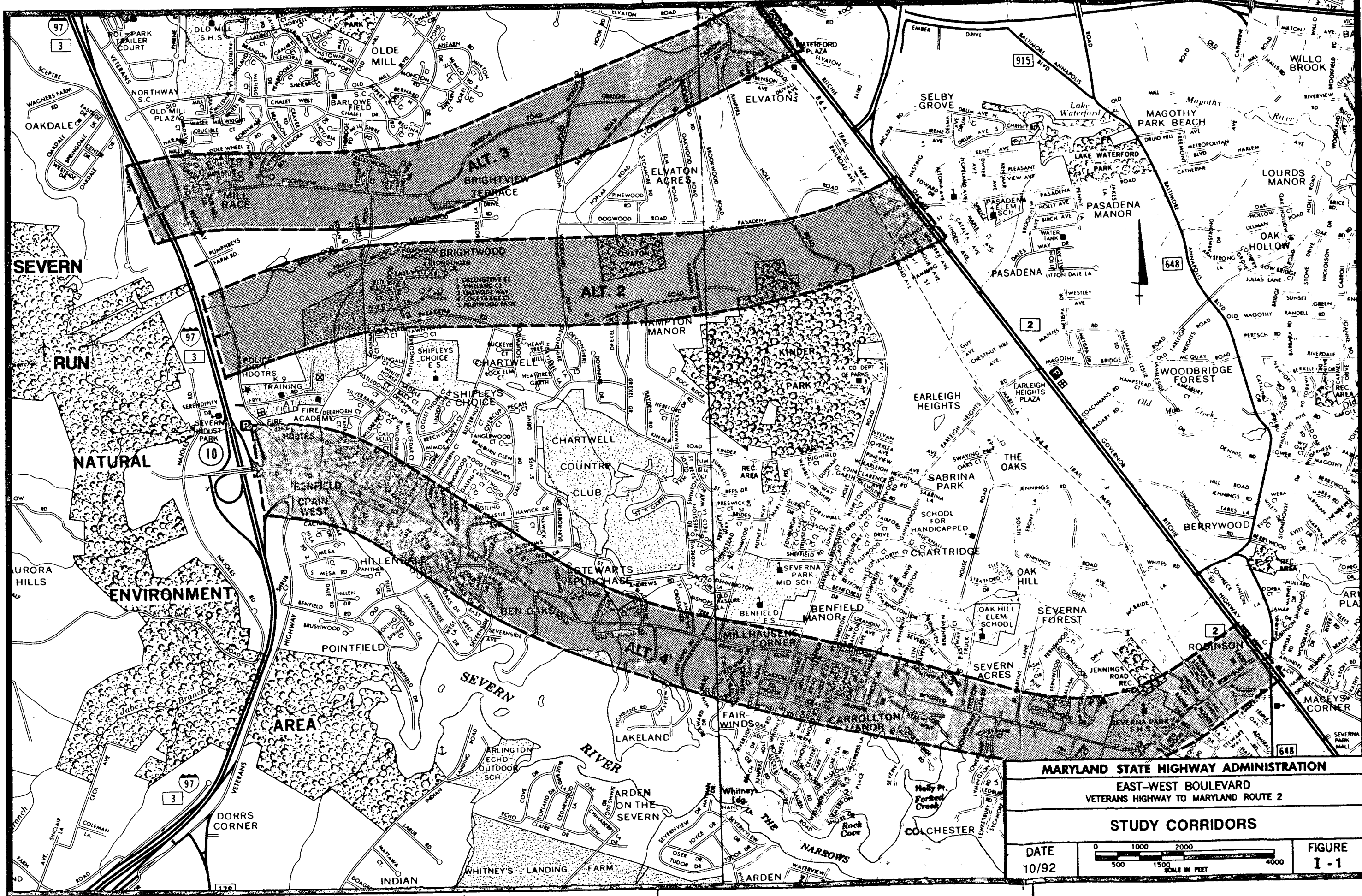
The purpose of this project is to provide additional east-west traffic capacity and improved roadway geometrics between the MD 3 (I-97) and MD 2 (Governor Ritchie Highway) transportation corridors in Anne Arundel County Maryland. The increased capacity is required to serve the on-going and planned development in the project corridor.

Currently, there is no connection, south of MD 100, that provides an adequate link between the MD 2 and 3 corridors. The existing local roadways, such as Benfield Boulevard and Brightview Drive/Obrecht Road, are unable to accommodate the existing and projected growth in travel demand. Projected increases in traffic volumes in the design year 2015 vary from 15% to as high as 100%. The largest increases will be experienced in the mid and northern sections of the study area (Figure I-1). For example, the traffic projections along Brightview Drive are expected to double by the design year 2015. During the evening peak traffic period, this intersection often experiences queues along Benfield Boulevard. This congestion is characterized by the existing queues in traffic at Benfield Boulevard and Jumpers Hole Road.

These increases in traffic volumes are a direct result of the continuing development that is taking place within the study area. The majority of development is residential, specifically, medium density single family homes. However, there is some commercial and industrial development planned within the MD 3/I-97 and MD 2 corridors.

Benfield Boulevard and Brightview Drive/Obrecht Road, which currently provide a connection between Veterans Highway and MD 2 are both two to three lane facilities. Brightview Drive/Obrecht Road is a narrow two lane county roadway with several areas that contain substandard horizontal and vertical geometry (curves). Benfield Boulevard is also a county roadway connecting I-97 and MD 2. However, it was reconstructed in the late 1970's and early 1980's, therefore, does not contain as many areas with poor highway geometrics. The build alternatives for the Master Plan alignment would provide an alternative route, while the Brightview Drive/Obrecht Road alignment would correct these geometric restraints.

Early planning studies conducted by Anne Arundel County did not follow the process as dictated by the National Environmental Policy Act (NEPA) and therefore, did not include alternative corridors, such as, Benfield Boulevard and Brightview Drive/Obrecht Road.



MARYLAND STATE HIGHWAY ADMINISTRATION

EAST-WEST BOULEVARD  
VETERANS HIGHWAY TO MARYLAND ROUTE 2

STUDY CORRIDORS

DATE  
10/92

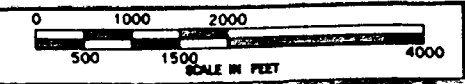


FIGURE  
I-1

Any proposed or constructed improvements along these corridors were to address capacity and/or operational deficiencies. A more detailed discussion of the conditions of these existing roadways and the development of the County's Master Plan process follows.

**B. Existing Roadway Condition**

Benfield Boulevard was reconstructed in the mid 1970's and early 1980's as a two-three lane highway with shoulders within an eighty foot right-of-way band between Veterans Highway and Evergreen Road. The existing pavement is in good condition and varies in width from 36 feet to 48 feet throughout the corridor. The highway geometry generally meet standards for a design speed of 50 miles per hour. However, in the area of Evergreen Road the horizontal curves only meet a 40 miles per hour design speed. The posted speed limit on Benfield Boulevard is 40 miles per hour from Veterans Highway to west of Jumpers Hole Road, where it decreases to 35 miles per hour.

Brightview Drive/Obrecht Road is a 22-24 foot, two lane roadway within a 40-45 foot right-of-way. The existing pavement has been repaired in most segments and is in good condition. However, approximately 80% of the corridor does not meet a 50 mile per hour design

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speed. Moreover, in two areas the roadway meets only a 30 mile per hour design speed. The posted speed limit along Brightview Drive/Obrecht Road is 35 miles per hour.

Approximately 1100 feet of East - West Boulevard (0.2 mile) has been constructed by the developer of Shipley's Choice. The roadway is a 50 foot curbed section within an eighty foot right-of-way width. Residential development is continuing adjacent to the existing right-of-way line. An 1250 foot (0.24 mile) extension of the existing section of East - West Boulevard is being constructed by the developers of Shipley's Choice as part of their original plans for this subdivision. East - West Boulevard will be extended east to connect with the northern extension of Governor William Stone Parkway. The existing pavement is in good condition and the alignment meets the proposed 50 mph design speed. The posted speed limit along East - West Boulevard is 25 miles per hour.

Governor William Stone Parkway is a two lane facility with outside shoulders, which extends from Benfield Boulevard to just north of West Pasadena Road within the Shipley's Choice community. The existing pavement is in good condition and the posted speed limit is 35 miles per hour. The developer is currently constructing an extension of Governor Stone Parkway to

meet the East - West Boulevard extension.

**C. Roadway Function/Trip Characteristics**

Benfield Boulevard is a county roadway which functions as a minor arterial. An arterial is defined as a roadway that provides a connection from collector and local streets to the major traffic carriers. In this case, Benfield Boulevard provides a connection between the local streets and I-97 and/or MD 2. Originally constructed as a two lane facility throughout, portions of the roadway have been widened to three lanes. An origin and destination (license plate) survey was conducted in the spring of 1992 using a license plate survey. The results of the survey indicate that the majority of traffic utilizing Benfield Boulevard is generated within the communities adjacent to it.

Brightview Drive/Obrecht Road is classified as a collector. A collector is a roadway that gathers traffic from local streets and distributes it to arterial type facilities. Brightview Drive/Obrecht Road connects local streets such as Woodland Road and Millrace Drive to Veterans Highway and MD 2.

Jumpers Hole Road (Figure I-1) is classified as an arterial providing a north-south route between Benfield Boulevard and MD 2 in Marley.

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Governor William Stone Parkway (Figure I-1) is classified as an arterial connecting Benfield Boulevard and a short segment of existing East - West Boulevard. Governor William Stone Parkway connects the Shipley's Choice community and Benfield Boulevard.

MD 2 (Governor Ritchie Highway) is classified as a principle arterial in the State system. MD 2 is a heavily travelled, commercially developed route between Baltimore and Annapolis.

I-97 is classified as an interstate highway designed as an access controlled facility providing direct access between the Baltimore Beltway (I-695) and Annapolis.

Veterans Highway (Old MD 3) is classified as a principle arterial providing access from several of the established business and residential communities to the new interstate.

#### **D. Project Background**

East - West Boulevard from Veterans Highway to MD 2 is listed in the Secondary Development and Evaluation Program of the Fiscal Year 1992-1998 Maryland Department of Transportation Consolidated Transportation Program.

The need for an additional east-west arterial south of MD 100 was recognized more than twenty years



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ago by Anne Arundel County planners. This roadway was originally identified in Anne Arundel County's first General Development Plan adopted by the County Council in 1968. At that time the project was know as Marley Neck Freeway and was planned as a four lane expressway.

The project first appeared in the State Highway Administration's Twenty Year Highway Needs Inventory in 1975. In 1976 the county began its revision of the General Plan. As a result of these studies, Marley Neck Freeway was deleted from the General Plan and SHA's Highway Needs Inventory. In its place, the 1978 General Plan included West Pasadena Road Extended and the county completed preliminary engineering in 1980. It was not until 1983 that the proposed roadway was designated as East - West Boulevard. In 1988, Anne Arundel County commissioned a study of the East - West Boulevard corridor, which was performed by a consultant. A Master Plan alignment was established for East - West Boulevard. At that time the Anne Arundel County elected officials and State delegation identified this study as their number one priority, so the State Highway Administration (SHA) entered into a joint study with the County.

The SHA began the current project planning study on East - West Boulevard in November 1988. An Alternates Public Meeting for the East - West Boulevard

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project planning study was held on Wednesday, September 27, 1989 at Old Mill Senior High School in Millersville, Maryland.

The public meeting, which was attended by approximately 450 people began at 7:30 with a brief presentation from Anne Arundel County and the State Highway Administration. The floor was then opened to testimony from individuals and representatives of the many community groups interested in the project. The following is a **summary** of the major areas of concern raised as a result of public testimony:

- ♦ Residents in the area of Elvaton Park were concerned with the negative impact the roadway would have on the park and its facilities (ballfield).
- ♦ Almost all of the communities along the alignment questioned the appropriateness of a four lane divided roadway section through residential neighborhoods.
- ♦ A large contingency from the Elvaton community were also concerned about the roadway dividing their community.
- ♦ A minority of individuals were in support of the East-West Boulevard construction as an alternative to widening Benfield Boulevard.
- ♦ A major concern with a majority of the

citizens was the appropriateness of the State Highway Administration performing the study in lieu of Anne Arundel County.

- ♦ A large portion of the community did not understand the need for the new roadway. Citizens within the Shipley's Choice community believed that the County's planned "backdoor" extension of East-West Boulevard to Veterans Highway was all that was needed.

A Combined Location/Design Public Hearing is planned for December 9, 1992. The Highway Development process includes four phases, each funded separately. At this time only the planning study is funded. In future programs, final design, right-of-way acquisition and construction could be funded if a build alternative is selected and Location Approval is granted.

#### **E. Traffic Conditions**

The capacity of a roadway segment or intersection is measured by a simple grading system, level-of-service (LOS) "A"- "F". LOS "A" represents free flow, LOS "E" represents the theoretical capacity and LOS "F" representing failing conditions. The calculations do not portray the travel time delays of an intersection.

Currently, the intersections along Brightview

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Drive/Obrecht Road and Benfield Boulevard are operating within their theoretical capacity. However, as traffic demand increases toward the design year projections, these intersections will begin to approach capacity. This situation is best characterized by the Benfield Blvd/ Jumpers Hole Road intersection. As shown in Table I-1, the intersection is currently operating at a LOS "B" and will worsen to LOS "D" in the design year 2015. The increase in traffic volumes coupled with the existing intersection configuration will intensify the delays at the intersection.

Another constraining factor in capacity calculations is the segments of roadway between the intersections. The LOS calculations are formulated based on the theoretical capacity of a single travel lane. Benfield Boulevard is currently a two lane facility with a center turn lane and is approaching its capacity in several sections. By the design year 2015, the traffic flow along several segments of Benfield Boulevard will worsen to LOS "F", severely restraining flow along Benfield Boulevard. However, if four travel lanes are provided by the year 2015, the traffic flow will improve to LOS "C" in the vicinity of Jumpers Hole Road.

**Table I-1 Levels-of-Service**

| Location  | Existing 1990 | 2105 No-Build       | 2015 Build<br>Alt. 2 2-Lane | 2015 Build<br>Alt. 2 4-Lane | 2015 Build<br>Alt. 3 | 2015 Build<br>Alt. 4 |
|---|---------------|---------------------|-----------------------------|-----------------------------|----------------------|----------------------|
| MD 2/Jumpers<br>Hole Road                         | C/D           | C/D                 | C/E                         | C/E                         | A/C                  | C/D                  |
| MD 2/West<br>Pasadena<br>Road                     | C/D           | F(1.05)/<br>F(1.26) | F(1.34)/<br>F(1.2)          | F(1.05)/<br>F(1.08)         | F(1.06)/<br>F(1.25)  | F(1.05)/<br>F(1.26)  |
| Old Mill<br>Road/<br>Veterans<br>Highway          | B/C           | E/F (1.08)          | D/E                         | D/E                         | E/E                  | E/F(1.07)            |
| Benfield<br>Boulevard/<br>Veterans<br>Highway     | B/B           | E/E                 | D/E                         | D/E                         | F(1.25)/<br>F(1.25)  | F(1.14)/<br>F(1.11)  |
| West<br>Pasadena<br>Road/Jumpers<br>Hole Road     | A/A           | A/A                 | A/A                         | A/A                         | A/A                  | A/C                  |
| Benfield<br>Boulevard/<br>Jumpers Hole<br>Road    | B/B           | C/D                 | B/B                         | B/B                         | C/D                  | C/A                  |
| Benfield<br>Road/<br>Governor<br>Stone<br>Parkway | A/A           | A/A                 | A/A                         | A/A                         | E/A                  | B/A                  |

The above data represents levels-of-service as described on page I-8 (E).

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Brightview Drive/Obrecht Road does not currently experience major capacity problems. Most of the intersections and segments operate at a satisfactory level-of-service.

The segments and intersections along Brightview Drive/Obrecht Road are not currently experiencing notable capacity or operational problems. However, as traffic congestion increases along Benfield Boulevard, Brightview Drive/Obrecht Road is likely to experience overflow traffic growth. Brightview Drive/Obrecht Road will be unable to accommodate large increases in traffic volumes. The poor roadway geometrics combined with capacity constraints will lead to poor circulation and increased accident potential. Accident experience along Brightview Drive/Obrecht Road is already well above acceptable levels as described in the following section. If Brightview Drive/Obrecht Road is not improved or another corridor not constructed or improved, the accident potential will continue and worsen.

The existing traffic volumes within the study area are expected to steadily increase to the design year 2015. These projected increases are a direct result of continuing residential development within the study area. The growth is best characterized by the large residential developments of Shipley's Choice,

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Brittingham Farms and Lakeland. These and other developments under construction or with approvals for construction account for approximately 650 additional dwelling units. The residential development is expected to continue as outlined in the Anne Arundel County Master Plan. The traffic forecasts for the design year 2015 are based on the existing zoning within the study area.

Traffic counts compiled in 1990 indicate the Average Daily Traffic (ADT) volume along Benfield Boulevard ranges between 21,000 and 23,600 vehicles per day. By the design year 2015, these volumes are expected to increase to approximately 26,200 vehicles per day. Along Brightview Drive/Obrecht Road and Jumpers Hole Road leading to MD 2, the ADT ranges from 4,100 to 14,600 vehicles per day. By the design year, these volumes are expected to increase to 20,000 along Jumpers Hole just west of MD 2. The ADT's on the entire roadway network within the study area are shown on Figures I-2-5.

**F. Accident Statistics**

Accident statistics have been gathered on the two existing county roadways between Veterans Highway and MD 2 for a study period of 1988 to 1990. Because county wide accident rates have not been developed, the

4/8

accident rates along these corridors are compared to similarly designed state facilities.

The first network is comprised of Brightview Drive to Obrecht Road to Jumpers Hole Road. This network experienced a total of 111 accidents within the study period, resulting in an accident rate of 436.9 accidents per one hundred million vehicle miles of travel (acc/100mvm). This rate is significantly higher than the statewide average of 296.3 acc/100mvm for similar roadways. The accidents resulted in a cost of \$3.4 million/100mvm. The number, type and severity of the accidents are summarized below:

#### Accident Experience Along Brightview Drive/Obrecht Road Network

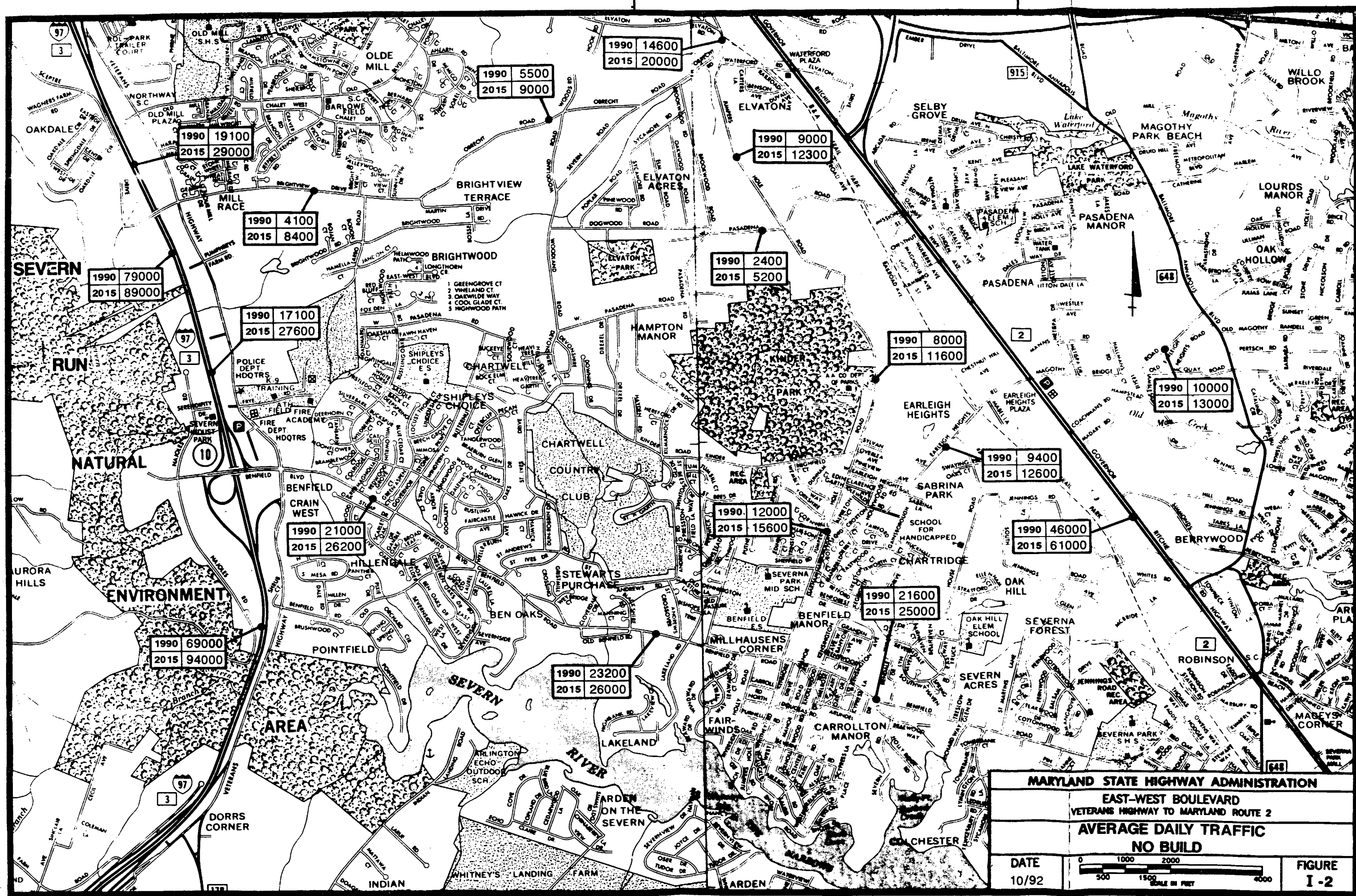
| Severity                  | 1988      | 1989      | 1990      | Total      | Study Rate    | Statewide Avg. Rate |
|---------------------------|-----------|-----------|-----------|------------|---------------|---------------------|
| Fatal Accidents           | 0         | 0         | 0         | 0          | 0.0           | 2.0                 |
| Injury Accidents          | 16        | 16        | 24        | 56         | 220.4*        | 152.6               |
| Persons Injured           | 18        | 21        | 34        | 73         |               |                     |
| Property Damage Accidents | 17        | 23        | 15        | 55         | 216.5*        | 141.8               |
| <b>Total Accidents</b>    | <b>33</b> | <b>39</b> | <b>39</b> | <b>111</b> | <b>436.9*</b> | <b>296.3</b>        |

| Collision Type     | Accidents | Study Rate | Statewide Avg. Rate |
|--------------------|-----------|------------|---------------------|
| Angle              | 30        | 118.1*     | 50.9                |
| Rear End           | 20        | 78.7       | 75.7                |
| Fixed Object       | 18        | 70.8*      | 43.5                |
| Opposite Direction | 9         | 35.4*      | 16.8                |
| Sideswipe          | 3         | 11.8       | 17.2                |
| Left Turn          | 21        | 82.6       | 28.5                |
| Pedestrian         | 2         | 7.9        | 8.4                 |
| Parked Vehicle     | 3         | 11.8       | 11.7                |
| Other Collision    | 5         | 19.7       | 36.6                |

\* Significantly Higher than Statewide Average



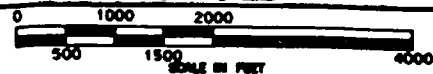


**MARYLAND STATE HIGHWAY ADMINISTRATION**

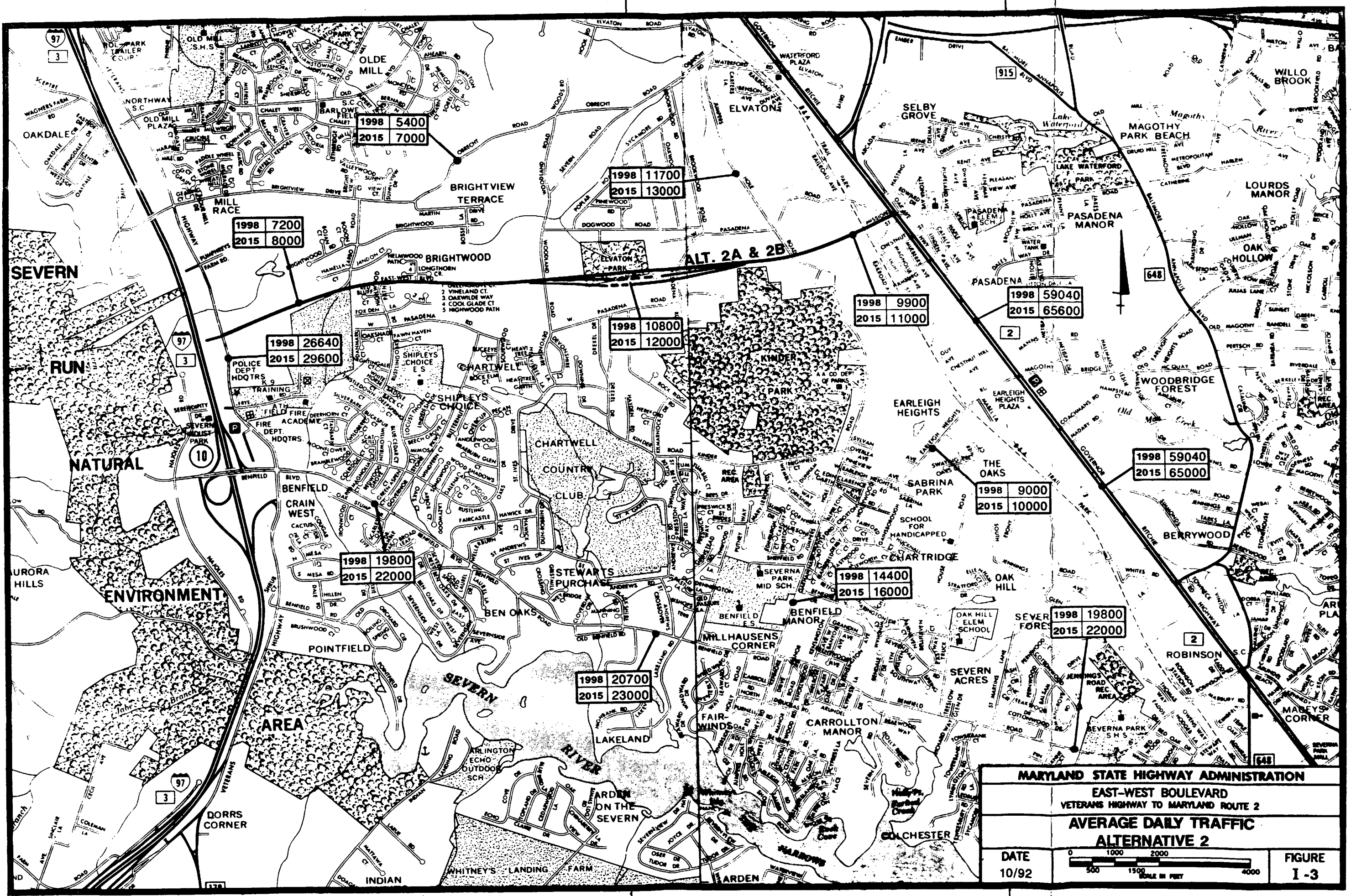
**EAST-WEST BOULEVARD  
VETERANS HIGHWAY TO MARYLAND ROUTE 2**

**AVERAGE DAILY TRAFFIC  
NO BUILD**

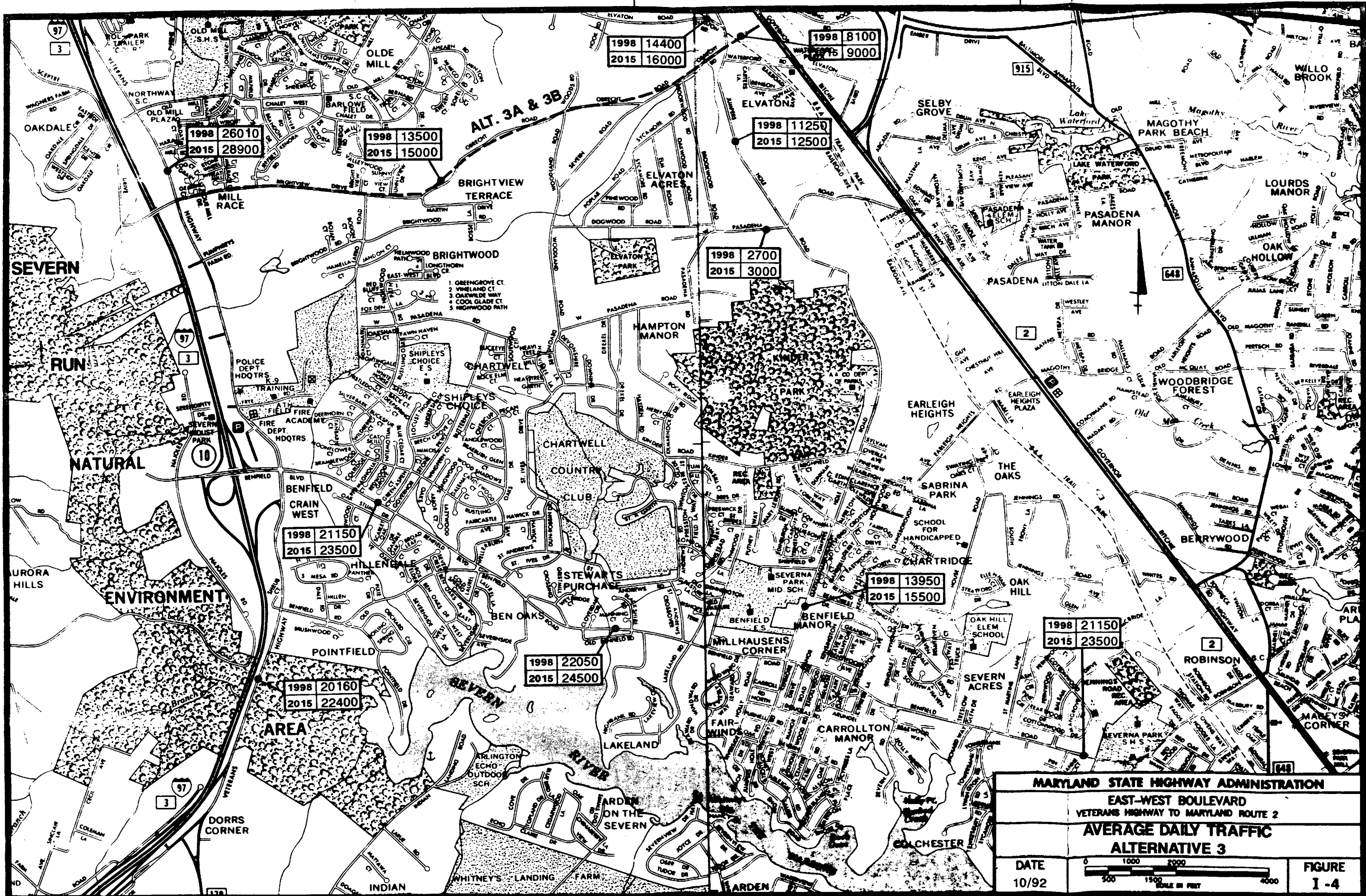
**DATE**  
10/92



**FIGURE**  
**I-2**

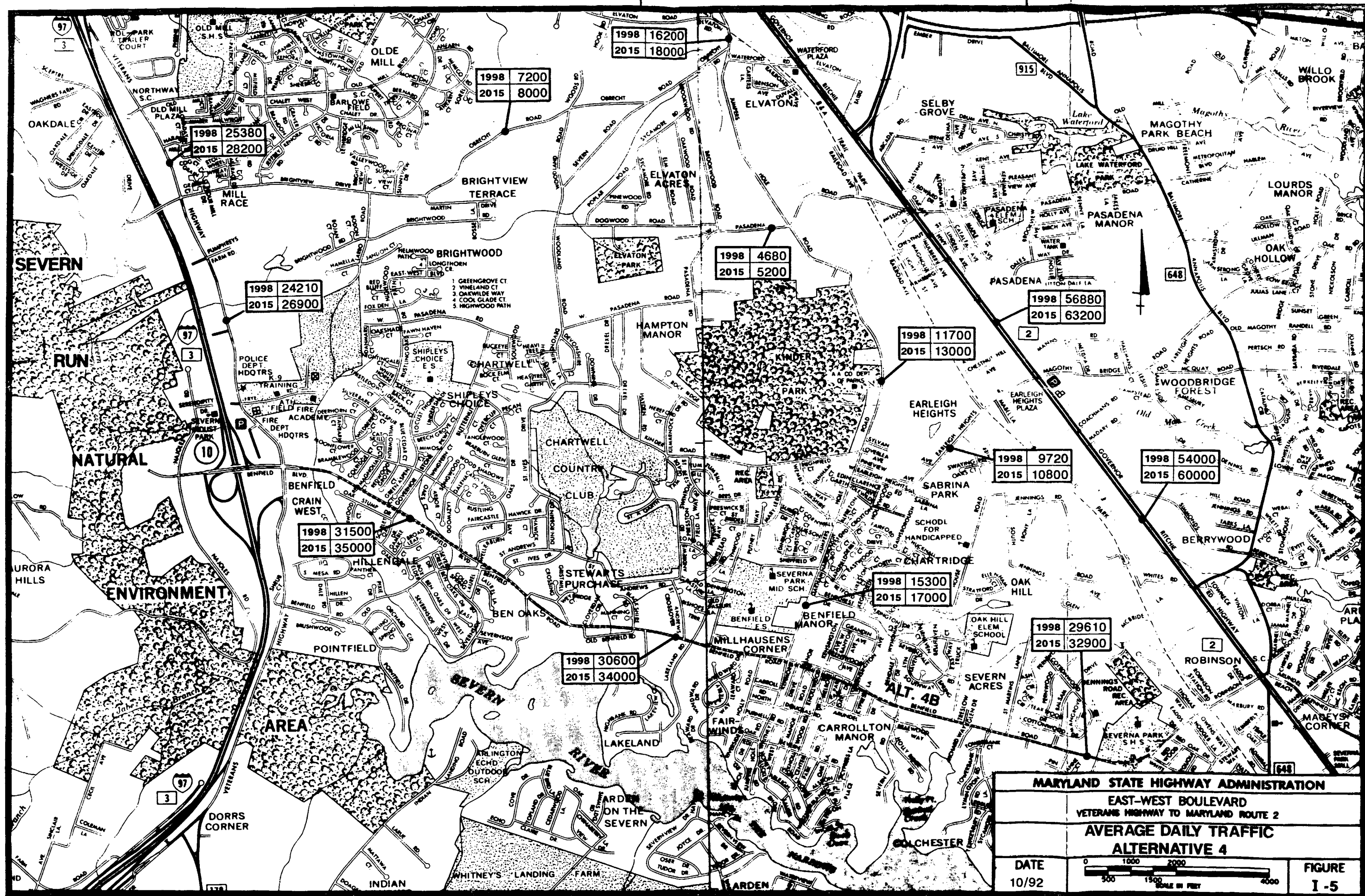






**MARYLAND STATE HIGHWAY ADMINISTRATION**  
EAST-WEST BOULEVARD  
VETERANS HIGHWAY TO MARYLAND ROUTE 2  
**AVERAGE DAILY TRAFFIC  
ALTERNATIVE 3**

|               |  |               |
|---------------|--|---------------|
| DATE<br>10/92 | 0 1000 2000 3000 4000<br>500 1500<br>SCALE IN FEET | FIGURE<br>1-4 |
|---------------|--|---------------|



MARYLAND STATE HIGHWAY ADMINISTRATION

EAST-WEST BOULEVARD  
VETERANS HIGHWAY TO MARYLAND ROUTE 2

AVERAGE DAILY TRAFFIC  
ALTERNATIVE 4

DATE  
10/92

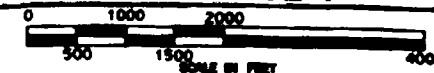


FIGURE  
I-5

The number of angle, fixed object, opposite direction and left turn type collisions all significantly exceed the statewide average. The rate of injury and property damage are also substantially higher than average because these types of accidents tend to be the most severe.

The Benfield Boulevard corridor between Veterans Highway and MD 2 experienced a total of 157 accidents, which translates to an accident rate of 136.8 acc/100mvm. This accident rate is lower than the 365.5 acc/100mvm statewide average rate. The 157 accidents resulted in a cost of \$1.3 million/100mvm. The number, type and severity of the accidents are summarized below:

#### Accident Experience Along Benfield Boulevard

| Severity                  | 1988      | 1989      | 1990      | Total      | Study Rate    | Statewide Avg. Rate |
|---------------------------|-----------|-----------|-----------|------------|---------------|---------------------|
| Fatal Accidents           | 0         | 0         | 0         | 0          | 0.9           | 2.6                 |
| Persons Killed            | 0         | 0         | 1         | 1          |               |                     |
| Injury Accidents          | 29        | 26        | 20        | 75         | 65.4*         | 200.9               |
| Persons Injured           | 49        | 39        | 30        | 118        |               |                     |
| Property Damage Accidents | 34        | 22        | 25        | 81         | 70.6*         | 162.1               |
| <b>Total Accidents</b>    | <b>63</b> | <b>48</b> | <b>46</b> | <b>157</b> | <b>136.8*</b> | <b>365.5</b>        |

\* Significantly Lower than Statewide Average

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## Accident Experience Along Benfield Boulevard Continued

| Collision Type     | Accidents | Study Rate | Statewide Avg. Rate |
|--------------------|-----------|------------|---------------------|
| Angle              | 31        | 27.0*      | 67.7                |
| Rear End           | 56        | 48.8*      | 102.5               |
| Fixed Object       | 22        | 19.2*      | 61.3                |
| Opposite Direction | 7         | 6.1*       | 18.6                |
| Sideswipe          | 5         | 4.4*       | 25.1                |
| Left Turn          | 15        | 13.1*      | 40.2                |
| Pedestrian         | 8         | 7.0        | 11.4                |
| Parked Vehicle     | 3         | 2.6        | 4.3                 |
| Other Collision    | 10        | 8.7*       | 31.8                |

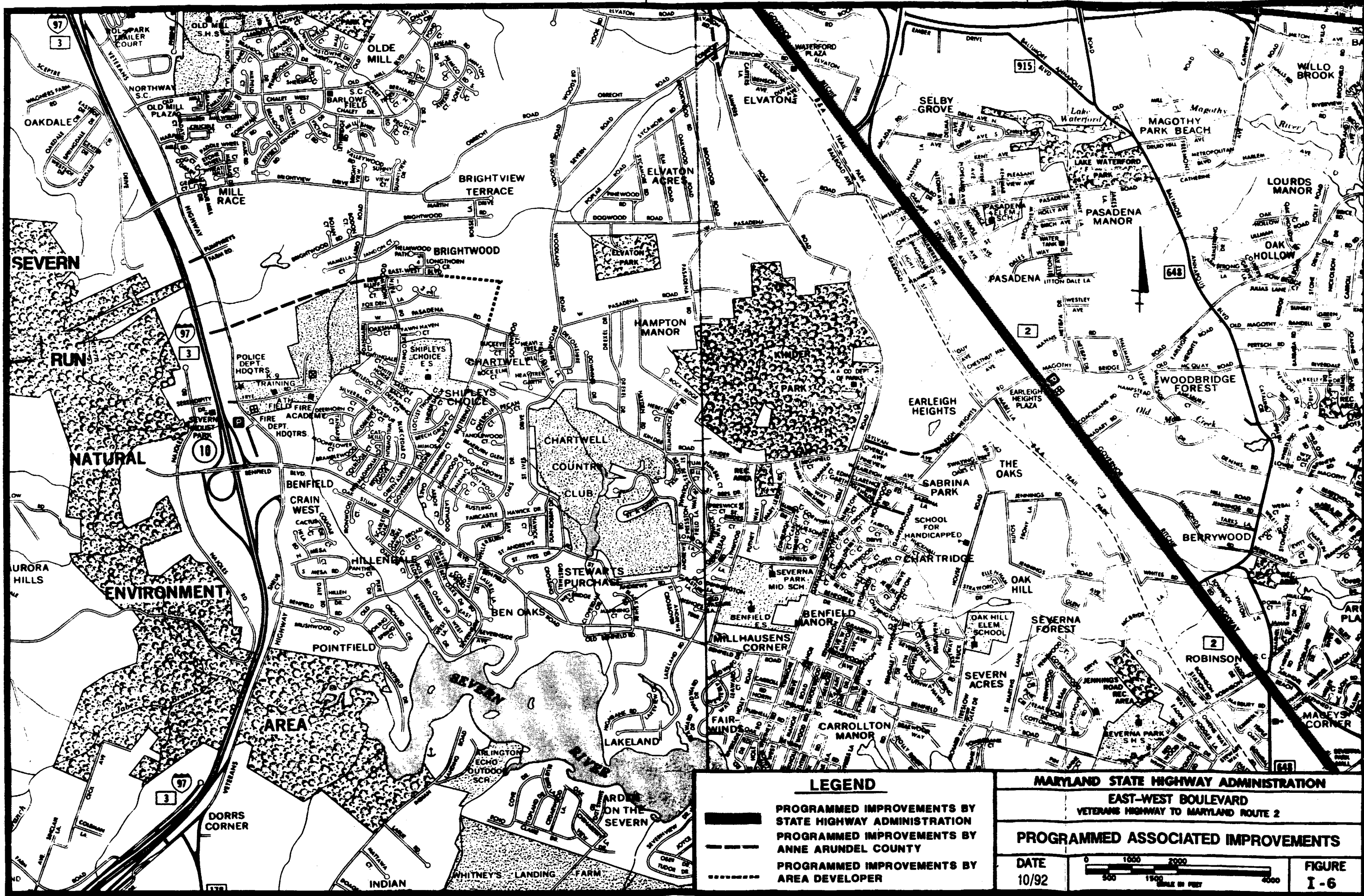
\* Significantly Lower than Statewide Average

One High Accident Location has been identified by the State Highway Administration within the study area. The intersection of Jumpers Hole Road and MD 2, which provides the connection to the Brightview Drive/Obrecht Road corridor, experienced 21 accidents in 1988. The accident experience for intersections within the county road network are not studied, therefore, no High Accident Locations can be identified within the county network.

### G. Associated Improvements

There are several roadway improvements proposed or currently under construction that will effect the travel patterns in the study area (See Figure I-6).





1. Anne Arundel County Public Works proposes to construct an 0.7 mile (3,750 foot) western extension of East - West Boulevard from its existing terminus in Shipley's Choice to Veterans Highway. The two lane roadway with outside shoulders will be constructed within an eighty foot right-of-way. The County plans to advertise this contract in the Fall of 1992, with construction activities to begin in Spring 1993.
2. The developers of the Shipley's Choice community are currently constructing a 0.24 mile eastern extension of East - West Boulevard to intersect a northern extension of Governor William Stone Parkway. The construction will match the existing two lane section within a 50 foot curbed roadway. The roadway will be contained within an eighty foot right-of-way.
3. The developers of Shipley's Choice are also currently constructing a northern extension of Governor William Stone Parkway to intersect the extension of East - West Boulevard.
4. Anne Arundel County Public Works proposes to realign Jumpers Hole Road between Elvaton Road and south of Waterford Road. The new alignment will be constructed as a three lane undivided section within an eighty foot right-of-way. The county is



currently coordinating with the United States Army Corps of Engineers to obtain the necessary wetland permits.

5. The State Highway Administration District #5 office in Annapolis is administering a project to synchronize the timing of signals along MD 2 from US 50 to MD 100.
6. The SHA District #5 office is administering a project to resurface and provide minor safety improvements along MD 2 from Whites Road to Elvaton Road.
7. The SHA District #5 office is also proposing to widen MD 2 from Relocated Whites Road to 1500 feet south of Cypress Creek Road.
8. Anne Arundel County has plans to realign Earliegh Heights Road to Jumpers Hole Road to provide access to the Brittingham Farms subdivision.
9. Anne Arundel County proposes a future northern extension of Governor William Stone Parkway from East - West Boulevard to Oakwood Road.

With the completion of the developer and county portions of the East - West Boulevard approximately 6100 feet (1.16 miles) or around 40% of the county's Master Plan alignment will be in place.

## II. ALTERNATIVES CONSIDERED

## **II. Alternatives Considered**

### **A. Alternatives Presented at the Alternates Public Meeting**

The Alternates Public Meeting for this project was held on Wednesday September 27, 1989 at Old Mill Senior High School to present the preliminary study alternatives. The results of this meeting are summarized in Section I. The alternatives that were presented included:

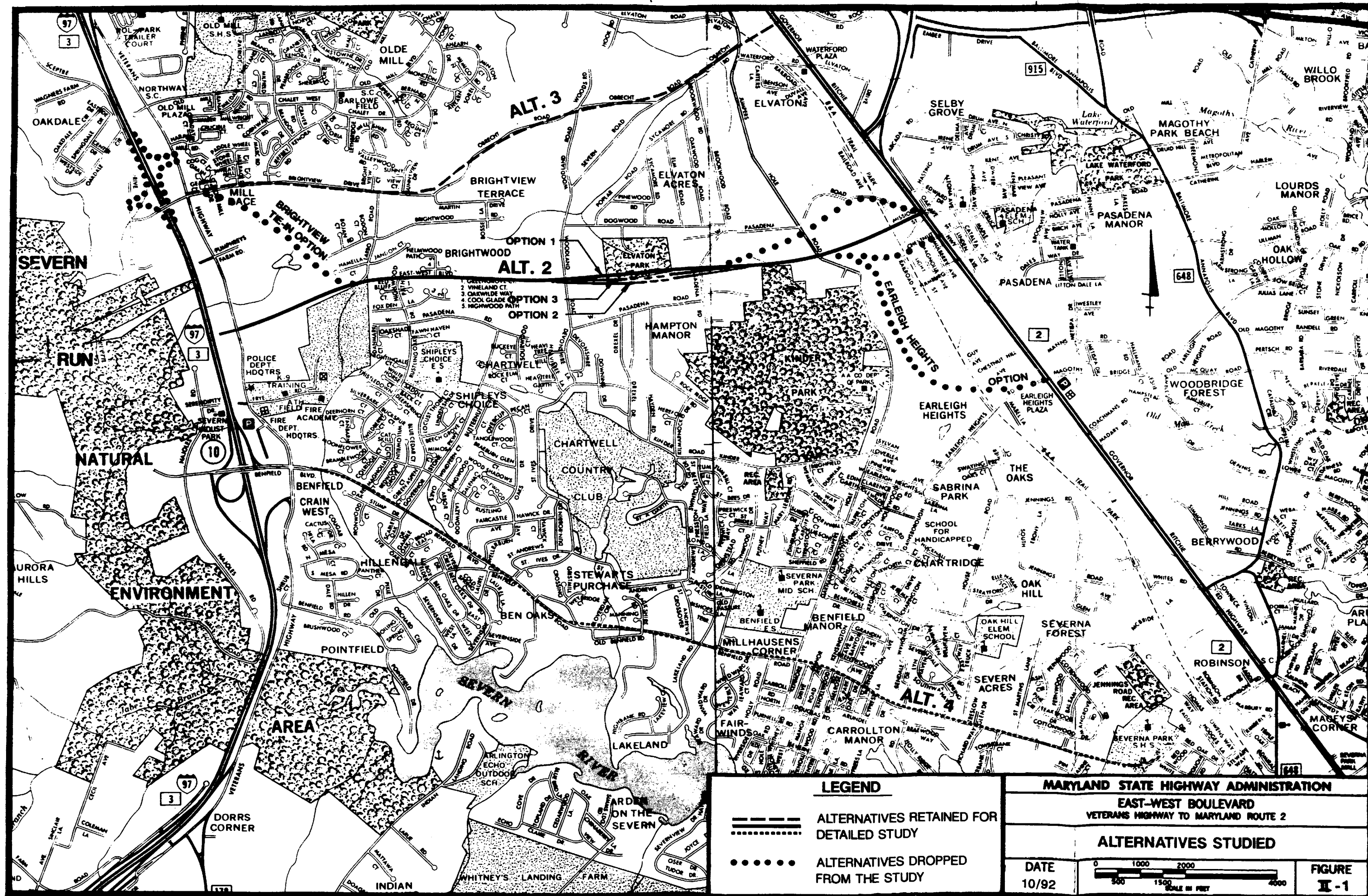
- 1. Alternative 1 the No-build** included only spot safety improvements and routine maintenance as required. These improvements would be administered by the State Highway Administration District #5 office and/or the Anne Arundel County Department of Public Works.
- 2. Alternative 2** consisted of the Anne Arundel County identified Master Plan alignment for East - West Boulevard between Veterans Highway and MD 2. Alternative 2 consisted of a two lane roadway with two 12 foot travel lanes with 10 foot shoulders on either side. Alternative 2 would be constructed within a 110 foot right-of-way, except through the Shipley's Choice community, where the existing 80 foot right-of-way would be maintained.
- 3. Alternative 3** also followed the Anne Arundel County Master Plan alignment for East - West Boulevard. Alternative 3 consisted of a four lane

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divided roadway with curbs on both sides. Two 12 foot travel lanes in each direction separated by a 20 foot raised median would be provided. Again, the four lane section would be constructed within a 110 foot right-of-way, except through the Shipley's Choice community.

4. **A Park Avoidance** alternative was also presented to avoid impacts to Elvaton Park. The shifted alignment includes the choice of the typical sections as outlined above. The Master Plan alignment would dip south, west of Woodland Road to avoid impact to Elvaton Park. The avoidance alignment would join the Alternative 2 alignment west of Jumpers Hole Road.

A project brochure was prepared to describe the environmental and engineering details of the study. Following the Alternates Public Meeting, the project team convened to analyze the comments received and to formulate the detailed study phase of the planning process. As a result of the comments and study evaluation several additional alternatives were investigated. Some of the alternatives were studied and determined not to be reasonable, while others were added to the study and will be presented at the Location/Design Public Hearing (See Figure II-1).



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**B. Alternatives Studied Subsequent to the Alternates  
Public Meeting**

As a result of public input and further evaluation of the engineering and environmental aspects of the study, several additional alternatives were evaluated.

As an alternative to the Anne Arundel County Master Plan alignment for East - West Boulevard, improvements along existing Brightview Drive/Obrecht Road have been evaluated. Brightview Drive/Obrecht Road already provides the desired connection between Veterans Highway and MD 2, but does not provide the safety and capacity characteristics required by a new connection. The existing roadway would be reconstructed as either a two or four lane roadway within a 110 foot right-of-way. The reconstruction would include improvements to the horizontal and vertical curves to gain increased safety attributes. This alternative has been added to the study and will be described in detail in the next section.

In an attempt to reduce the residential and wetland impact of the Brightview Drive/Obrecht Road alignment, a alternative alignment for improvements to this corridor has been evaluated (See Figure IV-3). The alignment would depart northward from the existing road between Martin and Zeman Drives. The roadway, which could be constructed with the same typical

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section choices as the other alternatives (2 & 3), would proceed parallel to Obrecht Road behind the residences adjacent to the existing roadway. The alignment would turn north to intersect Elvaton Road opposite the existing five lane section of Jumpers Hole Road. The alignment would avoid the displacement of seven homes along Obrecht Road. This option would impact approximately 2.2 - 2.5 acres of floodplain and wetland associated with the northern reaches of W3-C. This wetland impact compares to 2.96 acres (W 3-A, B and C) associated with the Alternative 3 alignment. The new roadway would be shifted to the north, abandoning the current intersections with numerous local roadways. Neighborhood roadways, such as, Woodland, Severn and Brookwood Roads currently end at their intersection with Obrecht Road. If this alternative alignment were selected, these roadways would have to be extended or traffic will continue to use existing Obrecht Road. In addition, the direct connection to Jumpers Hole Road would create a regional connection to points east of MD 2. The Anne Arundel County Department of Public Works is currently working to obtain a Section 404 Permit from the U.S. Army Corps of Engineers for wetland impacts associated with the construction of Jumpers Hole Road Relocated between Elvaton and Waterford Roads. Due to the regional

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nature of this connection north of MD 100/MD 10 and coordination with Anne Arundel County, this option was not carried forward for detailed study.

As another alternative alignment to provide a suitable connection between Veterans Highway and MD 2, improvements along Benfield Boulevard have been investigated. Currently, Benfield Boulevard is a two to three lane roadway with varying width shoulders. The proposal investigated includes restriping Benfield Boulevard as a four lane undivided roadway. In most areas there is enough existing pavement for the desired improvement. Previous attempts by Anne Arundel County to restripe Benfield Boulevard have been determined not to be reasonable. However, as an alternative to the new construction of East - West Boulevard or reconstruction of the Brightview Drive/Obrecht Road corridor, this alternative has been added to the study alternatives. The details of this alternative are also included in the following section.

An optional alignment to connect the proposed East - West Boulevard Master Plan alignment to MD 2 was suggested. The Master Plan alignment would dip to the south after the Jumpers Hole Road intersection and connect to MD 2 at Earleigh Heights Road. The intersection of East - West Boulevard and MD 2 would be shifted to the south, positioning it directly between



MD 100 and Benfield Boulevard. This alignment would cross through the newly constructed Brittingham Farms development resulting in numerous displacements. With the development continuing in this area many more displacements would result. Therefore, this option was not considered reasonable and was dropped from further study.

Another alternative alignment to connect East - West Boulevard to MD 2 south of the Master Plan alignment was studied. This alignment would dip to the south and align with Chestnut Street, which would carry the alignment to MD 2. Again, this alignment would cross through the Brittingham Farms development resulting in numerous residential impacts. It would also cross a very well defined, high quality wetland area just southeast of the sand and gravel pit. Due to the residential and wetland impacts this alternative was not carried forward for detailed study.

An alternative intersection to the north of the Master Plan alignment was also investigated. East-West Boulevard would shift to the north after its intersection with Jumpers Hole Road. The alignment would cross through several wetland areas in the sand and gravel pit and cross the B&A trail just south of its current crossing of West Pasadena Road. The new alignment would then follow West Pasadena Road to its

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intersection with MD 2. The current skewed angle intersection along MD 2 would remain. In addition, another skewed angle crossing of the B&A trail would be created. Due to the wetland impacts and the undesirable crossing angle with the B&A Trail and MD 2, this alternative was not carried forward for detailed study.

An optional East - West Boulevard/Veterans Highway intersection location was also studied. The Master Plan alignment for East - West Boulevard would curve north at Larbo Road and connect to Veterans Highway at Brightview Drive. This option would provide the connection to Veterans Highway without creating an additional intersection between Benfield Boulevard and Brightview Drive. The alignment would impact high quality wetlands in the headwaters of the Severn River. In addition, Anne Arundel County has plans to construct a two lane section of the Master Plan alignment of East - West Boulevard from Shipley's Choice to Veterans Highway. Due to the environmental impact and coordination effort with the county, this optional alignment was dropped from further consideration.

A series of access ramps to I-97 just north of Brightview Drive was investigated. These ramps would provide access to and from the northbound lanes on the east and to and from the southbound lanes on the west

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of I-97. The existing structure carrying Brightview Drive over I-97 would provide access to either side of the interstate. Preliminary studies have demonstrated that traffic operational problems along the interstate would result due to the close spacing between access points on I-97. The northern ends of the proposed ramps would be located only 1000 feet south of the New Cut Road/Robert Crain Highway interchange. Therefore, this option was dropped from detailed study.

**C. Alternatives Selected for Detailed Study**

All of the alternative presented at the Alternates Public meeting have been carried forward for detailed study. Comments received at the public meeting and supplementary investigations have produced several additional alternatives for detailed study. The designations of the study alternatives have changed since the last public forum. Each distinct alignment is designated with a number, while the letter indicates the choices of typical section. The design speed for all of the build alternatives is 50 miles per hour.

The four lane divided ("B") alternatives are proposed as partially access controlled. With a median dividing the two directions of travel, median openings will be placed at local intersecting roadways and also spaced between them to maximize access without compromising traffic operations.

US

Alternative mapping follows descriptions on Figures II-2-11.

1. **Alternative 1 (No-Build)** remains a study alternative. The No-Build Alternative includes only spot safety improvements and routine maintenance as required. These improvements would be administered by the State Highway Administration District #5 office and/or the Anne Arundel County Department of Public Works.
2. **Alternative 2** is the 2.9 mile Anne Arundel County Master Plan alignment for East - West Boulevard from Veterans Highway to MD 2. Portions of the proposed roadway have been or will be constructed before the completion of this project planning study. Through the Shipley's Choice community, East - West Boulevard has been constructed as a 50 foot curbed section roadway. The Anne Arundel County Department of Public Works will be constructing a western extension from Shipley's Choice to intersect Veterans Highway. The County's portion will be a two lane facility within 80 feet of right-of-way.

Each of the Alternative 2 options include a choice of typical sections. The two lane section, designated with an "A", includes two 12 foot travel lanes with 10 foot outside shoulders. The

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four lane section, designated with a "B" consists of two 12 foot travel lanes in each direction separated by a 20 foot raised median.

In addition to the typical section choices, each Alternative 2 option has concept choices for the alignment along Mission Street. Concept 1 (as shown on the Alternatives Mapping Figures II-4 through II-9) proposes to align the new roadway down the center of Mission Street.

Concept 2 includes shifting the new roadway slightly to the north to avoid impacts to the residences on the south side of Mission Street. Concept 3 consists of a minor shift of the new roadway to the south to avoid impacts to the residences on the north side of Mission Street.

Each of the Mission Street concepts requires the acquisition of residences on either or both sides of the existing roadway. These residential impacts are summarized below:

| Concept #                                    | 1   | 2   | 3   |
|--|-----|-----|-----|
| #of Displacements                            | 2   | 3   | 4   |
| Cost Associated w/Displacements in \$100,000 | 690 | 870 | 681 |

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Each concept alters the characteristics of the existing Mission Street community. These characteristics are described in Section IV of this document. Again, Concept 1 is depicted on the Alternatives mapping which shows the two displaced residences. Concept 2 would displace all three residences on the north side and Concept 3 would displace the four residences on the south side of Mission Street.

**Alternative 2 ("A" or "B"), Option 1** is a new roadway that follows the Anne Arundel County Master Plan alignment from Veterans Highway to MD 2. The alignment would intersect Veterans Highway approximately 2000 feet north of the Benfield Boulevard intersection. The alignment would then proceed through the Shipley's Choice community, pass through Elvaton Park and connect with Mission Street to intersect MD 2.

**Alternative 2 ("A" or "B"), Option 2** is a new roadway that follows the Master Plan alignment between Veterans Highway and MD 2, except in the vicinity of Elvaton Park. Option 2 is a park avoidance alignment, which dips south approximately 1800 feet west of Woodland Road to bypass the park. The alignment re-joins the Master Plan alignment (Option 1) 775 feet west of

Jumpers Hole Road.

**Alternative 2 ("A" or "B"), Option 3** is a new roadway that follows the Master Plan alignment between Veterans Highway and MD 2, except in the vicinity of Elvaton Park. This alternative aims to minimize impacts through the park.

Approximately 1300 feet west of Woodland Road the alignment shifts to the south of the Master Plan alignment (Option 1) to bypass most of the park property. Option 3 connects to the Master Plan alignment 775 feet west of Jumpers Hole Road.

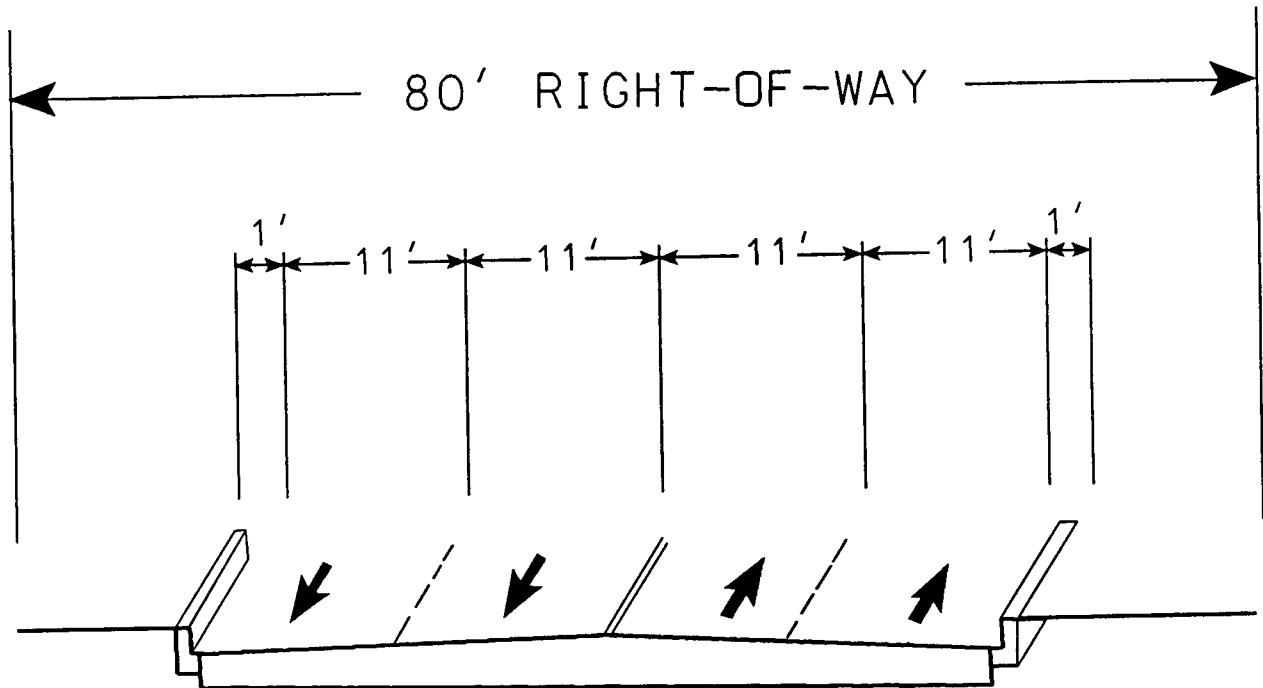
3. **Alternative 3 (Brightview Drive/Obrecht Road)** is a 2.7 mile alternative alignment for an east - west connection between Veterans Highway and MD 2. The alignment follows the existing roadway except where the roadway geometry needs improvement. However, the new roadway would require reconstruction of the existing roadways.

Alternative 3 includes the same typical section options as described with the Alternative 2 options. The two lane section, designated with an "A", includes two 12 foot travel lanes with 10 foot outside shoulders. The four lane section, designated with a "B" consists of two 12 foot travel lanes in each direction separated by a 20 foot raised median.

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4. **Alternative 4** proposes restriping Benfield Boulevard (for a distance of approximately 3.7 miles) as a four lane undivided roadway between Veterans Highway and Evergreen Road. The improvements will transition back to the existing three lane section of Robinson Road east of Evergreen Road. The existing pavement width varies between 36 and 48 feet throughout the corridor. In areas where there is 46 feet or more, the roadway will be striped as shown on Figure II-2. Two 11 foot travel lanes in each direction with curbs on the outside edge. There is only one area where the pavement is not wide enough to accommodate the proposed section. Approximately, 170 feet of Benfield Boulevard in the vicinity of Laurel Road would be widened from 36 to 46 feet. The widening would be contained within the existing 80 foot right-of-way. The widening would also require the reconstruction of the Laurel Road/Benfield Boulevard intersection.



# PROPOSED BENFIELD BOULEVARD<sup>13</sup>



FOUR LANE UNDIVIDED

ALTERNATIVE 4B  
BENFIELD BOULEVARD

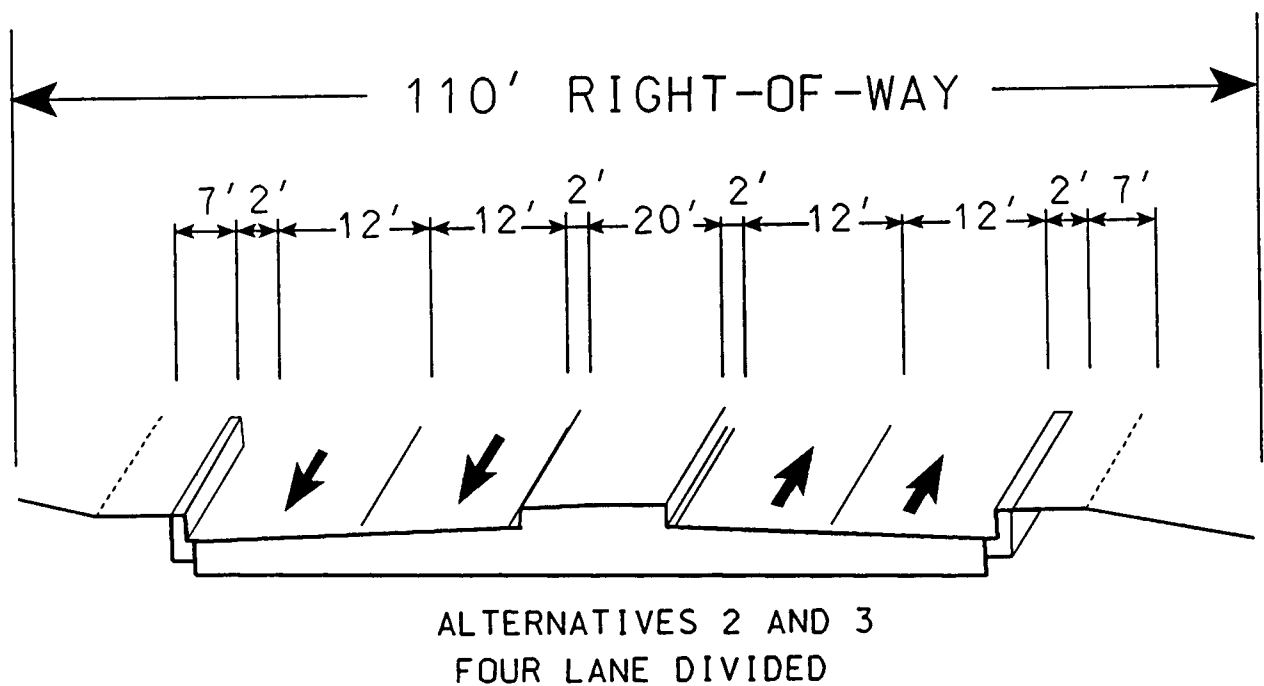
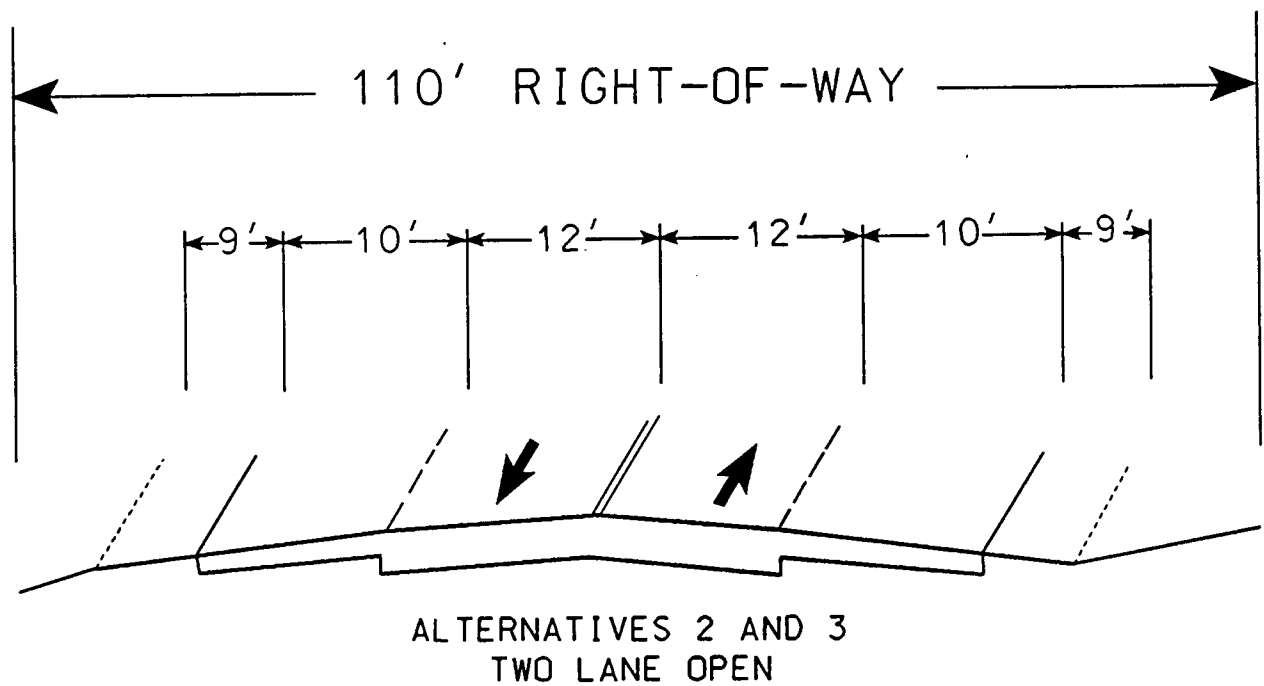
FROM VETERANS HIGHWAY TO  
MD 2 (GOVERNOR RITCHIE HIGHWAY)

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

NOT TO SCALE

FIGURE  
II-2

# PROPOSED EAST-WEST BOULEVARD<sup>14</sup>

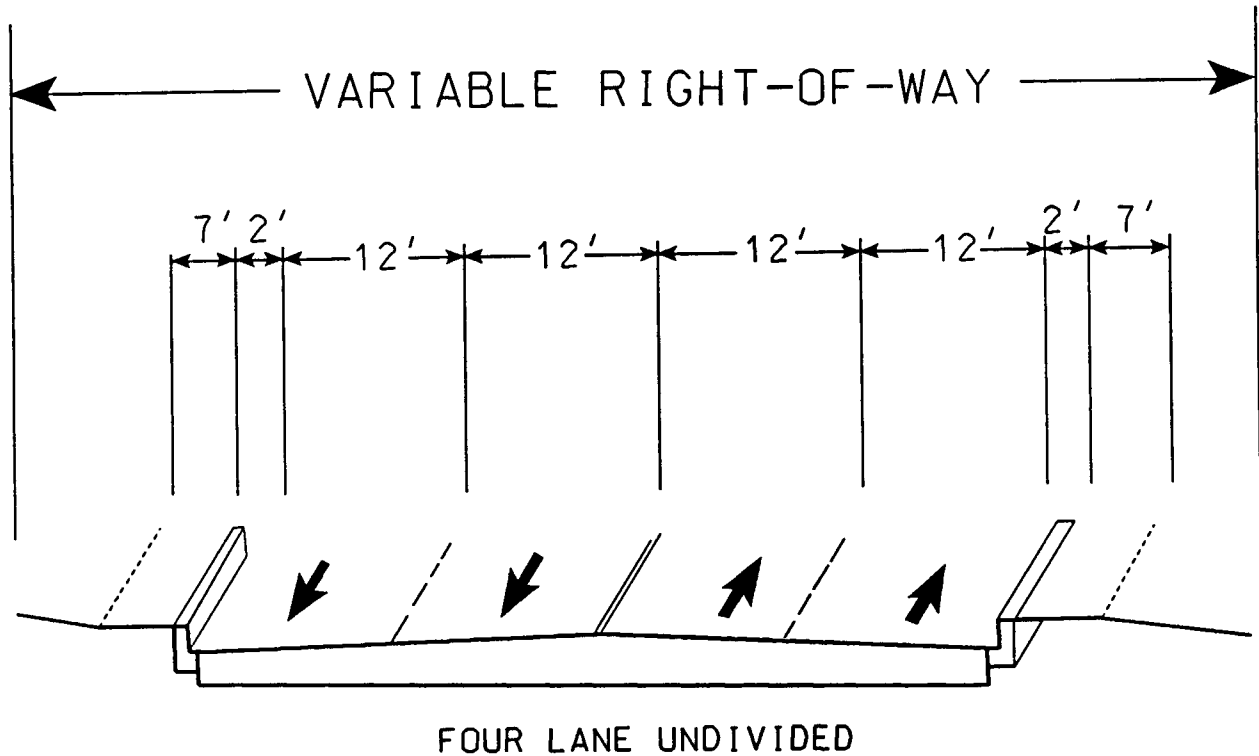


THE DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACTS, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.

NOT TO SCALE

FIGURE  
II-3

PROPOSED MISSION ST. AND EAST-WEST BLVD. <sup>p</sup>  
THROUGH SHIPLEY'S CHOICE

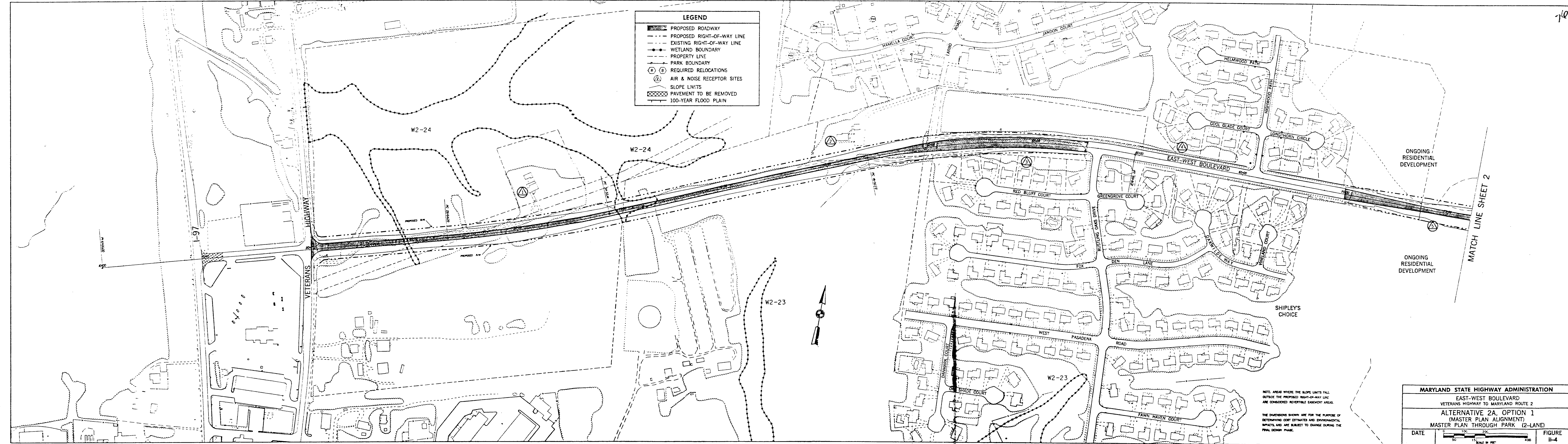


ALTERNATIVE 2  
MISSION STREET AND EXISTING EAST-WEST BOULEVARD  
THROUGH SHIPLEY'S CHOICE

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

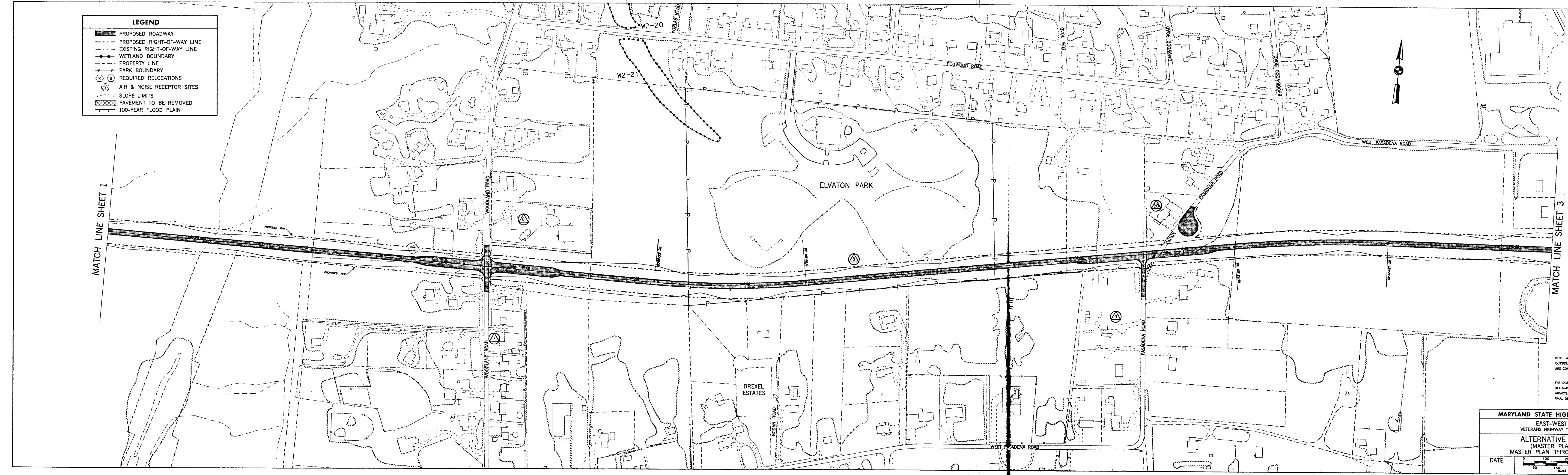
NOT TO SCALE

FIGURE  
II-3



**LEGEND**

- PROPOSED ROADWAY
- PROPOSED RIGHT-OF-WAY LINE
- EXISTING RIGHT-OF-WAY LINE
- WETLAND BOUNDARY
- PROPERTY LINE
- PARK BOUNDARY
- REQUIRED RELOCATIONS
- AIR & NOISE RECEPTOR SITES
- SLOPE LIMITS
- PAVEMENT TO BE REMOVED
- 100-YEAR FLOOD PLAIN



NOTE: AREAS WHERE THE SLOPE LIMITS FALL OUTSIDE THE PROPOSED RIGHT-OF-WAY LINE ARE CONSIDERED REVERTIBLE EASEMENT AREAS.

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

**MARYLAND STATE HIGHWAY ADMINISTRATION**

EAST-WEST BOULEVARD  
VETERANS HIGHWAY TO MARYLAND ROUTE 2

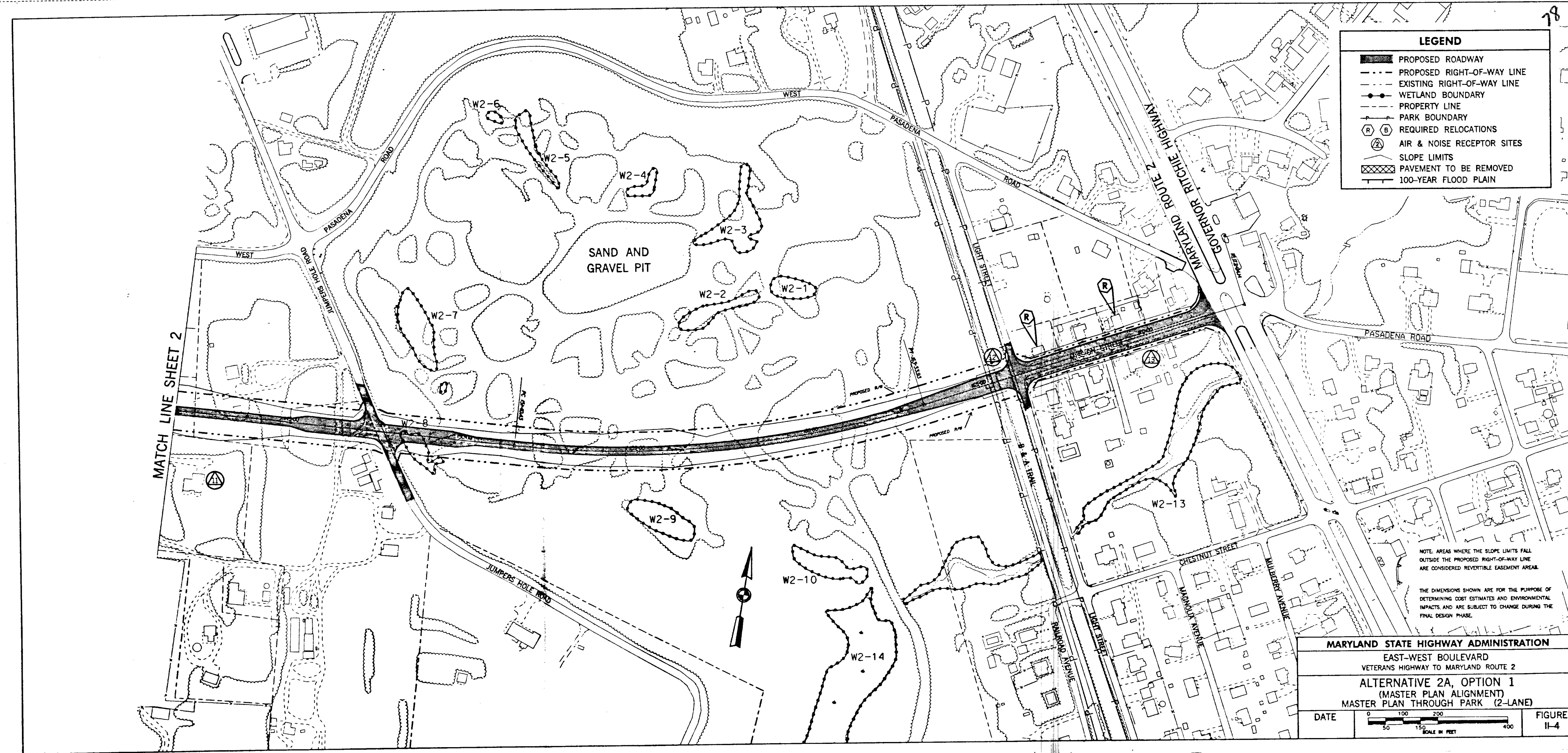
**ALTERNATIVE 2A, OPTION 1**  
(MASTER PLAN ALIGNMENT)  
MASTER PLAN THROUGH PARK (2-LANE)

DATE: \_\_\_\_\_

SCALE IN FEET: 0 50 100 150 200 400

FIGURE 11-4





**LEGEND**

- PROPOSED ROADWAY
- PROPOSED RIGHT-OF-WAY LINE
- EXISTING RIGHT-OF-WAY LINE
- WETLAND BOUNDARY
- PROPERTY LINE
- PARK BOUNDARY
- REQUIRED RELOCATIONS
- AIR & NOISE RECEPTOR SITES
- SLOPE LIMITS
- PAVEMENT TO BE REMOVED
- 100-YEAR FLOOD PLAIN

NOTE: AREAS WHERE THE SLOPE LIMITS FALL OUTSIDE THE PROPOSED RIGHT-OF-WAY LINE ARE CONSIDERED REVERTIBLE EASEMENT AREAS.

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

**MARYLAND STATE HIGHWAY ADMINISTRATION**  
EAST-WEST BOULEVARD  
VETERANS HIGHWAY TO MARYLAND ROUTE 2  
ALTERNATIVE 2A, OPTION 1  
(MASTER PLAN ALIGNMENT)  
MASTER PLAN THROUGH PARK (2-LANE)

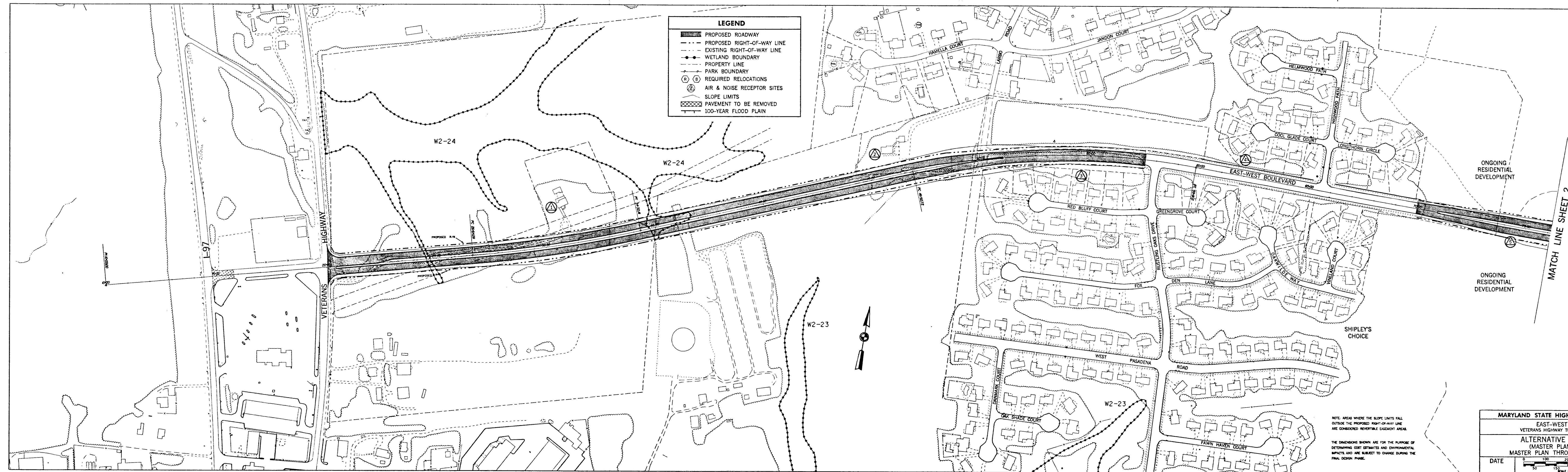
DATE \_\_\_\_\_

SCALE IN FEET  
0 50 100 150 200 400

FIGURE II-4

**LEGEND**

- PROPOSED ROADWAY
- PROPOSED RIGHT-OF-WAY LINE
- EXISTING RIGHT-OF-WAY LINE
- WETLAND BOUNDARY
- PROPERTY LINE
- PARK BOUNDARY
- REQUIRED RELOCATIONS
- AIR & NOISE RECEPTOR SITES
- SLOPE LIMITS
- PAVEMENT TO BE REMOVED
- 100-YEAR FLOOD PLAIN



NOTE: AREAS WHERE THE SLOPE LIMITS FALL OUTSIDE THE PROPOSED RIGHT-OF-WAY LINE ARE CONSIDERED REVERTIBLE EASEMENT AREAS.

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

|  |             |
|--|-------------|
| MARYLAND STATE HIGHWAY ADMINISTRATION  |             |
| EAST-WEST BOULEVARD<br>VETERANS HIGHWAY TO MARYLAND ROUTE 2                              |             |
| ALTERNATIVE 2B, OPTION 1<br>(MASTER PLAN ALIGNMENT)<br>MASTER PLAN THROUGH PARK (4-LANE) |             |
| DATE   | FIGURE II-5 |

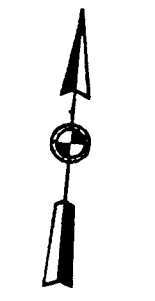


**LEGEND**

- PROPOSED ROADWAY
- PROPOSED RIGHT-OF-WAY LINE
- EXISTING RIGHT-OF-WAY LINE
- WETLAND BOUNDARY
- PROPERTY LINE
- PARK BOUNDARY
- REQUIRED RELOCATIONS
- AIR & NOISE RECEPTOR SITES
- SLOPE LIMITS
- PAVEMENT TO BE REMOVED
- 100-YEAR FLOOD PLAIN

MATCH LINE SHEET 1

MATCH LINE SHEET 3



NOTE: AREAS WHERE THE SLOPE LIMITS FALL OUTSIDE THE PROPOSED RIGHT-OF-WAY LINE ARE CONSIDERED REVERTIBLE EASEMENT AREAS.

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

**MARYLAND STATE HIGHWAY ADMINISTRATION**

EAST-WEST BOULEVARD  
VETERANS HIGHWAY TO MARYLAND ROUTE 2

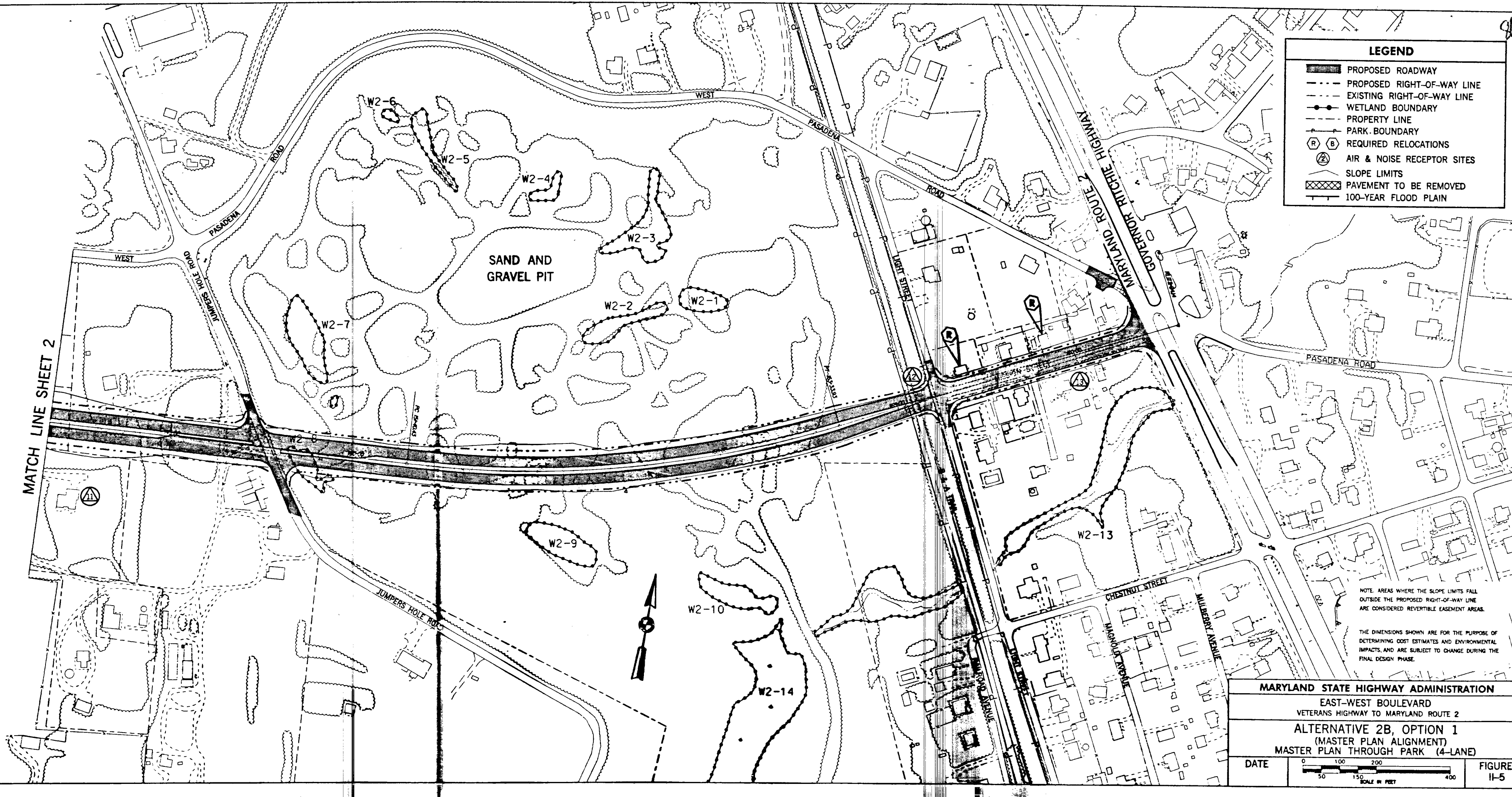
**ALTERNATIVE 2B, OPTION 1**  
(MASTER PLAN ALIGNMENT)  
MASTER PLAN THROUGH PARK (4-LANE)

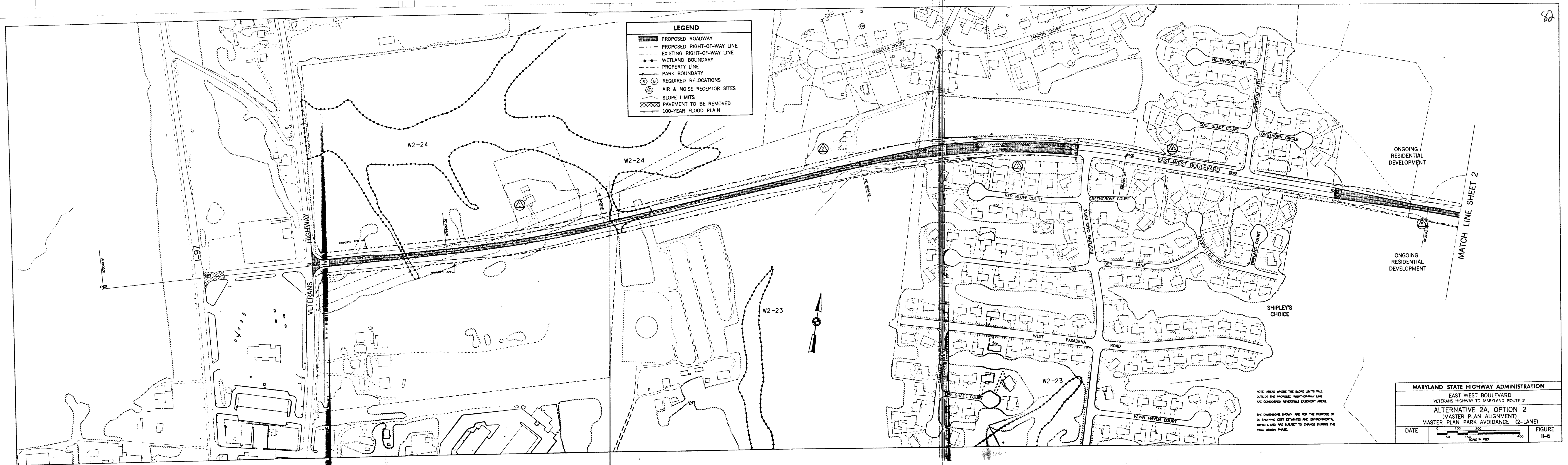
DATE: \_\_\_\_\_

0 100 200 400  
50 150 300  
SCALE IN FEET

FIGURE 11-5





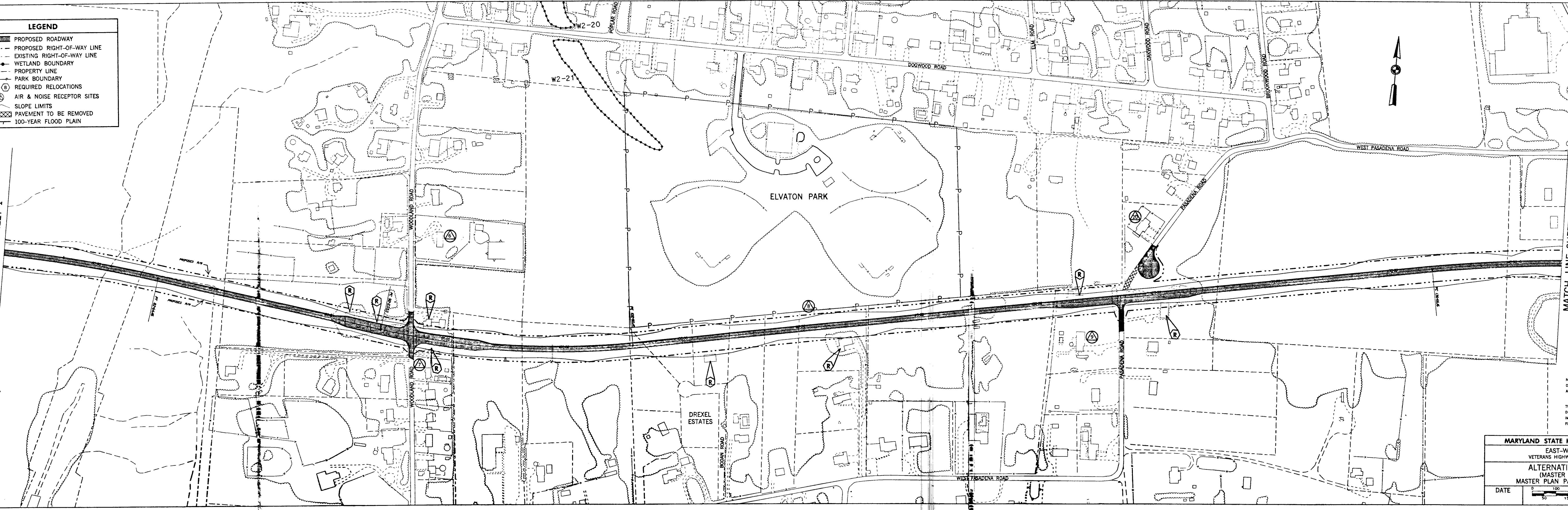




**LEGEND**

- PROPOSED ROADWAY
- PROPOSED RIGHT-OF-WAY LINE
- EXISTING RIGHT-OF-WAY LINE
- WETLAND BOUNDARY
- PROPERTY LINE
- PARK BOUNDARY
- REQUIRED RELOCATIONS
- AIR & NOISE RECEPTOR SITES
- SLOPE LIMITS
- PAVEMENT TO BE REMOVED
- 100-YEAR FLOOD PLAIN

MATCH LINE SHEET 1



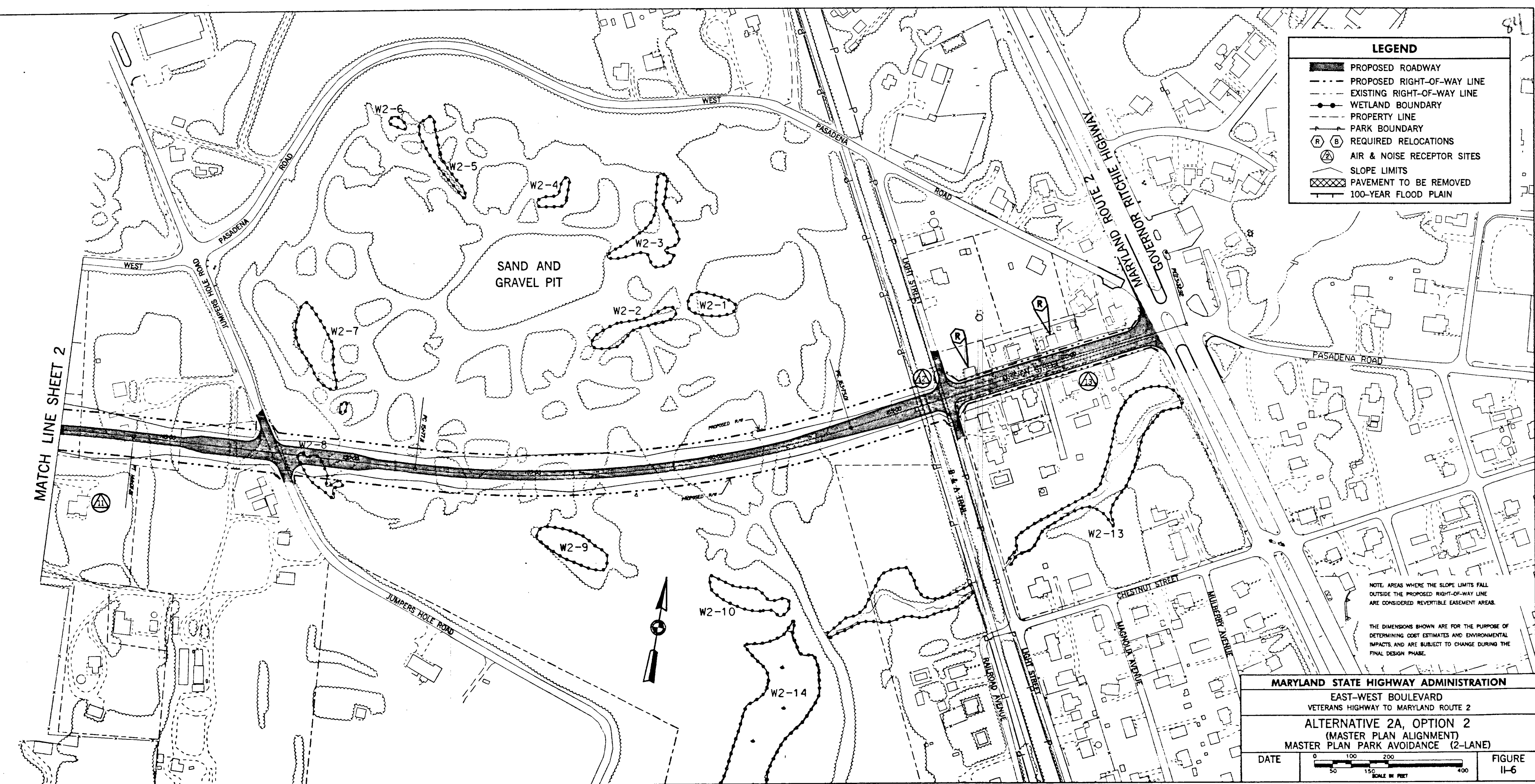
MATCH LINE SHEET 3

NOTE: AREAS WHERE THE SLOPE LIMITS FALL OUTSIDE THE PROPOSED RIGHT-OF-WAY LINE ARE CONSIDERED REVERTIBLE EASEMENT AREAS.

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

|  |             |
|--|-------------|
| <b>MARYLAND STATE HIGHWAY ADMINISTRATION</b>   |             |
| EAST-WEST BOULEVARD<br>VETERANS HIGHWAY TO MARYLAND ROUTE 2                                |             |
| ALTERNATIVE 2A, OPTION 2<br>(MASTER PLAN ALIGNMENT)<br>MASTER PLAN PARK AVOIDANCE (2-LANE) |             |
| DATE   | FIGURE 11-6 |

0 50 100 150 200 400  
SCALE IN FEET



**LEGEND**

- PROPOSED ROADWAY
- PROPOSED RIGHT-OF-WAY LINE
- EXISTING RIGHT-OF-WAY LINE
- WETLAND BOUNDARY
- PROPERTY LINE
- PARK BOUNDARY
- REQUIRED RELOCATIONS
- AIR & NOISE RECEPTOR SITES
- SLOPE LIMITS
- PAVEMENT TO BE REMOVED
- 100-YEAR FLOOD PLAIN

NOTE: AREAS WHERE THE SLOPE LIMITS FALL OUTSIDE THE PROPOSED RIGHT-OF-WAY LINE ARE CONSIDERED REVERTIBLE EASEMENT AREAS.

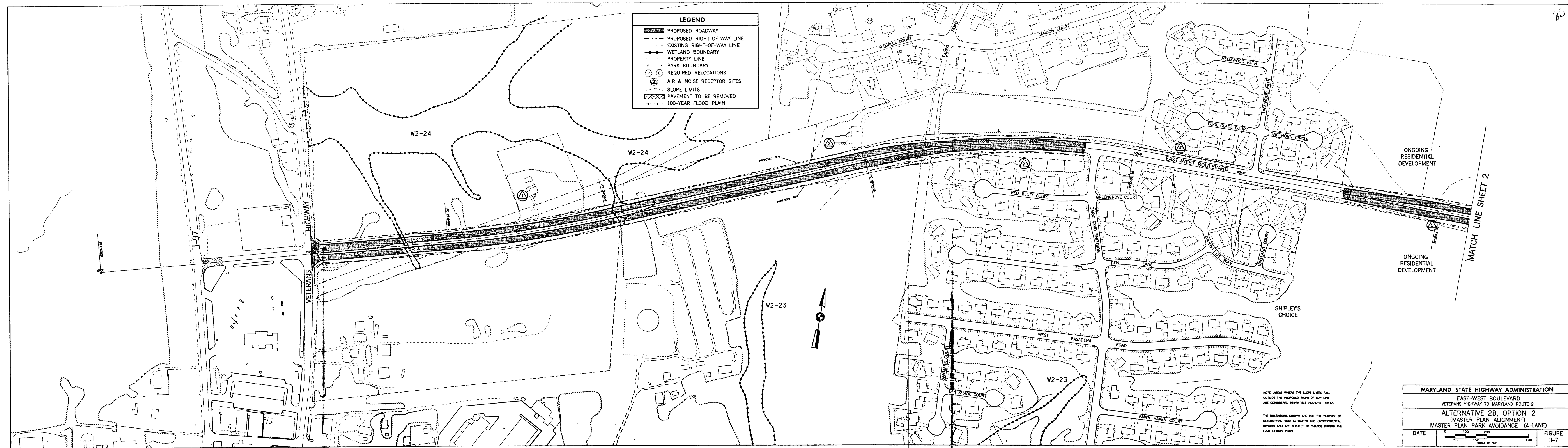
THE DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACTS, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.

MARYLAND STATE HIGHWAY ADMINISTRATION  
EAST-WEST BOULEVARD  
VETERANS HIGHWAY TO MARYLAND ROUTE 2  
ALTERNATIVE 2A, OPTION 2  
(MASTER PLAN ALIGNMENT)  
MASTER PLAN PARK AVOIDANCE (2-LANE)

DATE: \_\_\_\_\_

SCALE IN FEET: 0 50 100 150 200 400

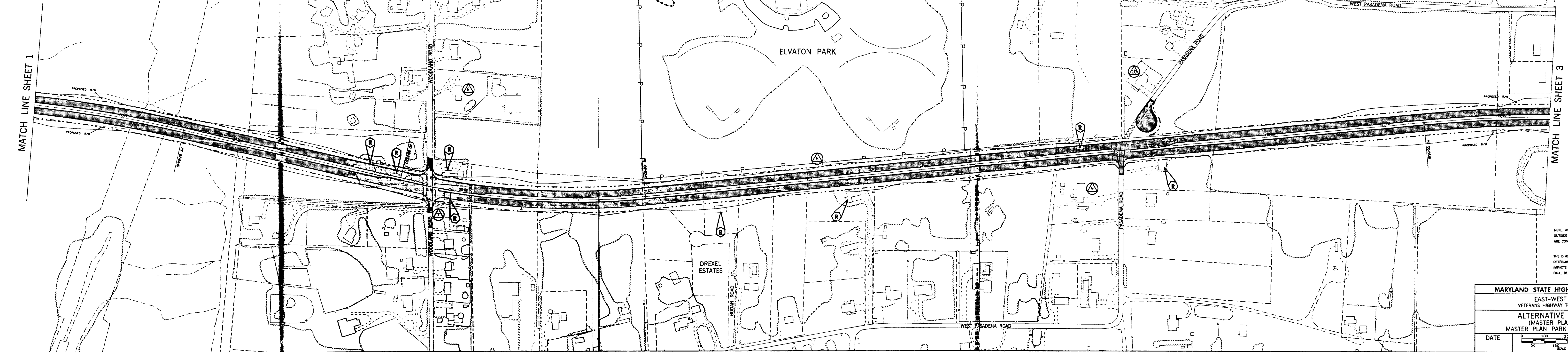
FIGURE 11-6





**LEGEND**

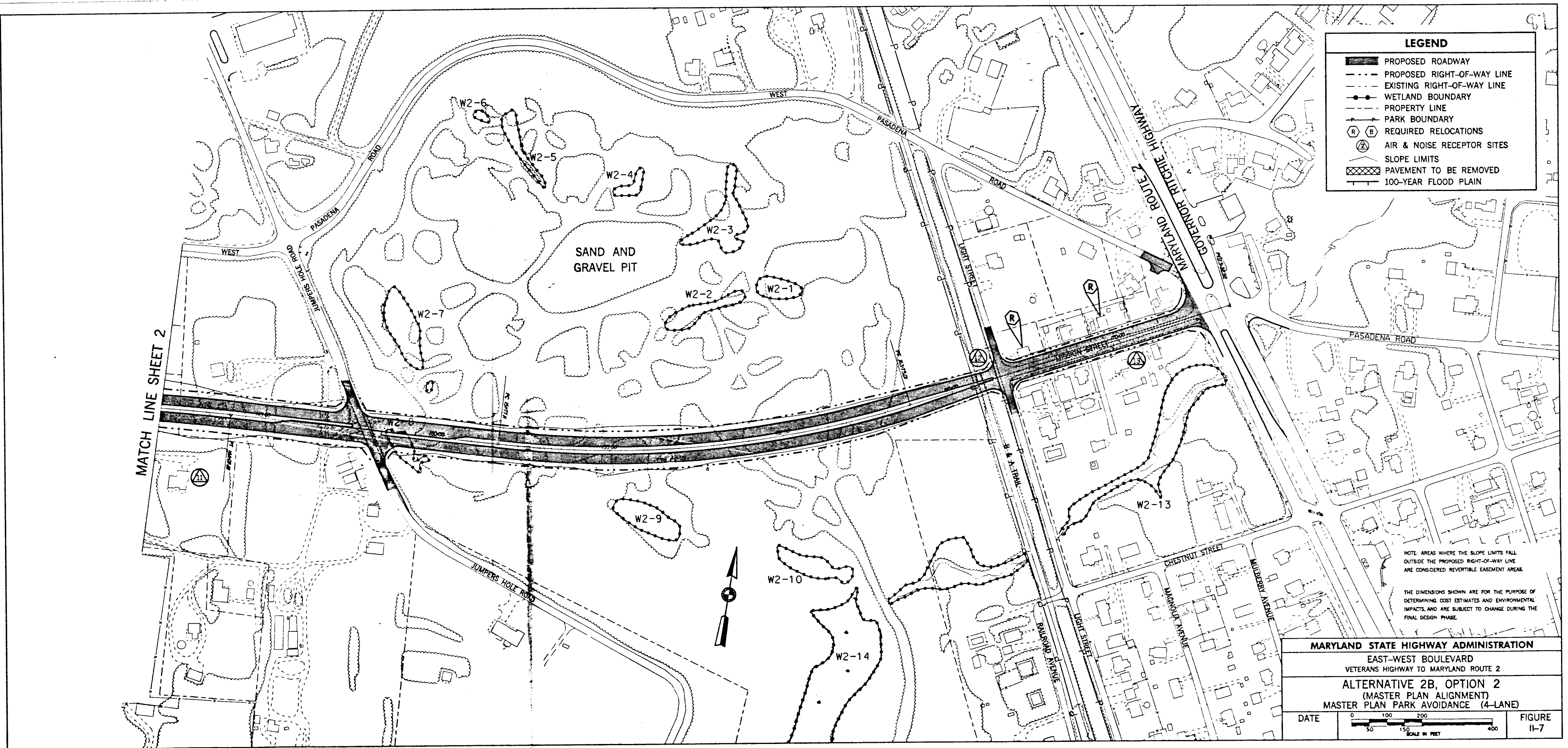
- PROPOSED ROADWAY
- PROPOSED RIGHT-OF-WAY LINE
- EXISTING RIGHT-OF-WAY LINE
- WETLAND BOUNDARY
- PROPERTY LINE
- PARK BOUNDARY
- REQUIRED RELOCATIONS
- AIR & NOISE RECEPTOR SITES
- SLOPE LIMITS
- PAVEMENT TO BE REMOVED
- 100-YEAR FLOOD PLAIN



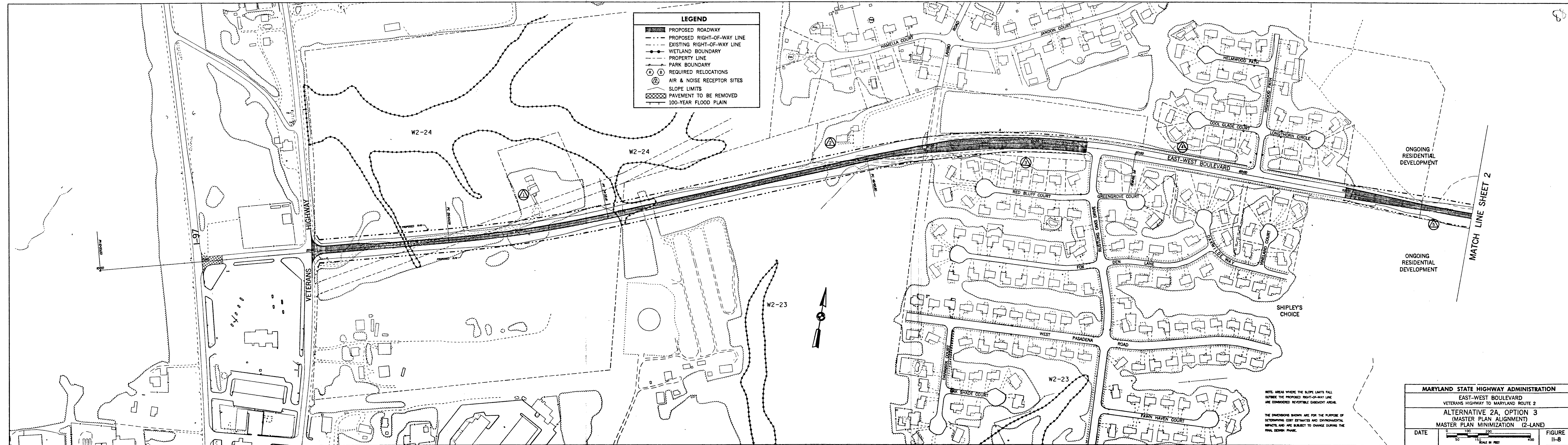
NOTE: AREAS WHERE THE SLOPE LIMITS FALL OUTSIDE THE PROPOSED RIGHT-OF-WAY LINE ARE CONSIDERED REVERTIBLE EASEMENT AREAS.

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

|  |  |
|--|--|
| MARYLAND STATE HIGHWAY ADMINISTRATION  |  |
| EAST-WEST BOULEVARD<br>VETERANS HIGHWAY TO MARYLAND ROUTE 2                                |  |
| ALTERNATIVE 2B, OPTION 2<br>(MASTER PLAN ALIGNMENT)<br>MASTER PLAN PARK AVOIDANCE (4-LANE) |  |
| DATE   | SCALE IN FEET<br>0 100 200<br>50 150 400 |
| FIGURE 11-7  |  |







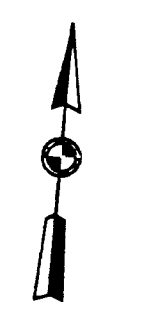


**LEGEND**

- PROPOSED ROADWAY
- PROPOSED RIGHT-OF-WAY LINE
- EXISTING RIGHT-OF-WAY LINE
- WETLAND BOUNDARY
- PROPERTY LINE
- PARK BOUNDARY
- REQUIRED RELOCATIONS
- AIR & NOISE RECEPTOR SITES
- SLOPE LIMITS
- PAVEMENT TO BE REMOVED
- 100-YEAR FLOOD PLAIN

MATCH LINE SHEET 1

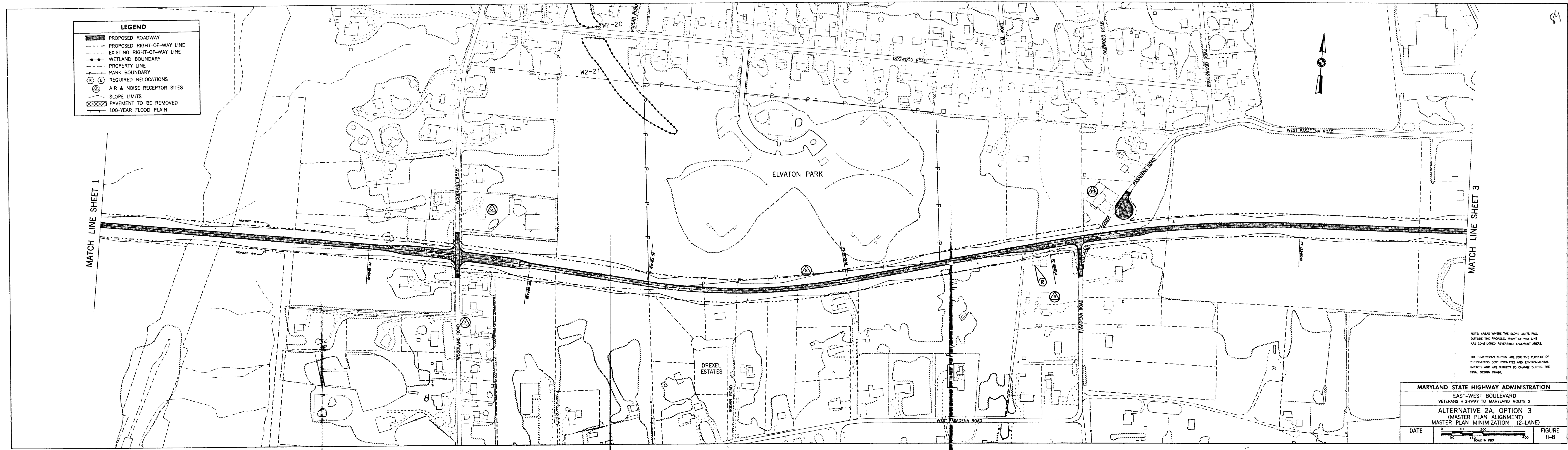
MATCH LINE SHEET 3

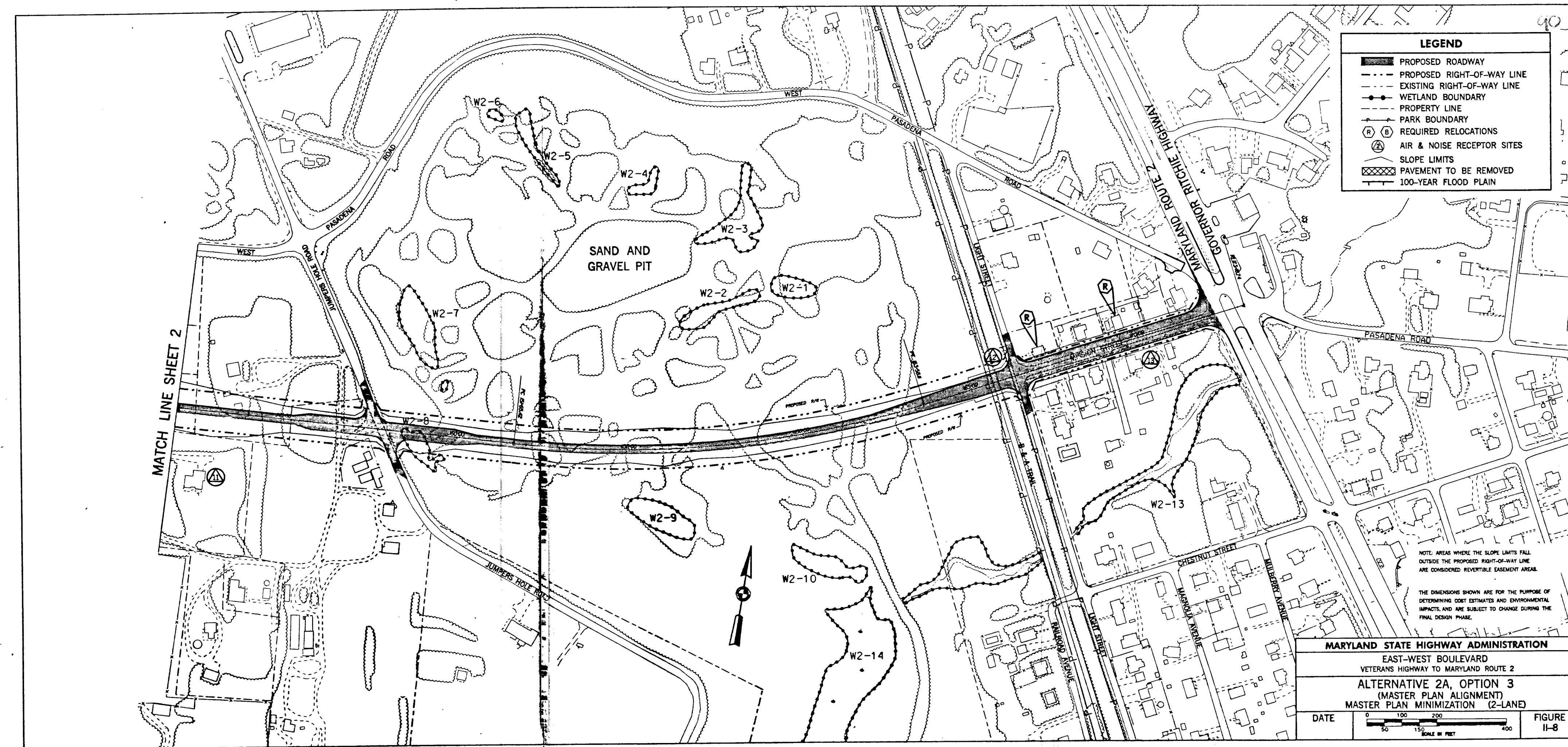


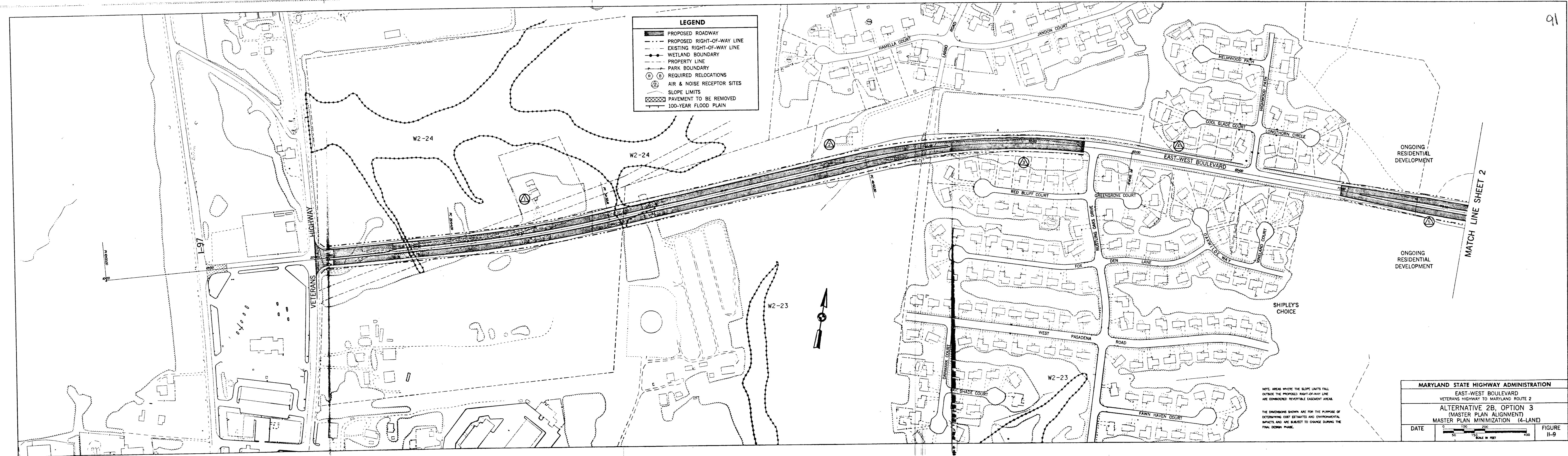
NOTE: AREAS WHERE THE SLOPE LIMITS FALL OUTSIDE THE PROPOSED RIGHT-OF-WAY LINE ARE CONSIDERED REVERTIBLE EASEMENT AREAS.

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

|  |                                      |             |
|--|--------------------------------------|-------------|
| MARYLAND STATE HIGHWAY ADMINISTRATION  |                                      | FIGURE 11-8 |
| EAST-WEST BOULEVARD<br>VETERANS HIGHWAY TO MARYLAND ROUTE 2                              |                                      |             |
| ALTERNATIVE 2A, OPTION 3<br>(MASTER PLAN ALIGNMENT)<br>MASTER PLAN MINIMIZATION (2-LANE) |                                      |             |
| DATE   | 0 100 200<br>50 150<br>SCALE IN FEET |             |









**LEGEND**

- PROPOSED ROADWAY
- PROPOSED RIGHT-OF-WAY LINE
- EXISTING RIGHT-OF-WAY LINE
- WETLAND BOUNDARY
- PROPERTY LINE
- PARK BOUNDARY
- REQUIRED RELOCATIONS
- AIR & NOISE RECEPTOR SITES
- SLOPE LIMITS
- PAVEMENT TO BE REMOVED
- 100-YEAR FLOOD PLAIN

MATCH LINE SHEET 1

MATCH LINE SHEET 3

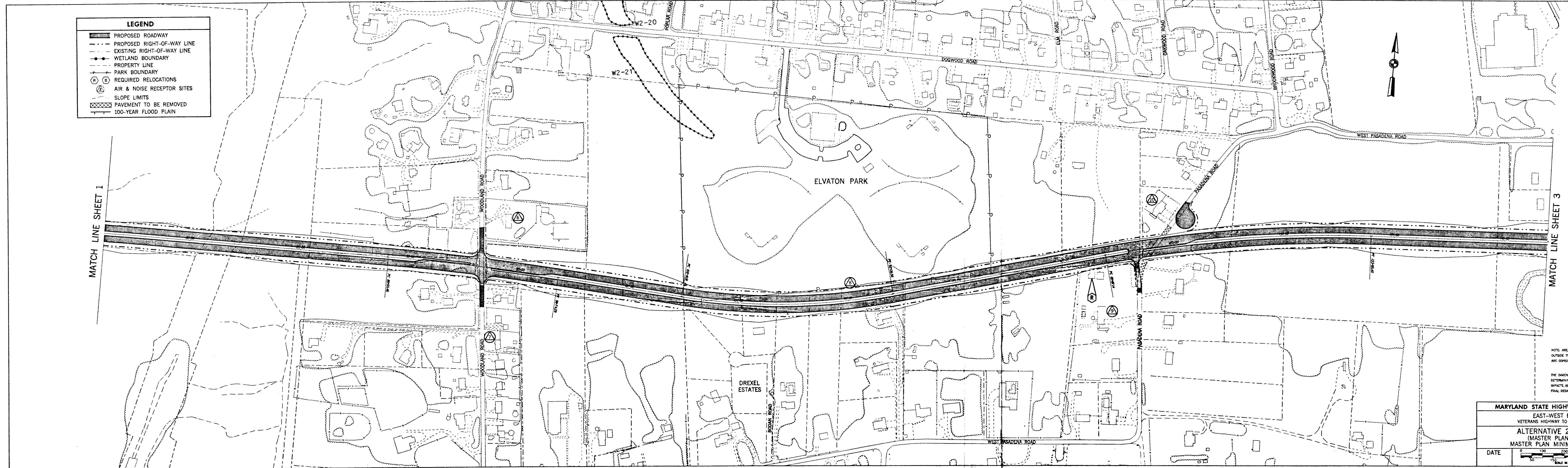


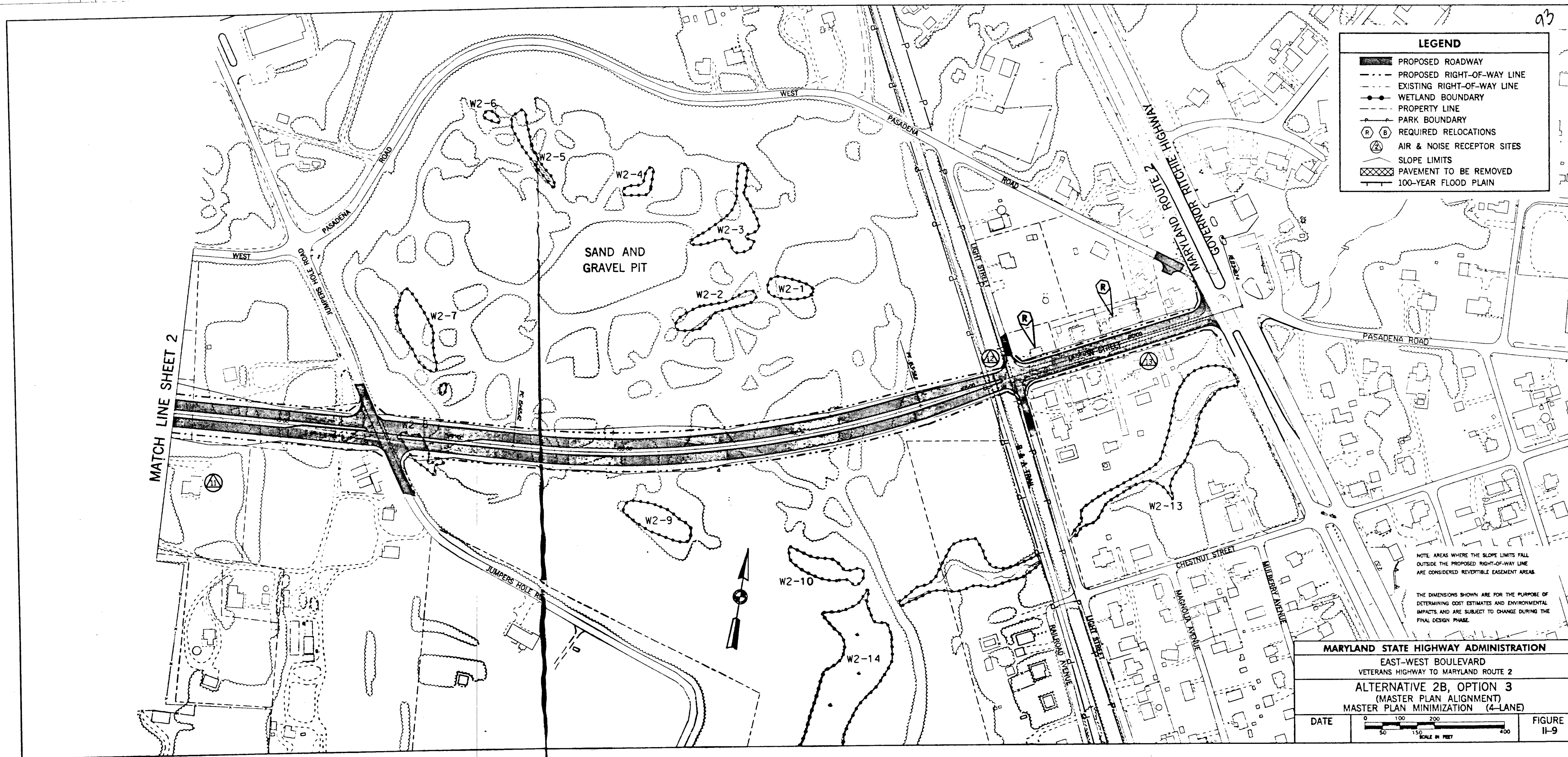
NOTE: AREAS WHERE THE SLOPE LIMITS FALL OUTSIDE THE PROPOSED RIGHT-OF-WAY LINE ARE CONSIDERED REVERTIBLE EASEMENT AREAS.

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

|  |             |
|--|-------------|
| MARYLAND STATE HIGHWAY ADMINISTRATION  |             |
| EAST-WEST BOULEVARD<br>VETERANS HIGHWAY TO MARYLAND ROUTE 2                              |             |
| ALTERNATIVE 2B, OPTION 3<br>(MASTER PLAN ALIGNMENT)<br>MASTER PLAN MINIMIZATION (4-LANE) |             |
| DATE   | FIGURE 11-9 |

0 50 100 150 200 400  
SCALE IN FEET

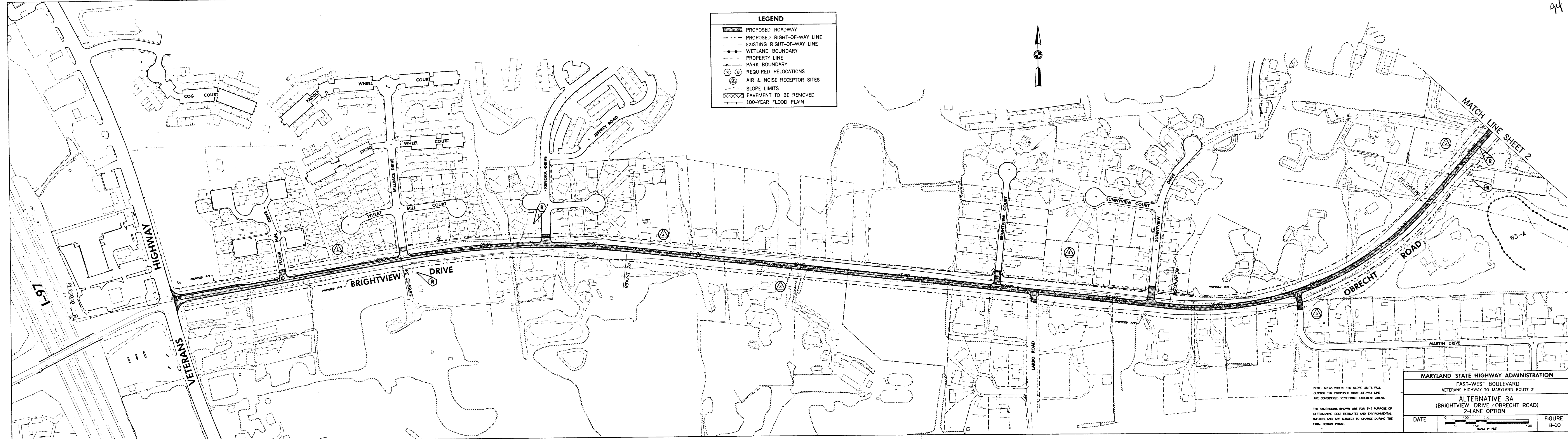






**LEGEND**

- PROPOSED ROADWAY
- PROPOSED RIGHT-OF-WAY LINE
- EXISTING RIGHT-OF-WAY LINE
- WETLAND BOUNDARY
- PROPERTY LINE
- PARK BOUNDARY
- REQUIRED RELOCATIONS
- AIR & NOISE RECEPTOR SITES
- SLOPE LIMITS
- PAVEMENT TO BE REMOVED
- 100-YEAR FLOOD PLAIN



NOTE: AREAS WHERE THE SLOPE LIMITS FALL OUTSIDE THE PROPOSED RIGHT-OF-WAY LINE ARE CONSIDERED REVERTIBLE EASEMENT AREAS.

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

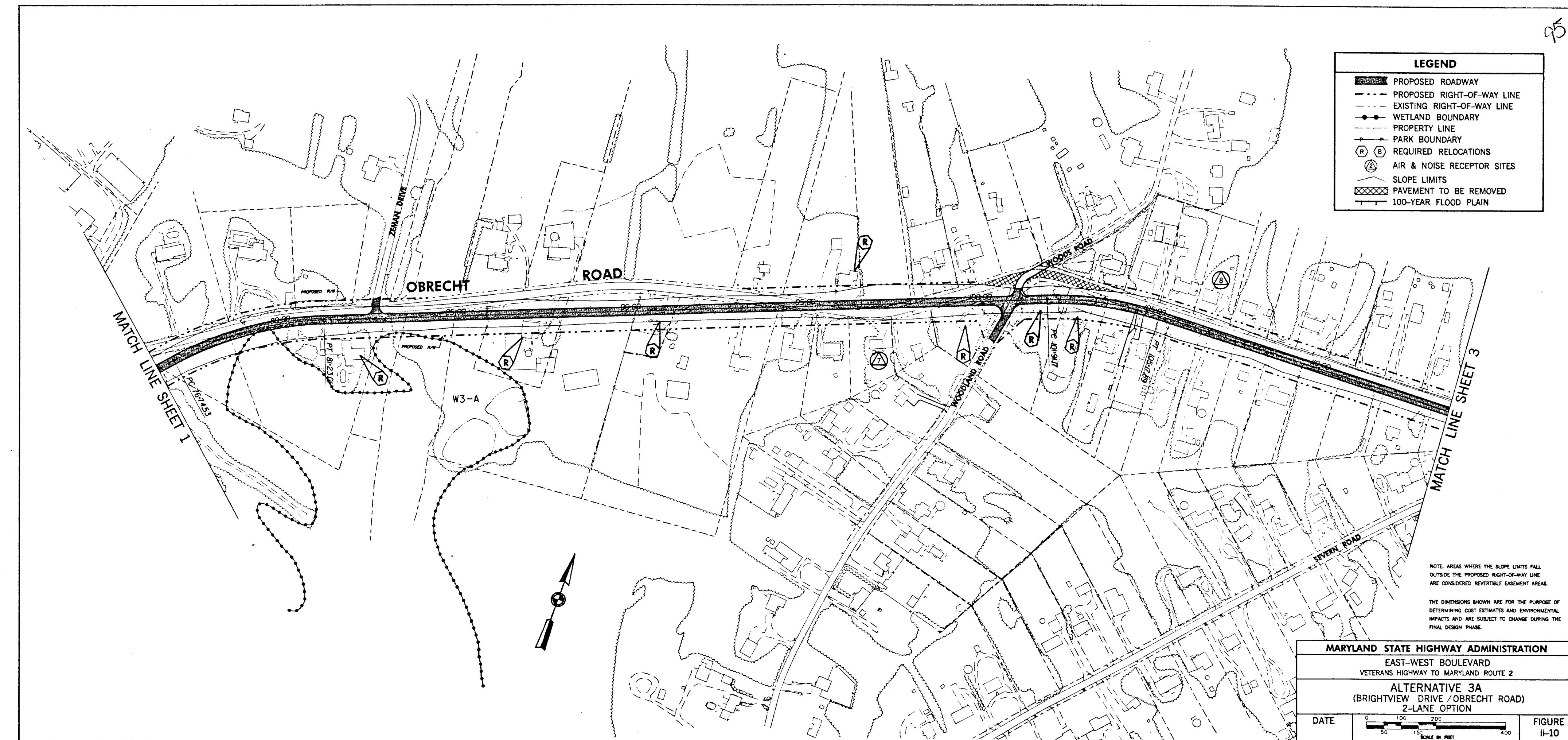
**MARYLAND STATE HIGHWAY ADMINISTRATION**  
EAST-WEST BOULEVARD  
VETERANS HIGHWAY TO MARYLAND ROUTE 2

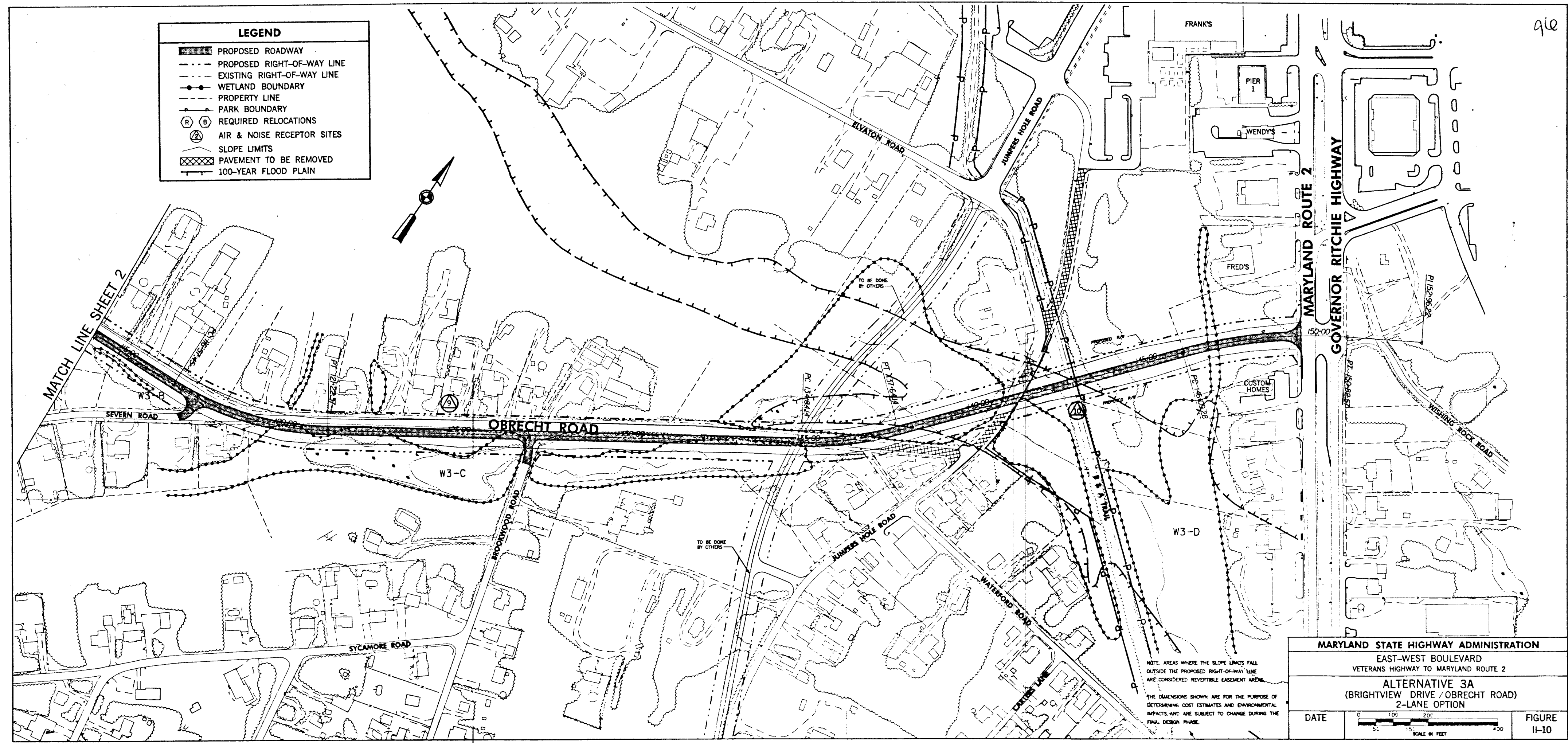
**ALTERNATIVE 3A**  
(BRIGHTVIEW DRIVE / OBRECHT ROAD)  
2-LANE OPTION

DATE: \_\_\_\_\_

SCALE IN FEET: 0 50 100 150 200 400

FIGURE ii-10



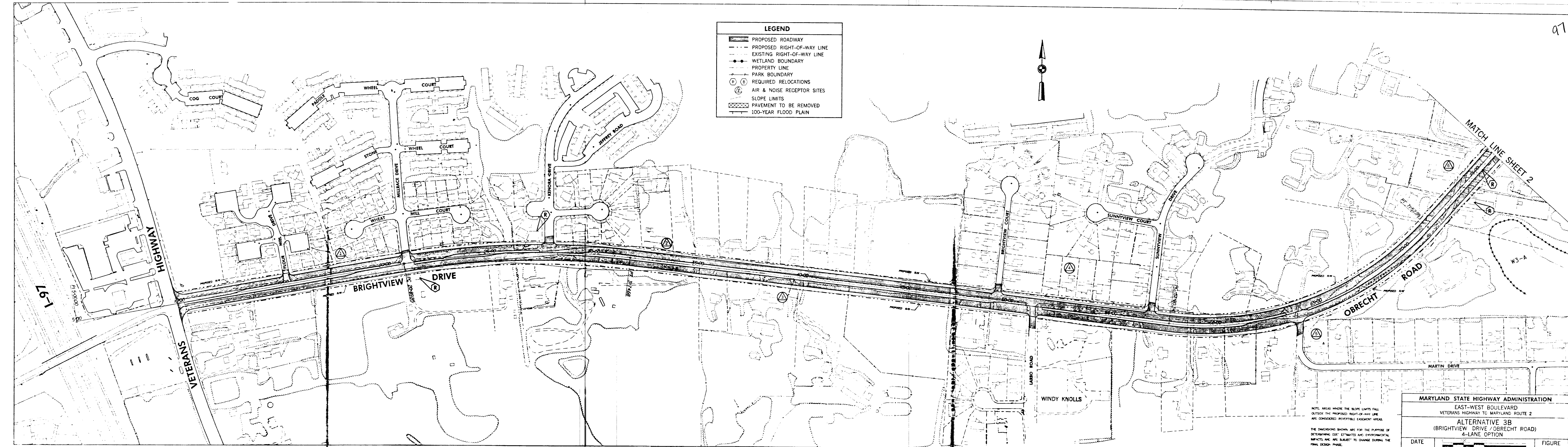
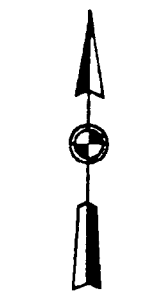


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**LEGEND**

- PROPOSED ROADWAY
- PROPOSED RIGHT-OF-WAY LINE
- EXISTING RIGHT-OF-WAY LINE
- WETLAND BOUNDARY
- PROPERTY LINE
- PARK BOUNDARY
- REQUIRED RELOCATIONS
- AIR & NOISE RECEPTOR SITES
- SLOPE LIMITS
- PAVEMENT TO BE REMOVED
- 100-YEAR FLOOD PLAIN



NOTE: AREAS WHERE THE SLOPE LIMITS FALL OUTSIDE THE PROPOSED RIGHT-OF-WAY LINE ARE CONSIDERED REVERSIBLE EASEMENT AREAS.

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

MARYLAND STATE HIGHWAY ADMINISTRATION

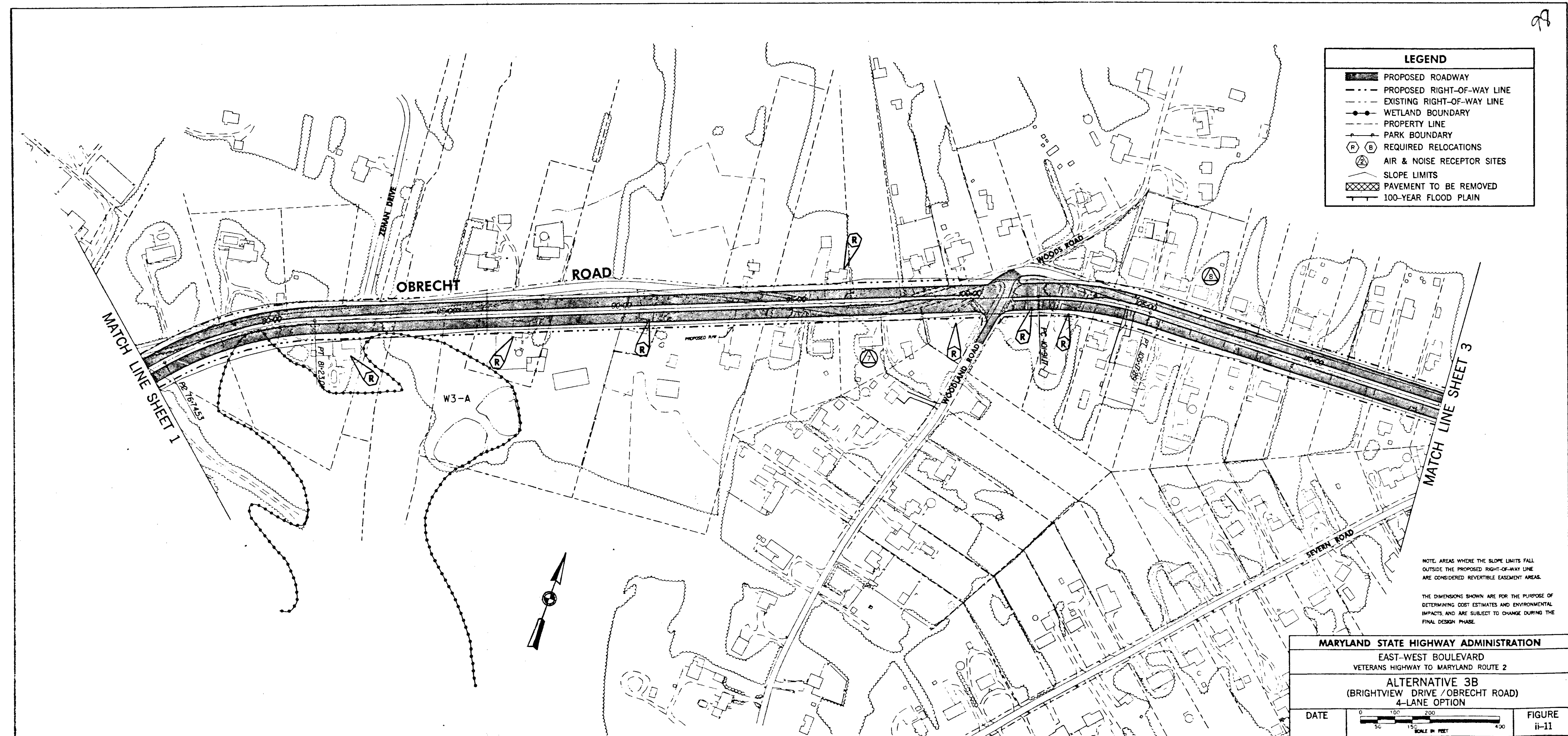
EAST-WEST BOULEVARD  
VETERANS HIGHWAY TO MARYLAND ROUTE 2

**ALTERNATIVE 3B**  
(BRIGHTVIEW DRIVE/OBRECHT ROAD)  
4-LANE OPTION

DATE \_\_\_\_\_

SCALE IN FEET

FIGURE II-11



**LEGEND**

- PROPOSED ROADWAY
- PROPOSED RIGHT-OF-WAY LINE
- EXISTING RIGHT-OF-WAY LINE
- WETLAND BOUNDARY
- PROPERTY LINE
- PARK BOUNDARY
- REQUIRED RELOCATIONS
- AIR & NOISE RECEPTOR SITES
- SLOPE LIMITS
- PAVEMENT TO BE REMOVED
- 100-YEAR FLOOD PLAIN

NOTE: AREAS WHERE THE SLOPE LIMITS FALL OUTSIDE THE PROPOSED RIGHT-OF-WAY LINE ARE CONSIDERED REVERTIBLE EASEMENT AREAS.

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

**MARYLAND STATE HIGHWAY ADMINISTRATION**

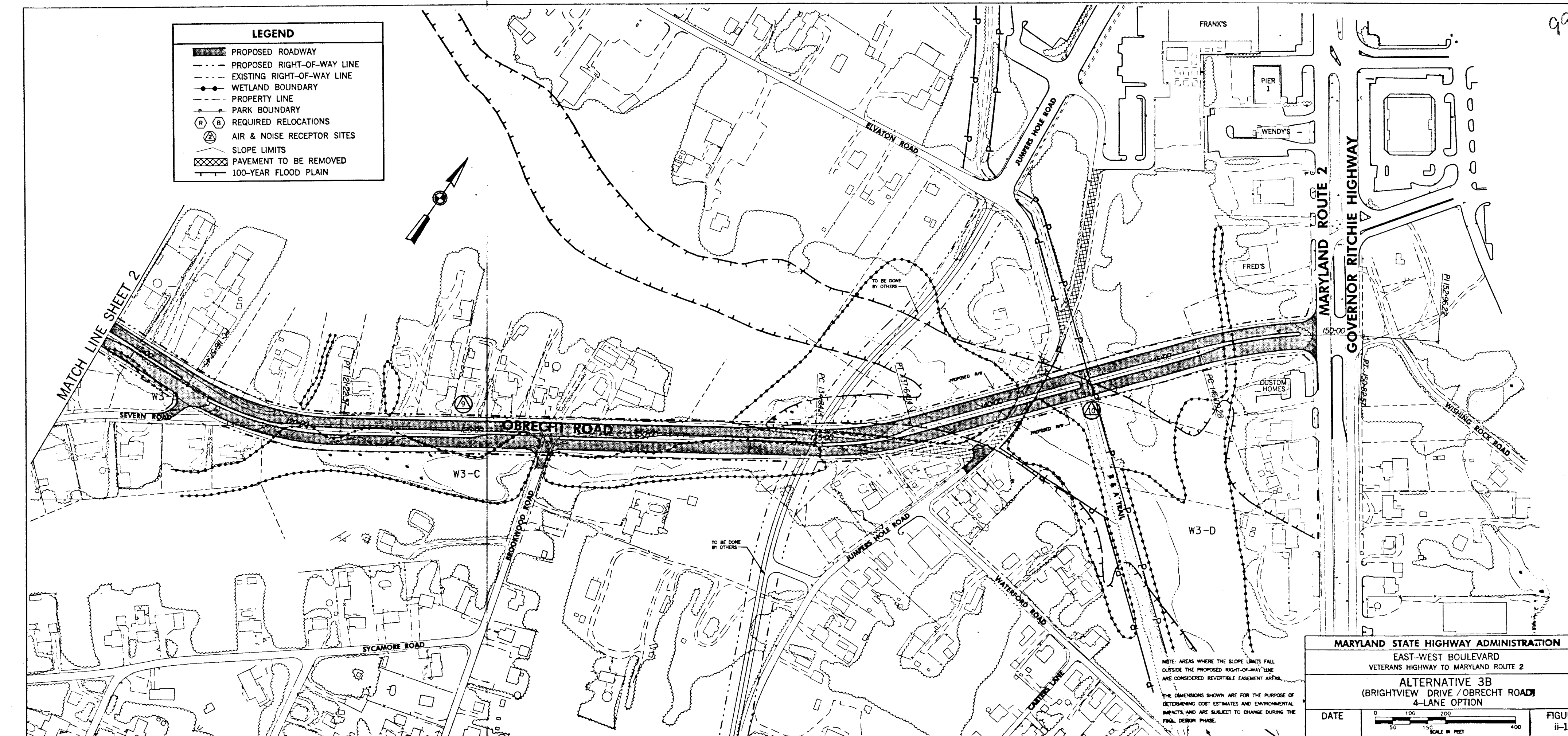
EAST-WEST BOULEVARD  
VETERANS HIGHWAY TO MARYLAND ROUTE 2

**ALTERNATIVE 3B**  
(BRIGHTVIEW DRIVE / OBRECHT ROAD)  
4-LANE OPTION

DATE: \_\_\_\_\_

SCALE IN FEET: 0 100 200 400

FIGURE ii-11



**LEGEND**

- PROPOSED ROADWAY
- PROPOSED RIGHT-OF-WAY LINE
- EXISTING RIGHT-OF-WAY LINE
- WETLAND BOUNDARY
- PROPERTY LINE
- PARK BOUNDARY
- REQUIRED RELOCATIONS
- AIR & NOISE RECEPTOR SITES
- SLOPE LIMITS
- PAVEMENT TO BE REMOVED
- 100-YEAR FLOOD PLAIN

NOTE: AREAS WHERE THE SLOPE LIMITS FALL OUTSIDE THE PROPOSED RIGHT-OF-WAY LINE ARE CONSIDERED REVERTIBLE EASEMENT AREAS.

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

|  |                 |
|--|-----------------|
| MARYLAND STATE HIGHWAY ADMINISTRATION                                |                 |
| EAST-WEST BOULEVARD<br>VETERANS HIGHWAY TO MARYLAND ROUTE 2          |                 |
| ALTERNATIVE 3B<br>(BRIGHTVIEW DRIVE / OBRECHT ROAD)<br>4-LANE OPTION |                 |
| DATE   | FIGURE<br>ii-11 |

### III. AFFECTED ENVIRONMENT

### III. AFFECTED ENVIRONMENT

#### A. Social, Economic, and Land Use

##### 1. Social

##### a. Population

According to the 1990 U.S. Census, Anne Arundel County's population was 427,239, an increase of 56,464 people or over 15% since 1980. This rate of growth represents a continuation of the recent trend of slowing rates of population growth in the County, whose population growth peaked in the 1950's following World War II. In the 1950's this area experienced a 76% increase in population, while in the 1960's and the 1970's the County witnessed population increases of 44% and 25%, respectively.

The Maryland Office of Planning predicts additional growth for Anne Arundel County through the year 2010, although at slower rates. Population growth in the County will occur at a much slower rate due to a lower rate of natural increase and a reduction in the number of people migrating to the County from other areas. The County population is expected to grow by less than 9% between 1990 and 2000, while this rate will slow to less than 5% between 2000 and 2010.

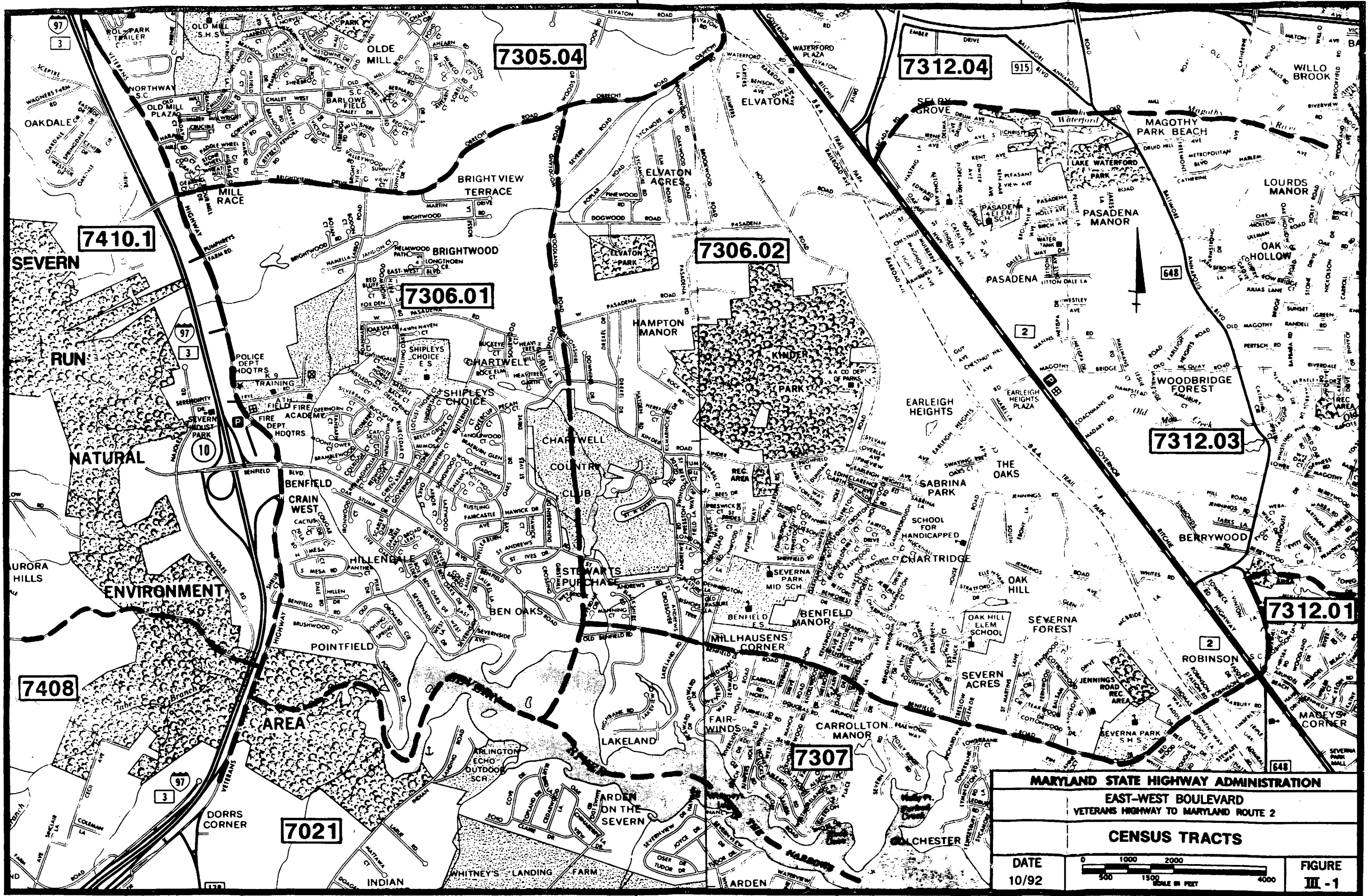


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Census tracts were used for purposes of evaluating population statistics for the project's study area. The study area lies within the boundaries of Census Tracts Nos. 7306.01 and 7306.02 (see Figure III-1). For purposes of evaluating population change between 1980 and 1990, these census tracts are equivalent to Census Tract No. 7306 as defined by the 1980 U.S. Census.

Between 1980 and 1990, the population in the area defined by these census tracts increased from 10,304 to 13,849, an increase of over 34% during that period. Much of this growth is attributed to development in the Benfield Boulevard corridor within the Shipley's Choice and Chartwell communities. The development in the study area is expected to continue with the construction of new, and expanding of existing subdivisions.

According to Anne Arundel County, the population in these census tracts is projected to increase by about 15% by the turn of the century. This slowing in the rate of population growth in the study area census tracts by the year 2000 is consistent with that expected to occur on a county-wide basis.



|   |   |                   |
|---|---|-------------------|
| MARYLAND STATE HIGHWAY ADMINISTRATION                       |   |                   |
| EAST-WEST BOULEVARD<br>VETERANS HIGHWAY TO MARYLAND ROUTE 2 |   |                   |
| CENSUS TRACTS   |   |                   |
| DATE<br>10/92   | 0 1000 2000<br>500 1500 4000<br>SCALE IN FEET | FIGURE<br>III - 1 |

An analysis of 1990 census data reveals that 93.3% of the population in the two study area census tracts was white, 3.9% was black, 0.2% was of American Indian descent, 2.5% was of Asian descent, and 0.1% was classified as others.

Concentrations of minority individuals have been identified in the Earleigh Heights/Sabrina Park area along Earleigh Heights and Sylvan Roads and along Whites Road west of MD 2.

Approximately 11% of the study area population is age 60 or older. A concentration of elderly and handicapped individuals is situated at a nursing home on Truck House Road, north of Benfield Boulevard.

**b. Community Facilities and Services (see Figure III-2)**

Churches located in and around the study area are listed on the following page and include:

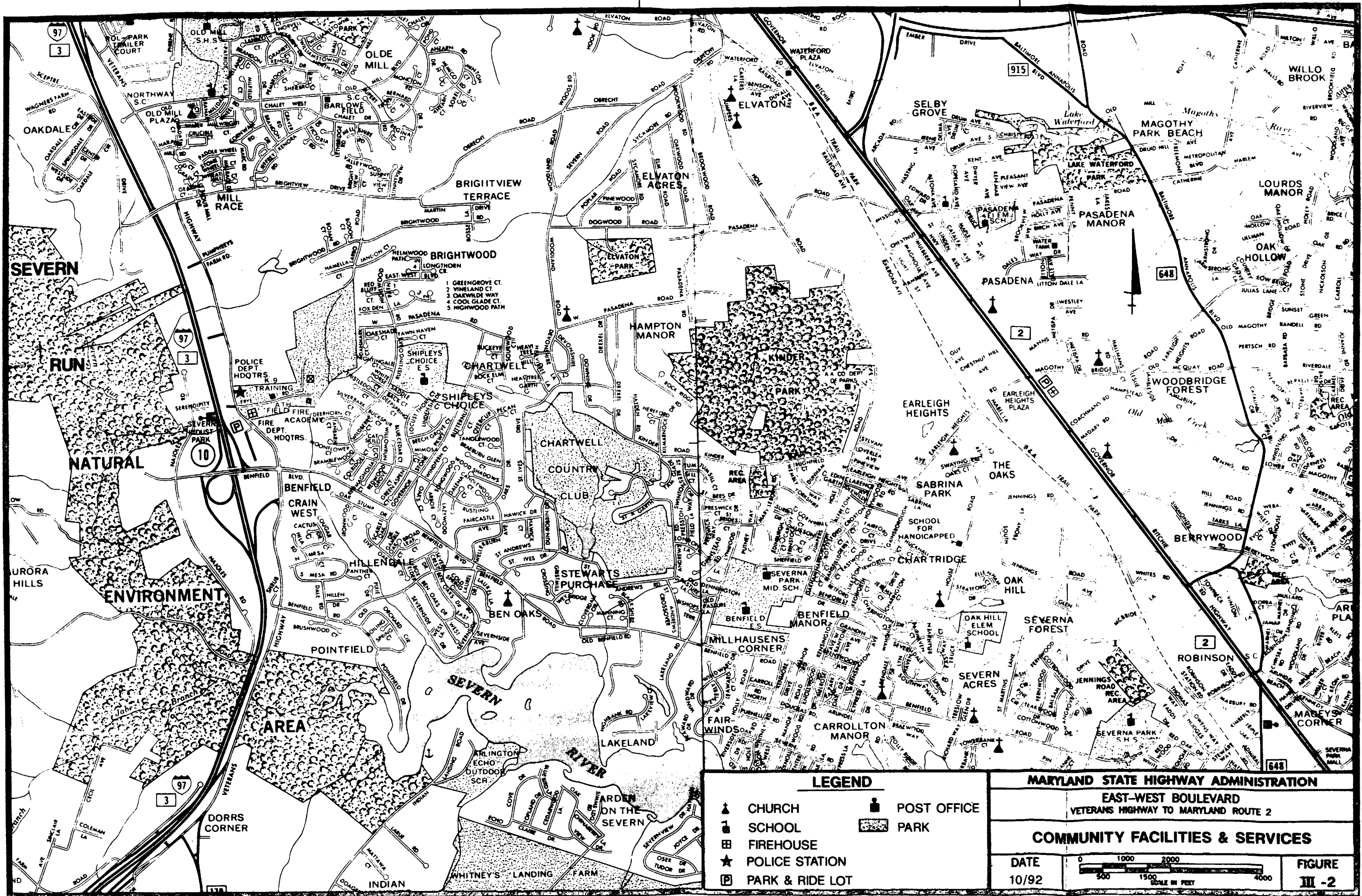


- \* Christ Lutheran
- \* International Pentecostal Church of Christ
- \* Silas First Baptist
- \* Pasadena United Methodist
- \* Anchor Baptist
- \* Severna Park United Methodist
- \* Severna Park Baptist
- \* Our Shepard Lutheran
- \* Trinity Bible
- \* St. Martin's in the Field Episcopal
- \* Calvary Temple Worship Center
- \* Grace of God Fellowship Christian Center
- \* Elvaton Baptist
- \* Severna Park Church of God
- \* Rose of Sharon Apostolic

Fire protection and ambulance/paramedic services are provided by the Earleigh Heights Volunteer Fire Company at MD 2 and Earleigh Heights Road as well as the South Glen Burnie station of the Anne Arundel County Fire Department, located north of the study area at MD 3 Business and Hidden Brook Drive.

Anne Arundel County is planning to construct an additional fire station on Governor William Stone Parkway just north of Benfield Boulevard. The headquarters and training academy for the fire department are situated in the western portion of the study area on Veterans Highway.

Police protection is provided by the Anne Arundel County Police Department, whose headquarters is also located on Veterans Highway adjacent to the fire department



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facilities and the Maryland State Police,  
whose barracks is located in Glen Burnie.

Both police and fire departments report  
satisfactory response times, although traffic  
congestion does restrict these times.

Schools in the study area and vicinity  
include:

- \* Oak Hill Elementary
- \* Pasadena Elementary
- \* Severna Park High
- \* Severna Park Middle
- \* Severna Park Elementary
- \* St. Martin's Day
- \* Shipley's Choice Elementary
- \* Old Mill High
- \* Old Mill Middle
- \* Rippling Woods Elementary
- \* Southgate Elementary
- \* Ruth P. Eason Special Education

The U.S. Post Office has two postal  
stations in the project area at Millersville  
and Severna Park. The closest hospital to  
the study area is North Arundel Hospital in  
Glen Burnie.

Public recreational facilities within  
the area include Kinder Park, Elvaton Park,  
Baltimore & Annapolis Hiker Biker Trail, Old  
Mill/Southgate Park, Lake Waterford Park,  
Severn Run Natural Environment Area, Jennings  
Road Recreational Area, and the ball fields  
and other open areas associated with area  
public schools. Private facilities include  
the Chartwell Country Club and homeowner

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association owned lands for the benefit of association members.

Public water and sewer services are generally available throughout the study area, although some older areas in the Brightview Drive/Obrecht Road and Master Plan Alignment corridors utilize wells and septic systems.

## **2. Economic Setting**

The majority of the study area has been developed for residential uses, with economic development and employment opportunities centered on the Baltimore Washington International Airport (BWI), Annapolis and Fort Meade areas outside the study area. The economic development that has occurred in the area, consists of commercial and light industrial uses along Veterans Highway, MD 2 and Benfield Boulevard east of Jumpers Hole Road.

Other commercial uses are scattered throughout the study area. These uses typically consist of retail stores, shops and services, with much of it arranged in small shopping centers or groups of businesses that serve the surrounding communities.

The Severn Industrial Park is situated west of I-97 near the Benfield Boulevard interchange, while some warehousing uses are located along Jumpers Hole Road, south of Elvaton Road.

3. Land Use

a. Existing (Figure III-3)

As stated previously, the majority of the study area has been developed residentially, particularly in the Benfield Road/Benfield Boulevard corridor and in the Old Mill area. Much of this development has occurred in the last 20 years. Single family homes on small lots constitute the primary housing type and are organized into developments or communities along the corridor, such as Shipley's Choice, Chartwell, Chartridge, Fairwinds, Benfield Manor, Old Mill, Hillendale, Ben Oaks, Elvaton, etc.

Several of these communities are quite large, each comprising several hundred homes. Smaller housing developments and unconsolidated housing are situated to the north in the Brightview Drive/Obrecht Road and West Pasadena Road/Jumpers Hole Road corridors.

Large tracts of land in the study area are owned by Anne Arundel County, including numerous schools, Kinder and Elvaton parks and the police and fire department facilities. Another large parcel of land is occupied by the Chartwell Country Club.

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Commercial and light industrial uses including stores and services are grouped in shopping centers or arranged in strip development along the outer edges of the study area along MD 2, Benfield Boulevard and Veterans Highway.

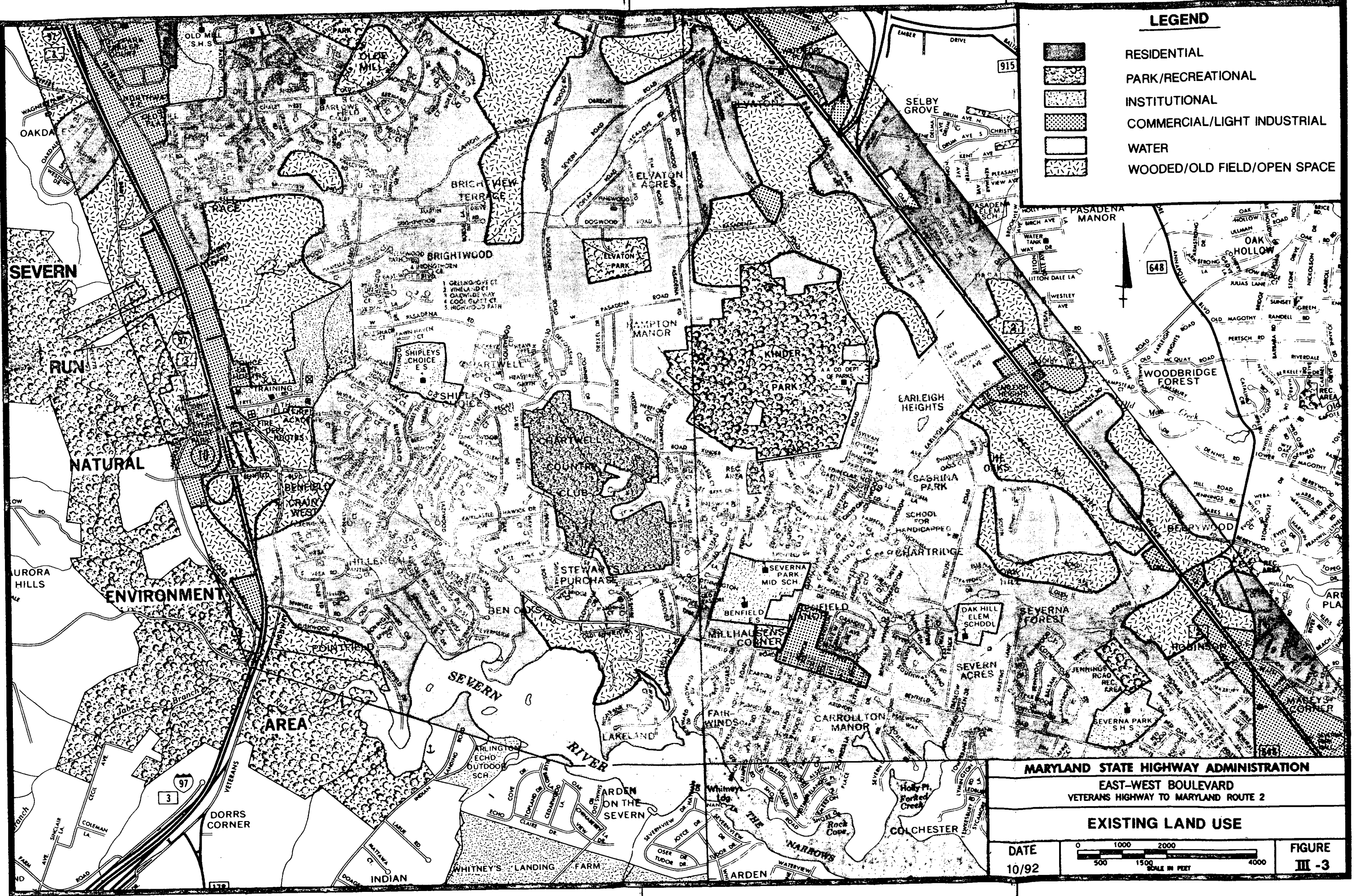
Less than 20% of the total land area in the study area has remained undeveloped and remains as woods or open field. The largest such tracts are situated along Veterans and Ritchie Highways and in the old sand and gravel pit property on Jumpers Hole Road in the eastern end of the study area. Other smaller parcels are scattered across the study area.

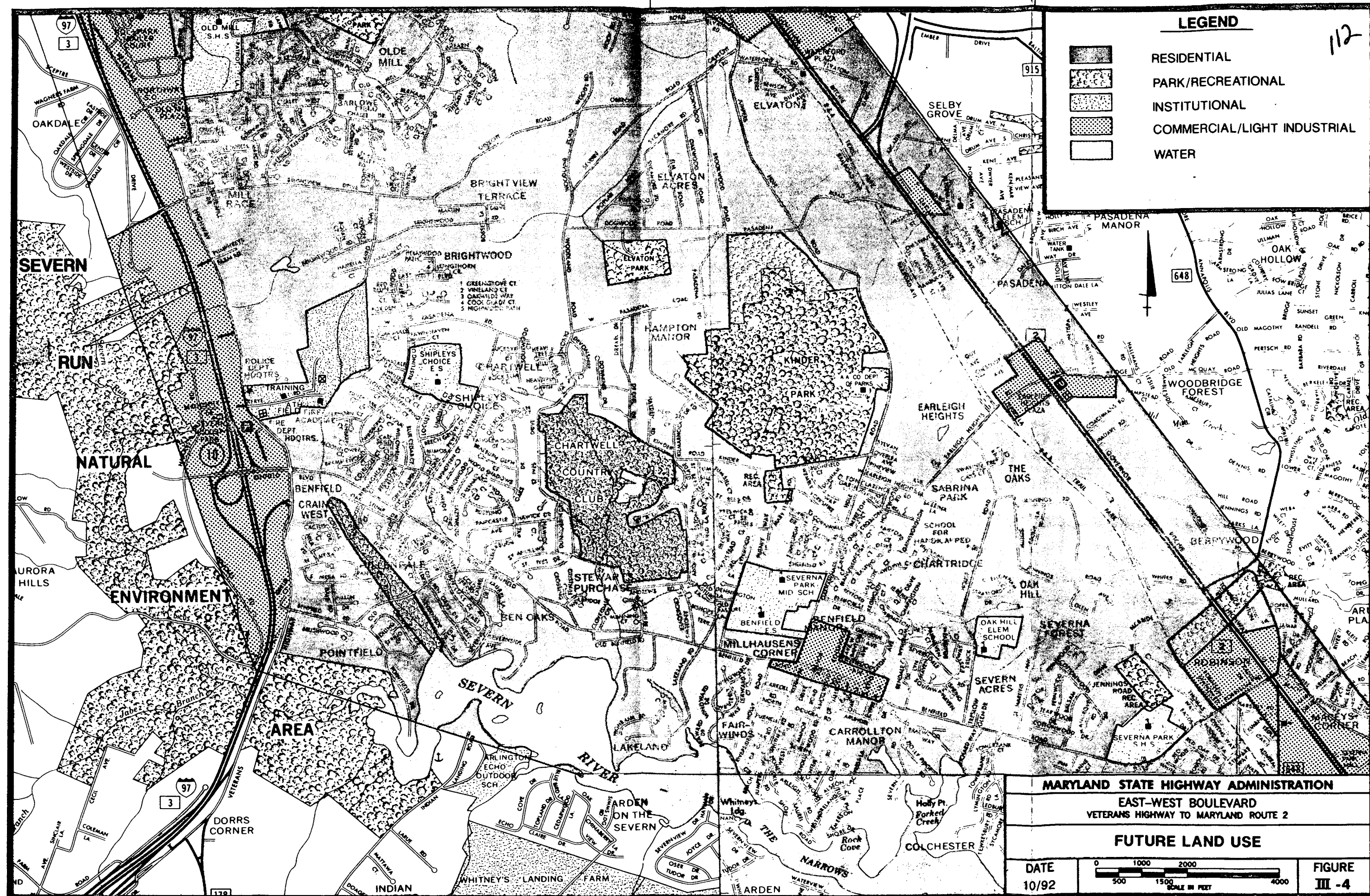
**b. Future (Figure III-4)**

Much of the study area has already been developed. However, the Anne Arundel County General Plan, adopted in 1978 and amended in 1986, calls for full development of vacant land within the study area, consistent with and complementary to the surrounding existing residential uses. It is the County's policy to focus new development near existing counterparts.

The Plan is used as a basis for the zoning of the area, which places emphasis on varying densities of residential development.









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Additional residential development is currently underway, particularly in the Shipley's Choice and Brittingham Farms subdivisions, and remaining vacant parcels are planned for residential subdivision activity.

**4. Transportation**

**a. Existing Roadway Network**

The north-south movement of traffic in the immediate study area is currently provided by I-97, Veterans Highway, Jumpers Hole Road, and MD 2. The east-west traffic movement within the study area is provided by Brightview Drive/Obrecht Road and Benfield Boulevard.

Park and ride facilities are located at the Earleigh Heights Volunteer Fire Department on MD 2 and near the I-97 and Benfield Boulevard interchange. The Mass Transit Administration provides public bus service to and from these park and ride lots and along Ritchie Highway. The bus network would eventually provide service to the light rail system in Glen Burnie.

**b. Planned Roadway Network**

The State Highway Administration is currently planning several minor Special Projects within the study area (See Section

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I-G - Need for the Project). These projects are scheduled to be advertised for construction in Fiscal Year 1993 and 1994.

The developer of Shipley's Choice is currently constructing an eastern extension of existing East - West Boulevard and a northern extension of Governor William Stone Parkway.

Anne Arundel County is currently planning to construct a two lane western extension of East - West Boulevard to intersect Veterans Highway. The County is also proposing the following projects within the study area: the realignment of Jumpers Hole Road from Elvaton Road to south of Waterford Road, realignment of Earleigh Heights Road to Jumpers Hole Road, and the extension of Governor Stone Parkway from East - West Boulevard to Oakwood Road. All of these planned state, county and developer roadway improvements are described in more detail in **Section I-G** of this document.

## **B. Cultural Resources**

### **1. Historic Standing Structures**

Although several historic standing structures have been identified within this project study area, only the Earleigh Heights Store, Post Office and Station (AA 1057) is considered eligible for

the National Register of Historic Places (See **Section VI Comments and Coordination**). The Maryland Historical Trust (MHT) holds an easement on this property.

The Earleigh Heights Store, Post Office and Station was built in 1889 as a store and post office. It later became a station along the Annapolis and Baltimore Shortline Railroad. Of the four historic railroad stations that still exist in Anne Arundel County, it is the oldest and most significant architecturally. The Anne Arundel County Department of Recreation and Parks has recently restored the site. It is currently used as a rest area facility and as the park headquarters for the Baltimore and Annapolis Trail.

## **2. Archeological Sites**

A Phase I archeological field survey has been completed for each of the project corridors. The results of this survey have indicated that there are no historic or prehistoric archeological resources eligible for the National Register of Historic Places present within the project corridors. No additional investigations are recommended. However, some minor coordination with the MHT must be completed before the Section 106 process is completed (See **Section VI Comments and Coordination**).

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**C. Natural Environment**

**1. Topography**

The study area is within the Atlantic Coastal Plain. This physiographic province is underlain by unconsolidated deposits of gravel, sand, silt and clay.

The surface in the study area ranges from gently sloping to moderately steep, with elevations ranging from approximately ten feet (above sea level) along Cattail Creek in the southeast portion of the study area to 160 feet in the northwest portion of the study area. The vast majority of the study area lies between 60 and 140 feet above sea level.

The study area drains south to the Severn River and east to the Magothy River.

**2. Geology**

Two principal geologic formations occur in the study area: Potomac Group and Magothy Formation. The area along two streams, Cattail Creek in the southeast corner of the study area, and a tributary of the Severn River near Benfield Boulevard in the western portion of the study area, are classified as Alluvium.

The Potomac Group consists of sediments from the mid-early Cretaceous age which were deposited in river floodplains, lakes and swamps. Thickness varies from 50 to 1600 feet. The Potomac Group is

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divided into two lithologic units: the sand-gravel facies which is found throughout the study area, and the silt-clay facies which occurs in the northwestern portion of the study area. The sand-gravel facies consists of interbedded quartz sand, pebbly sand, gravel and subordinate silt-clay. The silt-clay facies consists of clay, silt, and subordinate fine to medium-grained muddy sand. The silt-clay is generally massive and thick-bedded.

The Magothy Formation consists of fine to coarse-grained sand, interstratified with silt-clay and pebbly sand and gravel. The deposits are of the late Cretaceous age and vary from 3 to 150 feet in thickness.

The Alluvium consists of interbedded sand, silt-clay, and subordinate gravel. The sediments have, for the most part, been deposited within the past 10,000 years. Thickness varies from three to fifteen feet, and there are occasional layers of organic material.

### 3. Soils

Only one soil association occurs throughout the study area: Evesboro - Rumford - Sassafras.

The Evesboro Series, the most common series in the study area, consists of very deep, well-drained to excessively drained, very sandy soils.

The Rumford Series consists of deep, somewhat

excessively drained sandy soils that contain some clay but little silt.

The Sassafras Series consists of deep, well-drained soils with a loamy surface and a predominantly sandy clay loam subsoil. The soils have moderate amounts of silt and clay.

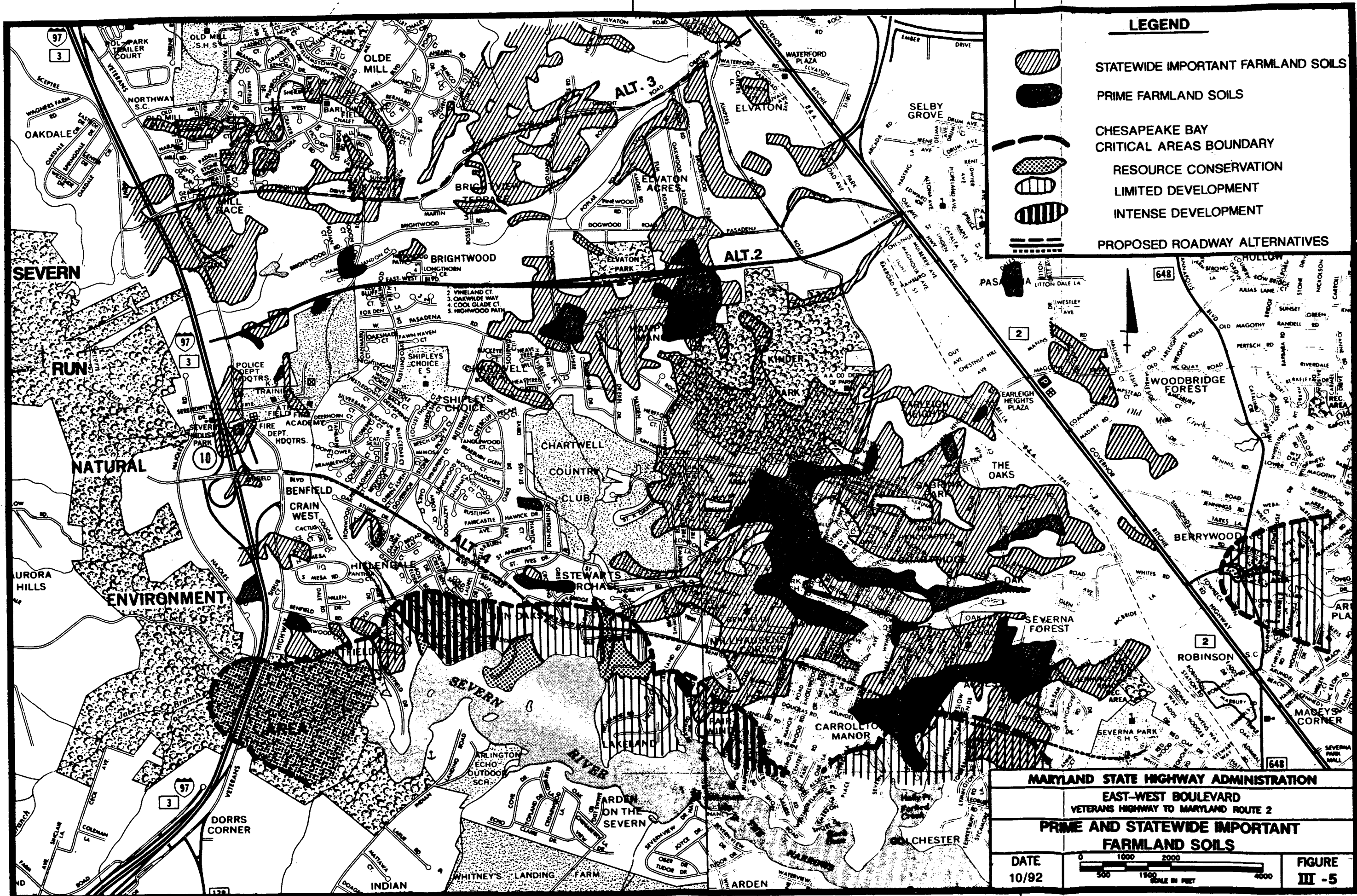
As defined by the Anne Arundel Office of Planning and Zoning, there are soil types within the project area that are considered highly erodible. These soils are Sassafras fine sandy loam and Bibb silt loam, and are only considered highly erodible in areas where slopes are equal to or exceed 15%. These areas exist within the study area.

Prime farmland soils and Statewide Important farmland soils are located within the study area. The locations of these soil classifications are shown in Figure III-5. In accordance with the coordination requirements of the Farmland Protection Policy Act, the U.S. Department of Agriculture, Soil Conservation Service has been provided a Farmland Conversion Impact Rating form for completion.

#### **4. Surface Water and Ground Water**

##### **a. Surface Waters**

Surface waters of the study area belong to the West Chesapeake Area Sub-Basin. This sub-basin drains 307 square miles of Anne



Arundel County and portions of Calvert County. Significant rivers within the sub-basin include the Severn, Magothy, South, West, and Rhode.

The Severn River is a state-designated Scenic River. The intent of this designation is to preserve and protect the natural values of the river. Any water and land-related development and any hydrologic modification in the river must be specifically approved by the Secretary of the Department of Natural Resources.

Over 40% of the sub-basin is either developed or agricultural land with the percentage of developed land increasing.

The study area is within the Magothy River and Severn River segment watersheds (See Figure III-6). Surface waters include small, sluggish streams as well as natural and artificial impoundments, generally of small size.

The watershed draining to the Magothy River at the Obrecht Road/Jumpers Hole Road intersection encompasses approximately five square miles. The Cattail Branch tributary of the Magothy also drains about five square miles of highly developed land. Topography is nearly level within this part of the



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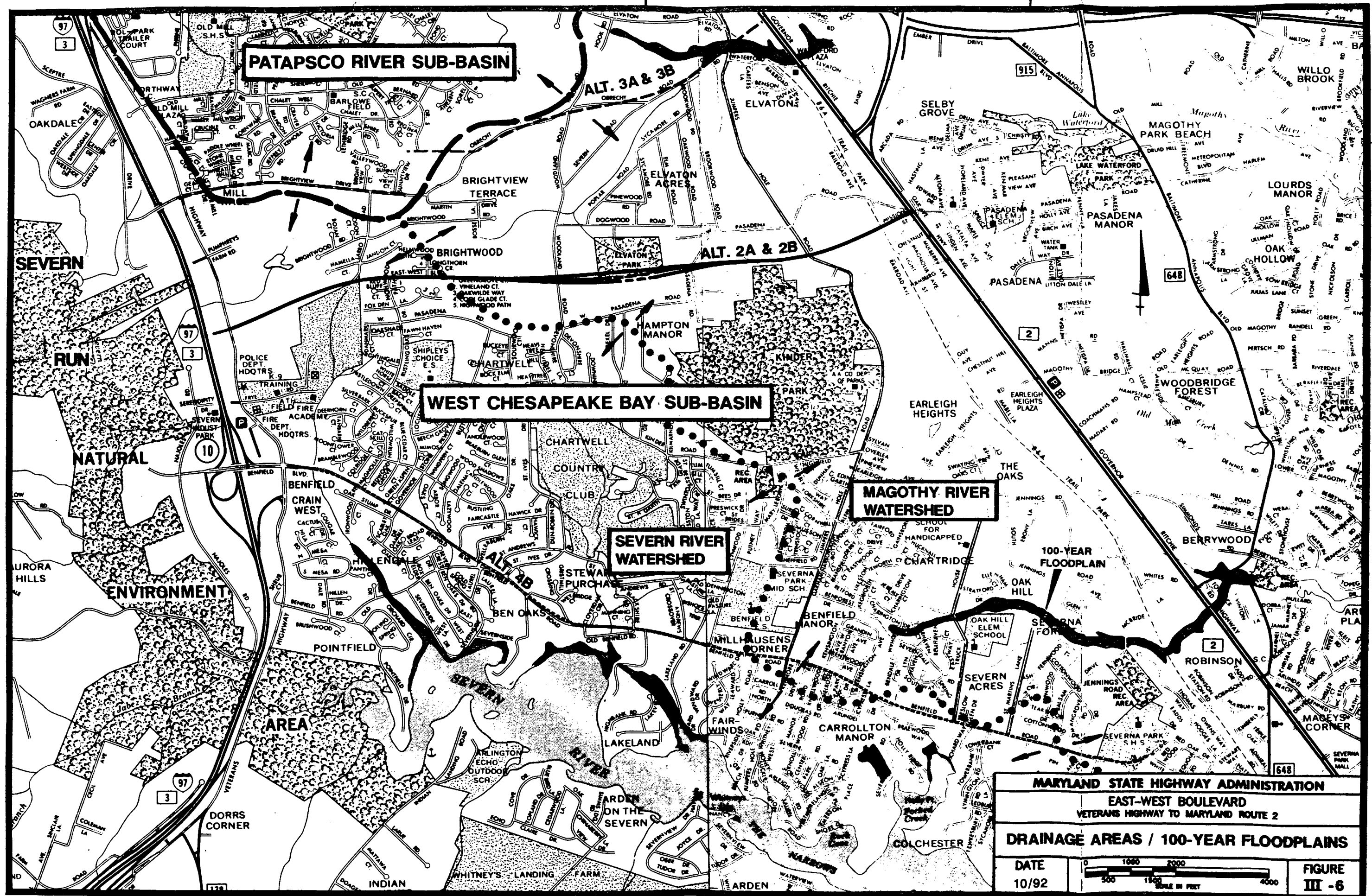
watershed.

The Severn River, at a point south of Benfield Boulevard near Lakeland Road, drains approximately 32 square miles. Topography within this watershed is gently rolling.

While approximately 83% of the watershed of the Magothy River is developed, the Severn Run watershed is much less developed, with a substantial amount of it protected by the forested Severn Run Environmental Area.

Tributaries of the Magothy River occur along Alternatives 2 and 3, and near the intersection of Robinson Road and MD 2. These tributaries are categorized as Class I for water contact recreation and aquatic life.

Tributaries of the Severn River are located near the western and southern portions of the study area. Severn Run and its tributaries west of Veterans Highway (and thus west of the study area) are Class IV (Recreational Trout Waters). Approximately 4,000 trout are stocked annually in this stream from Veterans Highway upstream to Odenton. Instream construction is prohibited from March 1 to May 31 in Class IV waters.



East of Veterans Highway the Severn River and its tributaries are Class I. In-stream construction is prohibited from March 15 to June 15 in Class I waters.

The Maryland Department of the Environment describes water quality in the West Chesapeake Sub-Basin as "fair." Elevated bacterial and nutrient levels are due to urban and agricultural runoff, pumping station overflows and recreational boating activities. High bacterial levels have resulted in shellfish harvesting closures throughout the sub-basin. High nutrient levels result in algal blooms, which may cause fish kills (called "mahogany tide") in the Severn and the Magothy. High levels of suspended sediment are regularly caused by construction and agricultural activities.

Lake Waterford, approximately one mile downstream (east) of MD 2, is described in a report submitted by the Maryland Department of the Environment (MDE) to the EPA in 1988 in compliance with Section 305(b) of the Clean Water Act as eutrophic, with non-point urban runoff as the causative agent. Lake Waterford drains 5.1 square miles, of which 83% is developed, 2% is agricultural land, 12% is forested, and 2% is wetland.

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In the same report, 22 miles of the Severn River were monitored. The Severn is also described as impaired by elevated nutrients and bacteria levels caused by urban and natural runoff. The Severn River does not meet designated uses due to conventional and toxic pollutants. Eleven miles of the Severn did not meet fishable goals and one mile did not meet swimmable goals.

Eleven National Pollutant Elimination System (NPDES) and ground water permitted municipal discharges exist in the sub-basin, none within the study area.

Seventeen NPDES or ground water permitted industrial discharges exist in the sub-basin. All discharges are small (less than one million gallons per day) and most discharge to surface waters. The Anne Arundel County Fire Department Academy falls under the jurisdiction of NPDES (DP 0342) and is located within the Severn Run watershed west of Shipley's Choice.

Several small water impoundments occur in the vicinity of the project alternatives. The largest of these is approximately one acre in surface area and is located west of Brightwood Road. All of the artificial impoundments in the study corridor are

shallow.

A shallow beaver pond of approximately one acre is located near the intersection of Obrecht Road and Brookwood Road, in the northeast corner of the study area.

Several transient ponds, each less than one half acre, are located in an abandoned quarry northwest of Mission Street, between Jumpers Hole Road and MD 2.

**b. Groundwater**

Groundwater is water that percolates into soils and has not run off or been evapotranspired. This water is that portion of the hydrologic cycle that is the source of water for plants and for stream recharge. The volume and movement of groundwater are governed by porosity and permeability.

Although the majority of the study area is served by a public water system operated by the Anne Arundel County Department of Utilities, a review of Maryland Geological Survey technical publications indicates that there are approximately 23 wells within the study area. Most of the wells draw water from the Patapsco Formation, with the Patuxent, Magothy, and Cretaceous Formations providing water to the remaining wells. These formations consist of irregularly

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stratified layers of variegated gravel, sand, silt, and clay in varying proportion.

The reported groundwater levels range from 17 to 85 feet below the surface, with the depth in the majority of the wells exceeding 50 feet. Yields range from 4 gallons per minute (gpm) to 500 gpm.

Groundwater drawn within the study area is generally soft, with low mineral content, but locally may need treatment for excessive iron and acidity.

Anne Arundel County operates the Severndale wellfield located north of Benfield Road near Bendale Drive which is located within this project study area. These wells range from 200 feet to 600 feet in depth with the groundwater approximately 60 feet below the surface. These wells serve communities within the study area.

Severndale well number 4 is located on the south side of Benfield Road near Cyprus Lane. This well is located immediately adjacent to Benfield Boulevard.

#### **5. Aquatic Habitats**

Two portions of the Magothy River System are within the study area: the main stem of this river is located in the northeast corner of the study area and a tributary, Cattail Creek occurs

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in the southeast corner of the study area.

The Magothy River originates west of Brightwood Road approximately 5 miles upstream of Lake Waterford. For most of its length, the stream has a very flat gradient with areas of overbank ponding and forested wetlands. Within the study corridor it meanders through woodlands that stabilize streambanks, reducing erosion and sedimentation impacts.

The Severn River originates near Lake Marion, about 7.2 miles upstream (west) of Veterans Highway. The stream has a steeper gradient, faster current, and more highly dissected stream valleys than the Magothy. The densely forested Severn Run Environmental Area protects the stream for more than two thirds of its length. In addition, the presence of a naturally reproducing population of brook trout within Jabez Branch, which is located several miles south of the study area, of this stream system indicates cooler water temperatures, higher dissolved oxygen levels, and generally better water quality than that of the Magothy.

However, the fact that the brook trout population is confined to a small segment of a Severn Run tributary (Jabez Branch) indicates a habitat, water quality and/or temperature problem downstream in the study area.

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The Severn River and the Magothy River support anadromous fish populations (See letter from DNR in **Section VI Comments and Coordination**). In the Magothy, yellow perch, white perch, and herrings (alewives and possibly bluebacks) occur upstream to Lake Waterford Dam (which is located east of the study area). The same species occur in the Severn River upstream to Severn Run. Yellow perch and white perch occur in Severn Run from the Severn River upstream at least to Jabez Branch (west of Veterans Highway). Sampling procedures conducted in July of 1992 as part of this study in two tributaries to Severn River crossed by Benfield Road failed to show anadromous species.

#### **6. Floodplains**

The study area lies almost completely within the West Chesapeake Bay Area Sub-Basin, draining to the Magothy River and the Severn River. Brightview Drive/Obrecht Road, in the northern portion of the study area, is located near the divide between the West Chesapeake Bay Area Sub-Basin to the south and the Patapsco River Area Sub-Basin to the north. The extreme northern portion of the study area thus lies within the Patapsco River Area Sub-Basin, and drains to Marley Creek.



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The project area is located within an unincorporated area of Anne Arundel County that participates in the Federal Emergency Management Agency (FEMA), Flood Insurance Program. The 100-year and 500-year flood elevations for all water bodies have been established. Flood Insurance Rate Maps (FIRM), prepared by FEMA, show three 100-year floodplains in the study area: Magothy River (upstream of Lake Waterford) in the northeast corner of the study area; Cattail Creek in the southeast corner of the study area; and the Severn River along the southern portion of the study area. Figure III-6 shows the general location of the floodplains and Figures II-10 and II-11 show the floodplain limits in the vicinity of the alternatives under consideration.

## **7. Terrestrial Habitats and Wildlife**

### **a. Terrestrial Habitats**

Approximately 27% of the study area is forested. No large or significant trees were identified within the wetland areas. Additional field surveys will be conducted. Figure III-7 identifies the vegetative communities within the project study corridors.

The following forest types (as defined by the Maryland Department of State Planning) occur in the study area:

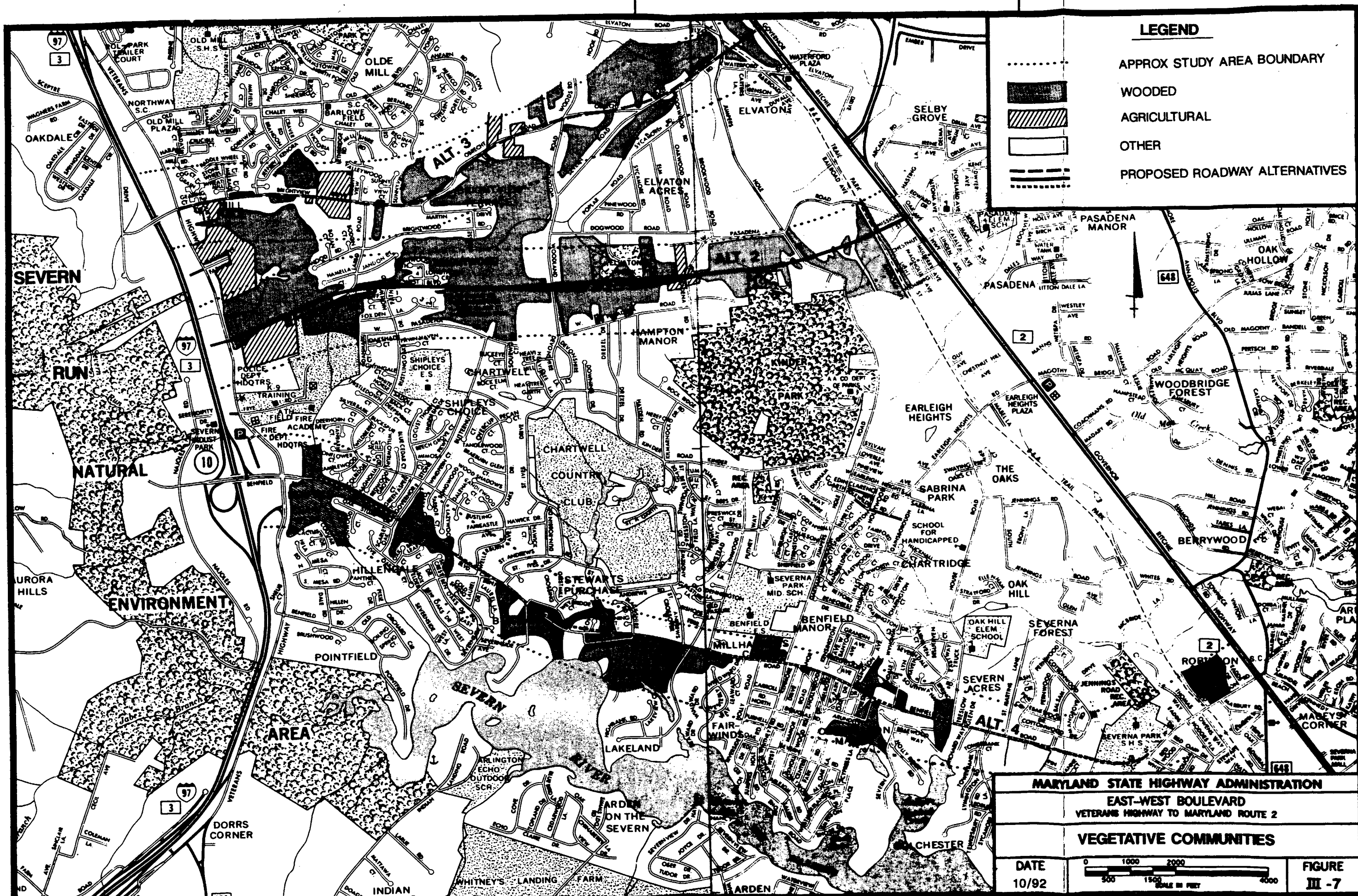
Type 35 - Bear Oak. Associates include pitch pine, white pine, chinquapin, scarlet oak, black oak, red oak, chestnut oak, black locust, red maple, sassafras, and black gum. This association occurs on drier sites following heavy logging or fires.

Type 36 - Chestnut Oak. Associates include scarlet, white, black, and post oaks; pitch pine, black gum, and red maple. This association is a climax community occurring on drier sites with thin, rocky, or sandy soils.

Type 38 - Shortleaf pine. Associates include white oak, southern red oak, black oak, Virginia pine, blackjack oak, black gum, and red maple. This is a sub-climax community often occupying old fields.

Type 41 - Shortleaf pine - white oak. Associates include southern red oak, red oak, post oak, blackjack oak, black gum, and hickories. This association immediately precedes oak-hickory climax types. It occupies sites with better quality soils.

Type 42 - Virginia pine. Associates include black oak, scarlet oak, white oak, chestnut oak, post oak, blackjack oak, black gum, and hickories. This association occupies dry sites and old fields. This



pioneer community is usually succeeded by oaks.

Type 50 - White oak. Associates include black oak, yellow poplar, and hickories. This is a climax community usually occurring on well drained, loamy soils.

Type 52 - Red oak (predominant). Chief associates include white oak, scarlet oak, black oak, chestnut oak, and yellow poplar. This is a climax community occurring in well drained uplands.

Type 59 - River birch - sycamore. Associates include red maple, black willow, and other moist site hardwoods. This association occurs in strips along streams.

Type 60 - Bottomland Hardwoods. Silver maple and American elm predominate. Silver maple is the indicator species. Chief associates include red maple, slippery elm, cottonwood, white and green ash. This forest type occurs on the silty soils of floodplains in the study area. This is a sub-climax type, usually succeeded by other hardwoods as the area drainage matures.

Type 77 - Red Gum - Yellow Poplar. Associates include red maple, white ash, and other moist site hardwoods. This forest type occupies moist sites exclusive of swampy

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areas. This forest type may be climax on less well drained areas.

Old fields occur in scattered locations within the study area. Old fields consist of once-cultivated or cleared land in varying stages of succession to forest. In the study area old fields are characterized by broomsedge, brome and panic grasses, goldenrod, Queen Ann's lace, bush honeysuckle, blackberries, and multiflora rose, often grading into Virginia pine, black locusts, or other pioneer associations.

**b. Wildlife**

Herbivorous species in the study area include white tail deer, mice, voles, chipmunks, squirrels, woodchucks, muskrats, rabbits, quail, and a variety of songbirds. Several of these species were seen during the July 1992 field studies.

Insectivorous species include shrews, moles, bats and a variety of songbirds.

Carnivorous species include weasels, mink, foxes, hawks and owls.

Omnivorous species include opossums, skunks and raccoons.

Upland woodlands support a diverse fauna of deer mice, chipmunks, squirrels, flying squirrels, shrews, opossums, woodpeckers,

blue jays, crows, vireos, towhees, tanagers, chickadees, and many other songbirds.

Bottomlands including floodplains support furbearers such as muskrats, occasional mink, and raccoons, as well as rabbits, shrews, moles, bats, kingfishers, waterfowl, and a great variety of songbirds.

Old fields support a varied faunal community. Rabbits, voles, skunks, red foxes, woodchucks, quail, many songbirds such as meadowlarks, bluebirds, robins, red-winged blackbirds, indigo buntings, etc. inhabit these areas.

**8. Threatened and Endangered Species**

Coordination with the U.S. Fish and Wildlife Service (See letter from USFWS in **Section VI Comments and Coordination**) indicates that one federally listed threatened plant species, the swamp pink (*Helonias bullata*), which grows only in wetlands, is known to occur in the general vicinity of the project. A field search in July of 1992 was made of each wetland in close proximity of the alternatives under consideration, and the swamp pink was not found.

Coordination with the Maryland Department of Natural Resources - Forest, Park, and Wildlife Service indicates that two State threatened rare plant species, climbing fern (*Lygodium palmatum*)

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(See letter from DNR in **Section VI Comments and Coordination**) and giant cane (*Arundinaria gigantea*), are known to occur in the project study area.

Both are wetland species. A field search in July of 1992 was made of each wetland in close proximity of the alternatives under consideration, and the climbing fern was not found. A small stand of giant canes was found approximately 500 feet south of Alternative 3 (Brightview Drive/Obrecht Road corridor).

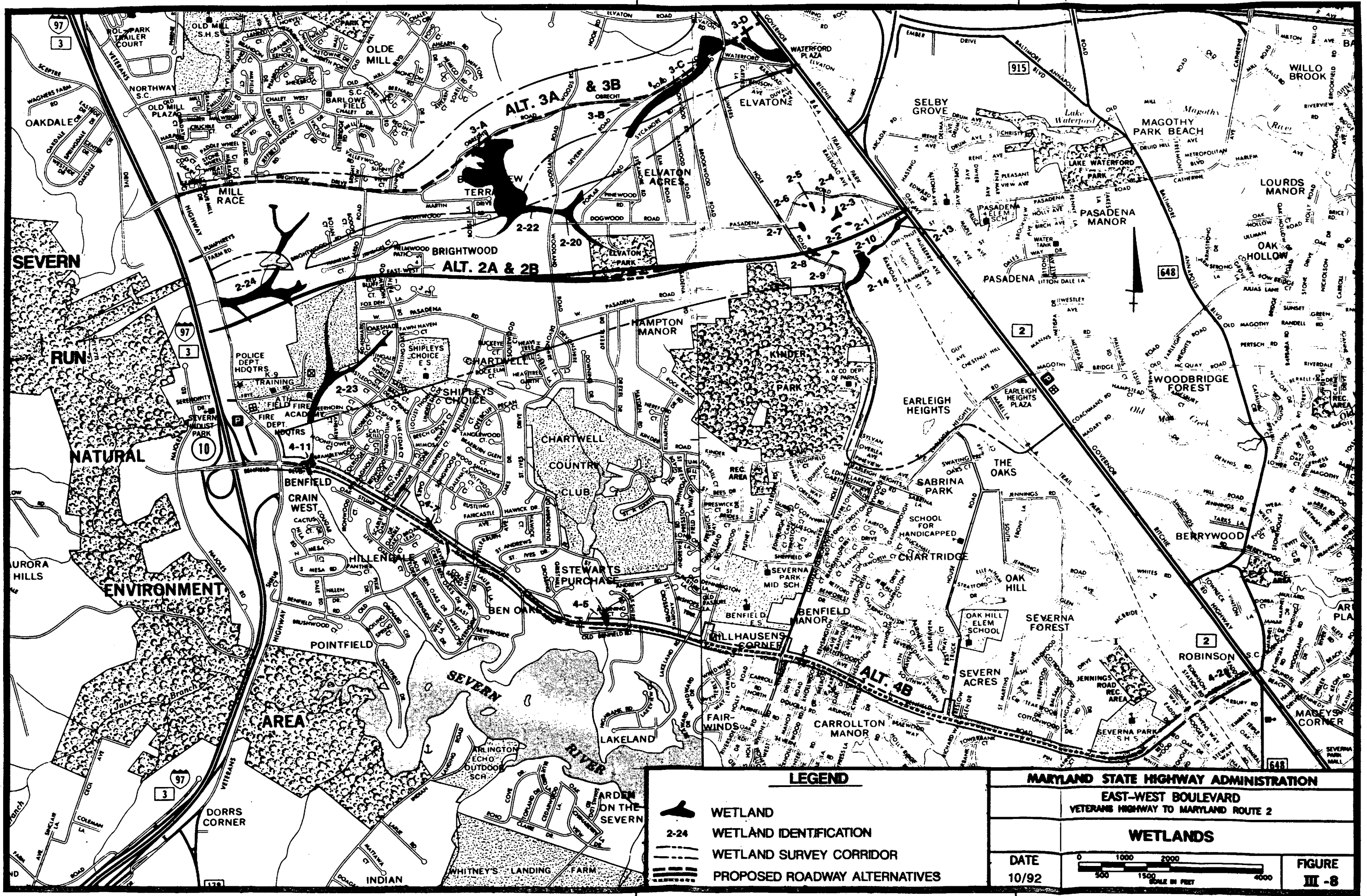
#### **9. Wetlands**

Wetlands in close proximity of each alternative were delineated in accordance with the 1987 Corps of Engineers Wetlands Delineation Manual, considering hydrologic indicators, soil probes, and vegetative community analyses.

Each wetland was classified in accordance with the U.S. Fish and Wildlife Service System of Cowardin et al. Wetlands are shown in Figure III-8 and the Alternatives Mapping (Figures II-4 through II-11).

Twenty-two wetlands were found within the survey boundaries. A summary of wetlands as to type, functions and value is given in Table III - 1 which is located near the end of this wetland description section. The value of these wetlands is based on professional judgement. The U.S. Army





**LEGEND**

- WETLAND
- WETLAND IDENTIFICATION
- WETLAND SURVEY CORRIDOR
- PROPOSED ROADWAY ALTERNATIVES

**MARYLAND STATE HIGHWAY ADMINISTRATION**

**EAST-WEST BOULEVARD**  
VETERANS HIGHWAY TO MARYLAND ROUTE 2

**WETLANDS**

DATE  
10/92

0 1000 2000  
500 1500  
SCALE IN FEET

FIGURE  
III - 8

Corps of Engineers concurred with these values and boundaries at the Jurisdictional Field Review which was held in August of 1992 (See Comments and Coordination Section). These wetlands have been numbered according to the alternative corridor in which they are located. For example, wetlands in the Alternative 3 corridor are numbered W3-X.

**Wetlands Within the Alternative 2 (Master Plan)  
Corridor**

WETLAND 2-1

Wetland 2-1 is located east of Jumpers Hole Road and north of Sta. 160, within the Magothy River watershed. This is an isolated palustrine emergent persistent wetland (PEM1A,C), in a low area of former sand/gravel quarry. Dominant vegetation includes wool-grass (*Scirpus cyperinus*), rice cutgrass (*Leersia oryzoides*), sedges (*Carex* spp.), and red maple (*Acer rubrum*). This wetland is supported primarily by runoff. The function of this wetland is for sediment trapping, habitat for salamanders, resting place for migrating waterfowl and its value is considered low.

WETLAND 2-2

Wetland 2-2 is located east of Jumpers Hole Road and north of Sta. 157, within the Magothy River watershed. This is an isolated palustrine emergent persistent wetland (PEM1A,C), in a low

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area of former sand/gravel quarry.

Dominant vegetation includes wool-grass (*Scirpus cyperinus*), cattails (*Typha latifolia*), rice cutgrass (*Leersia oryzoides*), sedges (*Carex* spp.), and red maple (*Acer rubrum*). This wetland is supported primarily by runoff. The function of this wetland is for sediment trapping, habitat for salamanders, resting place for migrating waterfowl and its value is considered low.

WETLAND 2-3

Wetland 2-3 is located east of Jumpers Hole Road north of Sta. 157 and north of W2-2, within the Magothy River watershed. This is an isolated palustrine emergent persistent wetland (PEM1A,C), in a low area of former sand/gravel quarry.

Dominant vegetation includes wool-grass (*Scirpus cyperinus*), cattails (*Typha latifolia*), rice cutgrass (*Leersia oryzoides*), sedges (*Carex* spp.), red maple (*Acer rubrum*), rushes (*Juncus effusus*) and sweetgums (*Liquidambar styraciflua*). This wetland is supported primarily by runoff. The function of this wetland is for sediment trapping, habitat for salamanders, resting place for migrating waterfowl and its value is considered low.

WETLAND 2-4

Wetland 2-4 is located east of Jumpers Hole Road north of Sta. 155, within the Magothy River watershed. This is an isolated palustrine emergent persistent wetland (PEM1A,C), in a low area of former sand/gravel quarry.

Dominant vegetation includes wool-grass (*Scirpus cyperinus*) and river birch (*Betula nigra*). This wetland is supported primarily by runoff. The function of this wetland is for sediment trapping, habitat for salamanders, resting place for migrating waterfowl and its value is considered low.

WETLAND 2-5

Wetland 2-5 is located east of Jumpers Hole Road north of Sta. 152, within the Magothy River watershed. This is an isolated palustrine emergent persistent wetland (PEM1A,C), in a low area of former sand/gravel quarry.

Dominant vegetation includes wool-grass (*Scirpus cyperinus*), rice cutgrass (*Leersia oryzoides*), sedges (*Carex* spp.), and red maple (*Acer rubrum*). This wetland is supported primarily by runoff. The function of this wetland is for sediment trapping, habitat for salamanders, resting place for migrating waterfowl and its value is considered low.

WETLAND 2-6

Wetland 2-6 is located east of Jumpers Hole Road north of Sta. 150 and north of W2-7, within the Magothy River watershed. This is a palustrine scrub-shrub broad-leaved deciduous wetland (PSS1A), in a low area of former sand/gravel quarry.

Dominant vegetation includes red maple (*Acer rubrum*) and river birch (*Betula nigra*). This wetland is supported primarily by runoff. The function of this wetland is for sediment trapping, habitat for salamanders, resting place for migrating waterfowl and its value is considered low.

WETLAND 2-7

Wetland 2-7 is located east of Jumpers Hole Road and north of Sta. 150, within the Magothy River watershed. This wetland consists of palustrine emergent persistent wetland (PEM1A,C) portions and Palustrine Open Water (POWZ), in a low area of former sand/gravel quarry.

Dominant vegetation includes wool-grass (*Scirpus cyperinus*), rice cutgrass (*Leersia oryzoides*), sedges (*Carex* spp.), rushes (*Juncus effusus*), and river birch (*Betula nigra*). This wetland is primarily supported primarily by runoff. The functions of this wetland include sediment trapping, habitat for salamanders,

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resting place for migrating waterfowl and wildlife habitat. Its value is considered low.

WETLAND 2-8

Wetland 2-8 is located east of Jumpers Hole Road at Sta. 149, within the Magothy River Watershed. This wetland consists of palustrine emergent persistent (PEM1A,C) portions and Palustrine Open Water (POWZ), in a low area of former sand/gravel quarry.

Dominant vegetation includes wool-grass (*Scirpus cyperinus*), rice cutgrass (*Leersia oryzoides*), sedges (*Carex* spp.), rushes (*Juncus effusus*), and river birch (*Betula nigra*). This wetland is supported primarily by runoff. The function of this wetland is for sediment trapping, habitat for salamanders, resting place for migrating waterfowl and its value is considered low.

WETLAND 2-9

Wetland 2-9 is located east of Jumpers Hole Road and south of Sta. 155, within the Magothy River Watershed. This is an isolated palustrine emergent persistent wetland (PEM1A,C), in a low area of former sand/gravel quarry.

Dominant vegetation includes wool-grass (*Scirpus cyperinus*), rice cutgrass (*Leersia oryzoides*), sedges (*Carex* spp.), red maple (*Acer rubrum*) and sweetflag (*Acorus calamus*). This

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wetland is supported primarily by runoff. The function of this wetland is for sediment trapping, habitat for salamanders, resting place for migrating waterfowl and its value is considered low.

#### WETLAND 2-10

Wetland 2-10 is located east of Jumpers Hole Road south of Sta. 160, within the Magothy River watershed. This is an isolated palustrine forested broad-leaved deciduous wetland (PFO1A), in a low area of former sand/gravel quarry.

Dominant vegetation includes wool-grass (*Scirpus cyperinus*), red maple (*Acer rubrum*) and river birch (*Betula nigra*). This wetland is supported primarily by runoff. The functions of this wetland include sediment trapping, habitat for salamanders, resting place for migrating waterfowl and wildlife habitat. Its value is considered low.

#### WETLAND 2-13

Wetland 2-13 is located south of Mission Street and west of MD 2, within the Magothy River watershed. This wetland consists of palustrine emergent persistent areas (PEM1C,E) and palustrine open water (POWZh).

Dominant vegetation includes sensitive fern (*Onoclea sensibilis*), rushes (*Juncus effusus*), sedges (*Carex* spp.), sweet pepper bush (*Clethra*



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alnifolia), and spicebush (*Lindera benzoin*). The functions of this wetland include food chain support, passive recreation, wildlife habitat, flood desynchronization, and nutrient retention. Its value is considered high.

#### WETLAND 2-14

Wetland 2-14 is located south of sta. 155-165 and west of W2-13 within the Magothy River watershed. This is a complex wetland consisting of palustrine emergent persistent areas (PEM1C,E) palustrine forested broad-leaved deciduous areas (PFO1A), and a large palustrine open water area (POW), the result of earlier beaver activity.

Dominant vegetation includes alders (*Alnus serrulata*), red maple (*Acer rubrum*), jewel weed (*Impatiens capensis*), sweetbay (*Magnolia virginiana*), black willows (*Salix nigra*), sweet pepper bush (*Clethra alnifolia*), cattails (*Typha latifolia*) narrow-leaved, sedges (*Carex* spp.), tearthumb (*Polygonum* spp), and wool-grass (*Scirpus cyperinus*). The functions of this wetland include food chain support, passive recreation, wildlife habitat, flood desynchronization, sediment trapping and nutrient retention. Its value is considered high.

WETLAND 2-20

Wetland 2-20 is located north of Dogwood Road and east of Woodland Road, within the Magothy River watershed. This is a well developed palustrine forested broad-leaved deciduous wetland (PF01A), located along a small meandering stream course.

Dominant vegetation includes red maple (*Acer rubrum*), silver maple (*Acer saccharinum*), elderberry (*Sambucus canadensis*), smooth alder (*Alnus serrulata*), and jewelweed (*Impatiens* spp.). The functions of this wetland include food chain support, passive recreation, wildlife habitat, flood desynchronization, and nutrient retention. Its value is considered high.

WETLAND 2-22

Wetland 2-22 is located west of Woodland Road, within the Magothy River Watershed. This is a well developed palustrine forested broad-leaved deciduous wetland (PF01A), located along a small meandering stream course.

Dominant vegetation includes red maple (*Acer rubrum*), silver maple (*Acer saccharinum*), elderberry (*Sambucus canadensis*), smooth alder (*Alnus serrulata*), and jewelweed (*Impatiens* spp.). The functions of this wetland include food chain support, passive recreation, wildlife habitat, flood desynchronization, sediment trapping and

nutrient retention. Its value is considered high.

WETLAND 2-23

Wetland 2-23 is located west of Rustling Oaks Drive, within the Severn River watershed. This is a well developed palustrine forested broad-leaved deciduous wetland (PF01A), located along a small meandering stream course.

Dominant vegetation includes black willow (*Salix niger*), red maple (*Acer rubrum*), alders (*Alnus serralata*), elderberry (*Sambucus canadensis*) and cattails (*Typha latifolia*), narrow-leaved. The functions of this wetland include food chain support, passive recreation, wildlife habitat, flood desynchronization, sediment trapping and nutrient retention. Its value is considered high.

WETLAND 2-24

Wetland 2-24 is located west of Brightwood Road and east of Veterans Highway, within the Severn River watershed. This wooded swamp is a well developed palustrine forested broad-leaved deciduous wetland system (PF01A).

Dominant vegetation includes black willow (*Salix nigra*), red maple (*Acer rubrum*), sweetbay (*Magnolia virginiana*), and rushes (*Juncus effusus*). The species are facultative or wetter. The functions of this wetland include food chain support, wildlife habitat, flood

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desynchronization, sediment trapping and nutrient retention. Its value is considered high.

**Wetlands Within the Alternative 3 Corridor (Brightview Drive/Obrecht Road)**

WETLAND 3-A

Wetland 3-A is the northernmost portion of W2-22, discussed previously. Located at Sta. 79+50± and 83+25±, it was identified separately during the Alternative 3 Corridor Wetland Survey.

WETLAND 3-B

Wetland 3-B is located west of Severn Road and south of Sta. 114 to 116±, within the Magothy River watershed. This is a small isolated palustrine forested broad-leaved deciduous wetland (PF01A).

Dominant vegetation includes black willow (*Salix niger*), red maple (*Acer rubrum*), and smooth alder (*Alnus serrulata*). The functions of this wetland include sediment trapping and nutrient retention, and it is supported by runoff. Its value is considered medium.

WETLAND 3-C

Wetland 3-C is located along Obrecht Road, east of Severn Road, at Sta. 119+50 to 141+50±, within the Magothy River watershed. This is a well developed palustrine broad-leaved deciduous wetland (PF01A,C,E), located along a small stream course.

The highly diverse dominant vegetation includes black willow (*Salix niger*), red maple (*Acer rubrum*), smooth alder (*Alnus serrulata*), sweet bay (*Magnolia virginiana*), sweet gum (*Liquidambar styraciflua*), duckweed (*Spirodela polyrhiza*), cattails (*Typha latifolia*) narrow-leaved cattails (*Typha angustifolia*), skunk cabbage (*Symplocarpus foetidus*) and elderberry (*Sambucus canadensis*). The functions of this wetland include food chain support, passive recreation, wildlife habitat, flood desynchronization, sediment trapping, active recreation, and nutrient retention. Its value is considered high.

WETLAND 3-D

Wetland 3-D is located west of MD 2 and east W3-C, within the Magothy River watershed. This somewhat degraded palustrine forested broad-leaved deciduous wetland (PF01A) is part of the W3-C System separated by Jumpers Hole Road.

Dominant vegetation includes red maple (*Acer rubrum*), green ash (*Fraxinus pennsylvanica*), tearthumb (*Polygonum sagittatum*), and jewelweed (*Impatiens* spp.). The functions of this wetland include sediment trapping, flood desynchronization and nutrient retention. Its value is considered medium.

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**Wetlands Within the Alternative 4 Corridor (Benfield Road)**

WETLAND 4-2

Wetland 4-2 is a sedimentation pond west of Eadds Road, within the Magothy River watershed. This isolated palustrine open water area (POWZh) is characterized by sedges (*Carex* spp.) and rushes (*Juncus effusus*). The function of this wetland is for sediment trapping and its value is considered low.

WETLAND 4-5

Wetland 4-5 is located west of Blackshire Road, within the Severn River watershed. This is a palustrine forested broad-leaved deciduous wetland (PF01A).

Dominant vegetation includes sycamore (*Platanus occidentalis*), red maple (*Acer rubrum*), and tulip poplar (*Liriodendron tulipifera*). Located along a small stream course, the functions of this wetland include food chain support, wildlife habitat, flood desynchronization, passive recreation, sediment trapping and nutrient retention. Its value is considered high.

TABLE III - 1  
WETLANDS WITHIN THE ALTERNATIVE 2 CORRIDOR

| WETLAND NO. | LOCATION                                     | COWARDIN CLASSIFICATION   | FUNCTION                           | VALUE |
|-------------|--|---|------------------------------------|-------|
| W2-1        | East of Jumpers Hole Road, North of Sta. 160 | Palustrine Emergent Persistent (PEM1A,C)                                  | Sediment Trapping Wildlife Habitat | LOW   |
| W2-2        | East of Jumpers Hole Road, North of Sta. 157 | Palustrine Emergent Persistent (PEM1A,C)                                  | Sediment Trapping Wildlife Habitat | LOW   |
| W2-3        | East of Jumpers Hole Road, North of Sta. 157 | Palustrine Emergent Persistent (PEM1A,C)                                  | Sediment Trapping Wildlife Habitat | LOW   |
| W2-4        | East of Jumpers Hole Road, North of Sta. 155 | Palustrine Emergent Persistent (PEM1A,C)                                  | Sediment Trapping Wildlife Habitat | LOW   |
| W2-5        | East of Jumpers Hole Road, North of Sta. 152 | Palustrine Emergent Persistent (PEM1A,C)                                  | Sediment Trapping Wildlife Habitat | LOW   |
| W2-6        | East of Jumpers Hole Road, North of Sta. 150 | Palustrine Scrub/Shrub Broad-leaved Deciduous (PSS1A)                     | Sediment Trapping Wildlife Habitat | LOW   |
| W2-7        | East of Jumpers Hole Road, North of Sta. 150 | Palustrine Emergent Persistent (PEM1A,C) and Palustrine Open Water (POWZ) | Sediment Trapping Wildlife Habitat | LOW   |

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TABLE III - 1  
WETLANDS WITHIN THE ALTERNATIVE 2 CORRIDOR

| WETLAND NO. | LOCATION                                     | COWARDIN CLASSIFICATION  | FUNCTION   | VALUE |
|-------------|--|--|--|-------|
| W2-8        | East of Jumpers Hole Road, at Station 149    | Palustrine Emergent Persistent (PEM1A,C) and Palustrine Open Water (POWZ)  | Sediment Trapping<br>Wildlife Habitat  | LOW   |
| W2-9        | East of Jumpers Hole Road, South of Sta. 155 | Palustrine Emergent Persistent (PEM1A,C)   | Sediment Trapping<br>Wildlife Habitat  | LOW   |
| W2-10       | East of Jumpers Hole Road, South of Sta. 160 | Palustrine Forested Broad-leaved Deciduous (PFO1A)   | Sediment Trapping<br>Wildlife Habitat  | LOW   |
| W2-13       | South of Mission Street, West of MD2         | Palustrine Emergent Persistent (PEM1C,E) and Palustrine Open Water (POWZh)   | Food Chain Support<br>Passive Recreation<br>Wildlife Habitat<br>Flood Desynchronization<br>Nutrient Retention                      | HIGH  |
| W2-14       | South of Sta. 155 to Sta. 165, West of W2-13 | Palustrine Forested Broad-leaved Deciduous (PFO1A), Palustrine Emergent Persistent (PEM1C,E) and Palustrine Open Water (POW) | Food Chain Support<br>Passive Recreation<br>Wildlife Habitat<br>Sediment Trapping<br>Flood Desynchronization<br>Nutrient Retention | HIGH  |
| W2-20       | North of Dogwood Road, East of Woodland Road | Palustrine Forested Broad-leaved Deciduous (PFO1A)   | Food Chain Support<br>Passive Recreation<br>Wildlife Habitat<br>Flood Desynchronization<br>Nutrient Retention                      | HIGH  |

**TABLE III - 1  
WETLANDS WITHIN THE ALTERNATIVE 2 CORRIDOR**

| <b>WETLAND<br/>NO.</b> | <b>LOCATION</b>  | <b>COWARDIN<br/>CLASSIFICATION</b>                       | <b>FUNCTION</b>  | <b>VALUE</b> |
|------------------------|--|--|--|--------------|
| W2-22                  | West of Woodland<br>Road                                     | Palustrine Forested<br>Broad-leaved Deciduous<br>(PFO1A) | Food Chain Support<br>Passive Recreation<br>Wildlife Habitat<br>Sediment Trapping<br>Flood Desynchronization<br>Nutrient Retention | HIGH         |
| W2-23                  | West of Rustling<br>Oaks Drive                               | Palustrine Forested<br>Broad-leaved Deciduous<br>(PFO1A) | Food Chain Support<br>Passive Recreation<br>Wildlife Habitat<br>Sediment Trapping<br>Flood Desynchronization<br>Nutrient Retention | HIGH         |
| W2-24                  | West of Bright-<br>wood Road, East<br>of Veterans<br>Highway | Palustrine Forested<br>Broad-leaved Deciduous<br>(PFO1A) | Food Chain Support<br>Passive Recreation<br>Wildlife Habitat<br>Flood Desynchronization<br>Nutrient Retention                      | HIGH         |

**TABLE III - 1**  
**WETLANDS WITHIN THE ALTERNATIVE 3 SURVEY CORRIDOR**

| WETLAND NO. | LOCATION   | COWARDIN CLASSIFICATION                                | FUNCTION  | VALUE  |
|-------------|--|--|---|--------|
| W3-A        | Sta. 79+50+ and Sta. 83+25+ (Northernmost portion of W-22) | Palustrine Forested Broad-leaved Deciduous (PFO1A)     | Food Chain Support<br>Passive Recreation<br>Wildlife Habitat<br>Sediment Trapping<br>Flood Desynchronization<br>Nutrient Retention                      | HIGH   |
| W3-B        | Sta. 114+00+ to Sta. 116+00                                | Palustrine Forested Broad-leaved Deciduous (PFO1A)     | Sediment Trapping<br>Nutrient Retention   | MEDIUM |
| W3-C        | Sta. 119+50+ to Sta. 114+50                                | Palustrine Forested Broad-leaved Deciduous (PFO1A,C,E) | Food Chain Support<br>Passive Recreation<br>Wildlife Habitat<br>Sediment Trapping<br>Flood Desynchronization<br>Nutrient Retention<br>Active Recreation | HIGH   |
| W3-D        | West of MD 2, East of W3-C                                 | Palustrine Forested Broad-leaved Deciduous (PFO1A)     | Sediment Trapping<br>Flood Desynchronization<br>Nutrient Retention  | MEDIUM |

**TABLE III - 1  
WETLANDS WITHIN THE ALTERNATIVE 4 SURVEY CORRIDOR**

| <b>WETLAND<br/>NO.</b> | <b>LOCATION</b>  | <b>COWARDIN<br/>CLASSIFICATION</b>                       | <b>FUNCTION</b>  | <b>VALUE</b> |
|------------------------|--|--|--|--------------|
| W4-2                   | West of Eadds Rd.  | Palustrine Open Water<br>(POWzh)                         | Sediment Trapping  | LOW          |
| W4-5                   | West of Buckshire<br>Road  | Palustrine Forested<br>Broad-leaved Deciduous<br>(PF01A) | Food Chain Support<br>Passive Recreation<br>Wildlife Habitat<br>Sediment Trapping<br>Flood Desynchronization<br>Nutrient Retention | HIGH         |
| W4-7                   | West of Faircastle<br>Avenue                                       | Palustrine Forested<br>Broad-leaved Deciduous<br>(PF01A) | Food Chain Support<br>Passive Recreation<br>Wildlife Habitat<br>Sediment Trapping<br>Flood Desynchronization<br>Nutrient Retention | HIGH         |
| W4-11                  | East of Veterans<br>Highway (Southern-<br>most portion of<br>W-23) | Palustrine Forested<br>Broad-leaved Deciduous<br>(PF01A) | Food Chain Support<br>Passive Recreation<br>Wildlife Habitat<br>Sediment Trapping<br>Flood Desynchronization<br>Nutrient Retention | HIGH         |

WETLAND 4-7

Wetland 4-7 is located west of Faircastle Avenue, within the Severn River watershed. This is a palustrine forested broad-leaved deciduous wetland (PFO1A).

Dominant vegetation includes black willow (*Salix niger*), sweet bay (*Magnolia virginiana*), red maple (*Acer rubrum*), and jewelweed (*Impatiens* spp). Located along a small stream course, the functions of this wetland include food chain support, wildlife habitat, passive recreation, flood desynchronization, sediment trapping and nutrient retention. Its value is considered high.

WETLAND 4-11

Wetland 4-11 is the southernmost portion of W2-23, discussed previously. It was identified separately during the Alternative 4 Wetland Corridor Survey.

**10. Coastal Zone Management and Chesapeake Bay  
Critical Areas**

Maryland's Coastal Zone Management Area boundary extends seaward to Maryland's three-mile jurisdiction in the Atlantic Ocean, and inland to the inland boundaries of the counties bordering the Chesapeake Bay, and the Potomac River up to the District of Columbia. Anne Arundel County is located within Maryland's Coastal Zone Management Area.

Within the Coastal Zone Management Area an "Area of Focus" has been identified for special attention. The Area of Focus within Anne Arundel County coincides with the 100 year floodplain bordering the tidal waters of the county. Areas of Focus are present within this project study area.

The Chesapeake Bay Critical Area boundary extends 1000 feet from the edge of tidal influence of Maryland's waters. The Benfield Boulevard corridor passes through the Chesapeake Bay Critical Area boundary associated with the Severn River (See Figure III-5). The remainder of the study corridors lie outside of the critical area.

**D. Existing Air Quality**

The East - West Boulevard Corridor Study is within the Metropolitan Baltimore Intrastate Air Quality Control Region. While only a portion of the region does not meet the primary standards for carbon monoxide (CO), the entire region is subject to transportation control measures, such as the Vehicle Emissions Inspections Program.

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

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**E. Existing Noise Conditions**

Thirty-seven air quality and noise sensitive areas (NSA's) have been identified in the East - West Boulevard study area. Descriptions of these sites are provided in Table III-2 and their locations are shown in Figure III-9. The locations of these receptors are also shown on the alternatives mapping. A copy of the Technical Noise Analysis Report will be available at the State Highway Administration, 707 North Calvert Street, Baltimore, Maryland 21202.

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

In an acoustical analysis, measurement of ambient noise levels is intended to establish the basis for impact analysis. The ambient noise levels, 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 substantially affect the assessment.



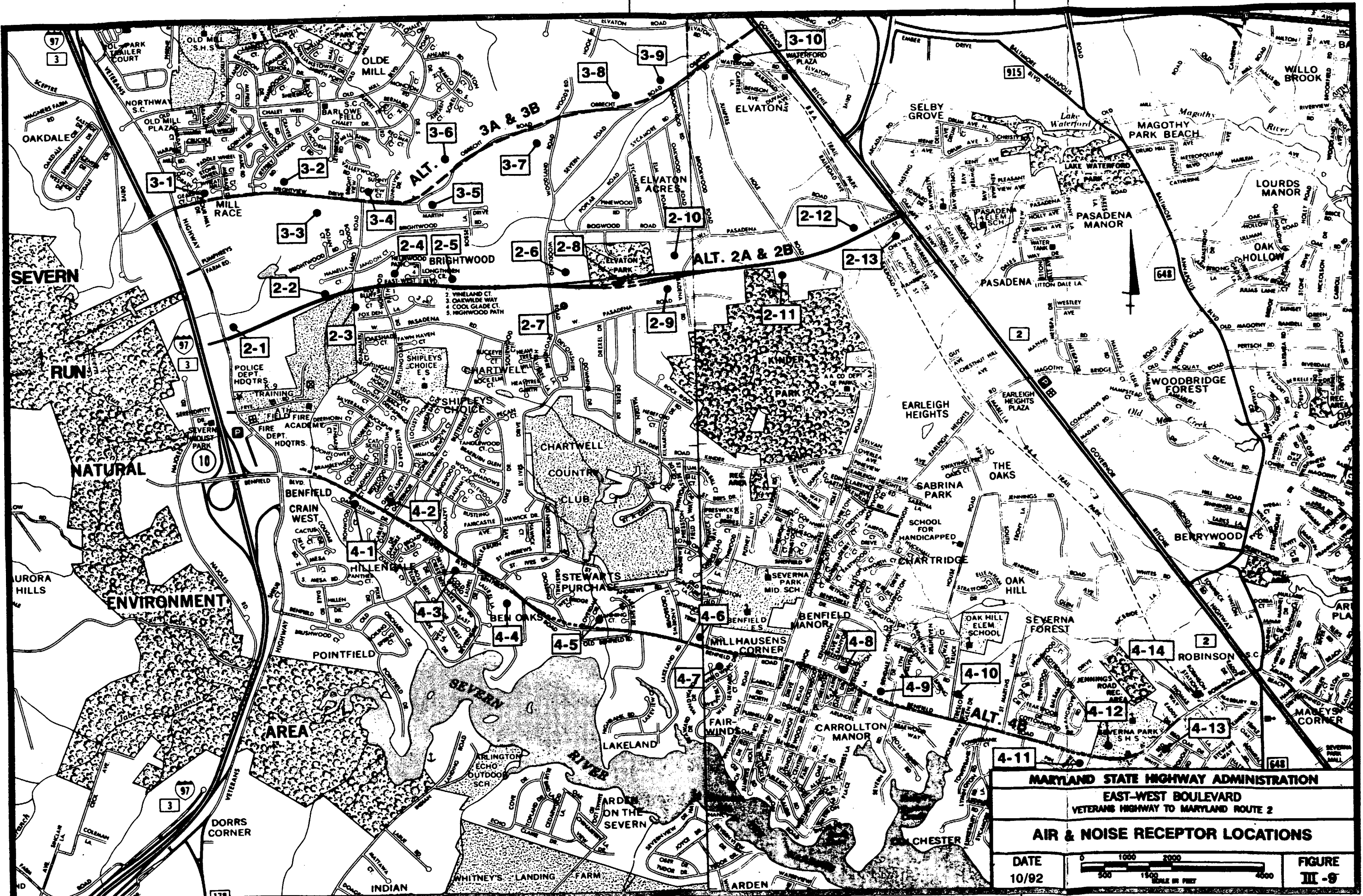


Table III - 2

## AIR QUALITY &amp; NOISE RECEPTOR DESCRIPTIONS

| SITE NO. | DESCRIPTION/LOCATION                               |
|----------|--|
| 2-1      | Residence, 2 Story Brick/Frame<br>Veterans Highway |
| 2-2      | Residence, 2 Story Brick/Frame<br>Larbo Road       |
| 2-3      | Residence, 2 Story Frame<br>Red Bluff Court        |
| 2-4      | Residence, 2 Story Frame<br>Cool Glade Court       |
| 2-5      | East - West Boulevard<br>Right-of-way              |
| 2-6      | Residence, 2 Story Frame<br>Woodland Road          |
| 2-7      | Residence, 1 Story Frame<br>Woodland Road          |
| 2-8      | Elvaton Park<br>Right-of-way                       |
| 2-9      | Residence, 1 Story Brick<br>West Pasadena Road     |

**Table III - 2**  
**AIR QUALITY & NOISE RECEPTOR DESCRIPTIONS (Cont'd)**

| SITE NO. | DESCRIPTION/LOCATION                               |
|----------|--|
| 2-10     | Residence, 1 Story Stone<br>West Pasadena Road     |
| 2-11     | Residence, 3 Story Frame<br>Bolm Road              |
| 2-12     | B&A Trail Right-of-way at<br>Light Street Avenue   |
| 2-13     | Residence, 1 Story Frame<br>Mission Street         |
| 3-1      | Residence, 2 Story Frame<br>Wheat Mill Court       |
| 3-2      | Residence, 2 Story Brick/Frame<br>Brightview Drive |
| 3-3      | Residence, 2 Story Brick/Frame<br>Brightview Drive |
| 3-4      | Residence, 2 Story Brick/Frame<br>Brightview Drive |
| 3-5      | Residence, 1 Story Frame<br>Martin Drive           |

**Table III - 2**  
**AIR QUALITY & NOISE RECEPTOR DESCRIPTIONS (Cont'd)**

| SITE NO. | DESCRIPTION/LOCATION                                       |
|----------|--|
| 3-6      | Residence, 2 Story Brick/Frame<br>Brightview Drive         |
| 3-7      | Residence, 1-1/2 Story Brick<br>Brightview Drive           |
| 3-8      | Residence, 2 Story Frame<br>Obrecht Road                   |
| 3-9      | Residence, 2 Story Frame<br>Obrecht Road                   |
| 3-10     | B&A Trail Right-of-way at<br>Obrecht Road                  |
| 4-1      | Residence, 2 Story Frame<br>Oak Stump Drive                |
| 4-2      | Residence, 2 Story Frame<br>Green Aspen Court              |
| 4-3      | Residence, Split Level Brick/Frame<br>Benfield Boulevard   |
| 4-4      | Severna Park United Methodist Church<br>Benfield Boulevard |

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Table III - 2

## AIR QUALITY &amp; NOISE RECEPTOR DESCRIPTIONS (Cont'd)

| SITE NO. | DESCRIPTION/LOCATION  |
|----------|---|
| 4-5      | Residence, Split level Brick/Frame<br>Cloverdale Circle       |
| 4-6      | Residence, 2 Story Brick<br>Benfield Boulevard                |
| 4-7      | Residence, 1 Story Frame<br>Windward Drive                    |
| 4-8      | Residence, Split Level Brick<br>Banyon Avenue                 |
| 4-9      | Severna Park Baptist Church<br>Benfield Boulevard             |
| 4-10     | Residence, Split Level Brick/Frame<br>Treslow Glen Drive      |
| 4-11     | Residence, Split Level Brick/Frame<br>Benfield Boulevard      |
| 4-12     | Severna Park High School Athletic Field<br>Benfield Boulevard |
| 4-13     | Residence, 1 Story Frame<br>Benfield Boulevard                |
| 4-14     | B&A Trail Right-of-way at<br>Robinson Road                    |

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It was determined that for most of the NSA's, the most typical noise conditions occur during the non-rush hour period (9:00 a.m. - 4:00 p.m.). During this time, the highest noise levels are experienced for the greatest length of time. Ambient levels ranged from 49 dBA to 69 dBA.

Calibration of the STAMINA 2.0 noise prediction model was performed utilizing simultaneous traffic data at three noise monitoring sites within the project corridor. Traffic counts taken during the 10-minute monitoring periods were adjusted to hourly traffic flows and input into the computer model accordingly.

The predicted Leq noise levels generated at the three sites as a result of this calibration exercise differed from their actual ambient noise levels by 1.0, 1.6, and 0.3 dBA.

These fluctuations in noise levels can be attributed to extraneous noise sources pertinent to the modeled site (i.e., low aircraft flyovers), as well as the site's specific location, topographical features, and natural and man-made components (i.e., buildings, ground cover, etc.), and are within the range of normal modeling calibration ( $\pm 3$  dBA).

## IV. ENVIRONMENTAL CONSEQUENCES

#### IV. ENVIRONMENTAL CONSEQUENCES

##### A. Social, Economic and Land Use Impacts

##### 1. Social Impacts

##### a. Residential Displacements and Relocations

An analysis of the possible displacements resulting from the proposed alternatives has been conducted by the State Highway Administration and is based on preliminary relocation and right-of-way studies. The preliminary right-of-way and relocation reports are available for review at the District 5 office of the Office of Real Estate, State Highway Administration, 138 Defense Highway, Annapolis, Maryland.

A summary of the displacements required for the proposed alternatives is shown in Table IV - 1.

Alternative 1 (No-Build) would not result in any residential displacements or acquisition of right-of-way from other properties in the project corridor.

Alternative 2A, Option 1 would require 2 residential displacements, while Alternative 2A, Option 3 requires 3 displacements. All of these affected families are owner-occupants under both options 1 and 3.



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Table IV - 1

## Displacements by Alternative

| Alternative    | No. of Displacements |
|----------------|----------------------|
| 1 (No-build)   | 0                    |
| 2A - Option 1* | 2                    |
| 2A - Option 2* | 10                   |
| 2A - Option 3* | 3                    |
| 2B - Option 1* | 2                    |
| 2B - Option 2* | 10                   |
| 2B - Option 3* | 3                    |
| 3A             | 11                   |
| 3B             | 12                   |
| 4B             | 0                    |

- \* Alternative 2A and 2B, all options, include Concept 1 for an alignment along the centerline of Mission Street. Concept 2 provides a northern shift through Mission Street and requires the acquisition of 1 additional residence and 1 vacant business. Concept 3 consists of a southern shift which requires an additional 2 residential displacements.

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Alternative 2A, option 2 would result in the displacement of 10 residential displacements, 7 of which are owner occupied.

Alternative 2B, Option 2 would result in 10 displacements (8 owner occupants), the largest number associated with the three Alternative 2B options. Option 3 would result in 3 residential displacements. Much like Alternative 2A, option 1, Alternative 2B Option 1 would result in two displacements, but similar to Alternative 2A, right-of-way impacts to Elvaton Park are the greatest of the three options. All of the displacements required with options 1 and 3 are owner occupants.

In both cases, (Alternatives 2A and 2B) the number of displacements increase as the alignment is shifted to the south to first minimize (Option 3), then avoid (Option 2) impacts to Elvaton Park.

The estimate of the number of displacements with Alternatives 2A and 2B (all options) incorporate Concept 1 for an alignment along Mission Street. Concept 2, the northern shift, would require displacement of an additional residential and a vacant business. Concept 3, which includes a southern shift, would require 2 additional

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residential displacements (See Table IV-1).

Alternative 3A would result in 11 displacements, 10 of which are owner occupied. Alternative 3B would require 12 residential displacements, 10 of which are owner occupants. Most of the same residences are affected by either Alternative 3A or 3B.

Alternative 4B includes restriping the existing pavement along Benfield Boulevard as a four-lane undivided highway (See Figure II-2). In one area in the vicinity of Laurel Road, the existing pavement would be widened ten feet within the existing right-of-way. However, no displacement of residences along Benfield Boulevard would be required.

Affected families can generally be considered to be middle income families. One potential handicapped displacement may be located on Mission Street (Alternatives 2A and 2B, all options). With each of the build alternatives and their various options, it is unknown if specific displacements affect elderly or minority individuals. However, based on census data for the areas in which these displacements are located there is a small possibility that some of the affected families may be elderly or minority.

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The displacements required under each of the alternatives and options are depicted on the mapping for each alignment in **Section II - Alternatives Considered** of this document.

Families and individuals displaced by the proposed project would be relocated in accordance with the provisions of the **"Uniform Relocation Assistance and Land Acquisition Policies Act of 1970"**, as amended by the **"Surface Transportation and Uniform Relocation Assistance Act of 1987"**. A summary of the State's relocation assistance program is located in **Appendix B** in the rear of this document.

The relocations would be satisfactorily completed within a 12-24 month period and in a timely, orderly and humane manner. The required acquisitions can be accomplished with minimal impact to the economic well being of those affected or the areas into which they would move.

A survey of the local real estate rental and sales market in northern Anne Arundel County (Central Maryland Multiple Listing Service, Anne Arundel County region) indicates that there is sufficient decent, safe and sanitary comparable replacement housing for the displaced families and individuals.

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"Housing As A Last Resort" may be required to provide decent, safe and sanitary replacement housing for affected tenant families. Comparable rental properties in private homes may not be readily available in the immediate area. There would be no adverse impact on the neighborhoods into which the affected families would move. No significant change in population density or distribution is required. No other federal, state or local projects are foreseen that would affect the supply and availability of needed replacement housing.

In addition to the required displacements, strip right-of-way acquisition is required from 33 to 109 properties in two of the three study corridors (Master Plan alignment and Brightview Drive/Obrecht Road) and ranges from 8.5 acres to 36.0 acres depending on the alternative and option selected. No additional strip right-of-way is required along Benfield Boulevard with Alternative 4B or for the No-Build Alternative. Table IV-2 illustrates the right-of-way requirements for each of the alternatives and options. Several of the affected properties contain barns or sheds which must either be moved or taken down.

**Table IV - 2**  
**Right-of-way Requirements by Alternative**

| <b>Alternative</b> | <b>Acreage of<br/>Right-of-way*</b> |
|--------------------|-------------------------------------|
| 1 (No-build)       | 0                                   |
| 2A - Option 1      | 36.0                                |
| 2A - Option 2      | 28.5                                |
| 2A - Option 3      | 35.3                                |
| 2B - Option 1      | 36.0                                |
| 2B - Option 2      | 28.5                                |
| 2B - Option 3      | 35.3                                |
| 3A                 | 18.5                                |
| 3B                 | 18.5                                |
| 4B                 | 0                                   |

\* Revertible easement areas not included and vary by Alternative and option.

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**b. Effects on Minorities, Elderly or Handicapped People**

Elderly or minority specific displacements have not been identified for any of the alternatives or options. However, 1990 census data for the project area indicates that 6% and 11% of the population in the study area are minorities and elderly respectively. There is a small probability that some of the required displacements may involve these individuals.

The concentration of elderly and handicapped people at the nursing home on Truck House Road would not be affected by any of the alignments, particularly improvements on Benfield Boulevard under Alternative 4B. Two concentrations of minority residences were identified in the vicinity of the Master Plan alignment (Alternatives 2A or 2B), but neither area would be directly affected. A potential handicapped displacement has been identified on Mission Street which may be affected under Alternatives 2A and 2B (all options and concepts).

**c. TITLE VI STATEMENT**

"It is the policy of the Maryland State Highway Administration to ensure compliance with the provisions of Title IV 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 provisions of relocation advisory assistance. This policy has been incorporated into all levels of the highway planning process in order that proper consideration 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."

**d. Disruption of Neighborhoods and Communities**

West of Elvaton Park, the Chartwell and Shipley's Choice subdivisions have been developed on both sides of the corridor in which portions of East-West Boulevard is either currently located, under construction, or identified in the Master Plan for future construction (Alternative 2A and 2B, regardless of option). This alignment is shown on the Anne Arundel County Master Plan for the area and development has proceeded in consideration of this alignment. Improvements in the Master Plan alignment corridor would not affect connecting north-south roads, such



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as Governor Stone Parkway, which provide connections between areas north and south of East-West Boulevard. As such, improvements in this corridor (Alternatives 2A or 2B and their various options) would not disrupt the integrity or cohesion of neighborhoods or cause changes in patterns of social interaction and behavior.

East of Elvaton Park, Alternatives 2A and 2B (regardless of option) cross through less intensively developed areas where housing is more dispersed. In this area, the alignments follow the Master Plan Alignment through generally undeveloped land, a large portion of which is the abandoned sand and gravel pit.

Residential development is concentrated to the north (Elvaton Acres). With most of the Elvaton community situated to the north of the alignments, disruptions to neighborhood integrity or cohesion should not occur. In addition, connecting north-south roads, such as Woodland and Jumpers Hole Roads provide access between areas on either side of the alignments.

At two other locations where the alignments cross through residential areas (Jumpers Hole Road and West Pasadena Road), residential development has occurred along

these winding roads and the alternatives cross in a perpendicular manner. Although there will be residential displacements (See Alternatives mapping), it does not seem that any of the organization of these communities would be interrupted. Consequently, impacts to neighborhood integrity and cohesion are not expected to occur in these areas. However, several residential displacements would occur under Alternative 2A and 2B (all options).

At the eastern terminus of Alternatives 2A and 2B (all options), the alignments pass through a small neighborhood centered on Mission Street. Traffic on this street would substantially increase changing the character of this residential enclave which, although it borders busy MD 2 (Ritchie Highway), now carries very little traffic. Here, the integrity and cohesion of this small neighborhood would be disrupted and increasing traffic volumes would result in changes to patterns of social interaction and behavior among the residents. This situation could also create conditions where ingress and egress from residential driveways along Mission Street may become more difficult and unsafe, because of the additional traffic volumes.

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Concepts 2 and 3 associated with Alternatives 2A and 2B (all options) displace residences on one side of Mission Street or the other. These shifts result in one or two more residential displacements than if the alternative were to utilize Mission Street. However, the problems associated with dividing or disrupting the social patterns of this small community are minimized. Patterns of social interaction would remain on whichever side of Mission Street that is not used for the proposed alignment.

Alternatives 3A, 3B and 4B would not disrupt or divide any neighborhoods or communities since these improvements generally occur along either existing Brightview Drive/Obrecht Road or Benfield Boulevard and residential development in these corridors is situated either along these roads or to both sides.

With the four lane alternatives the existing pavement width would be increased. This could have some effect on the interaction of neighborhoods located on either side of the roadways.

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The No-Build Alternative would also not affect neighborhood integrity and cohesion since residential development along the two existing east-west corridors in the study area (Benfield Boulevard and Brightview Drive/Obrecht Road) is situated to either sides of the roads.

Trucks currently utilize Benfield Boulevard and Brightview Drive/Obrecht Road; consequently, truck traffic associated with these roads under Alternatives 3A, 3B and 4B would not be out of character with the present situation. Truck traffic could increase, though, due to improvements in the carrying capacity of these roads. However, the intent of this corridor study is to address the local need and not to provide a regional east-west connection.

With Alternatives 2A and 2B (all options), truck traffic would be introduced in the areas in which the new alignment would be located. This truck traffic and perceived noise increase may be seen as a disruptive effect to homes in the Shipley's Choice and Chartwell subdivisions and in other residential areas where the alignment crosses Jumpers Hole and West Pasadena Roads.

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In the No-Build condition, truck traffic would continue to utilize Benfield Boulevard and Brightview Drive/Obrecht Road as their primary east-west routes in this area.

**e. Access To Community Facilities and Services**

Regardless of the build alternative, improved traffic capacity for traffic moving in an east-west direction would help improve access for those wishing to utilize services and facilities both in the study area and in the Veterans Highway/I-97 and MD 2 corridors. These capacity improvements, particularly Alternative 2A & B (all options) also improve access to designated growth areas in the area north of the Benfield Boulevard corridor.

7 Alternatives 2A and 2B (all options) and Alternatives 3A and 3B also divert traffic off of Benfield Boulevard which results in improved access in this corridor. The provision of an additional east-west crossing (Alternatives 2A and 2B) would reduce congestion and travel times along Benfield Boulevard, Brightview Drive/Obrecht Road and other local roadways by splitting the traffic between three roadways. These alternatives would also accommodate east-west trips by local residents in the Alternative 2 corridor

without placing additional traffic demands on other local roads.

With Alternatives 2A and 2B (all options) the intersection with West Pasadena Road would be modified by providing a cul-de-sac at the northern approach to the proposed alignment. The southern approach would tie into the alignment with a T-intersection. This change is consistent with County planning for this roadway and would restrict through traffic from traversing the residential area in which the road is located.

Residents located near the proposed cul-de-sac would have less than one mile of additional travel added to their average trip within the area. However, with low density development in this area, not many people would be affected. In addition, these residents would enjoy the benefits of reduced traffic volumes in front of their homes.

Alternatives 3A and 3B would intersect the county's proposed relocation of Jumpers Hole Road (See Figure II-10 and 11). However, access through this area would not be substantially modified nor result in circuitous travel. Driveway intersections would also be modified, but again, substantial changes in access are not anticipated.

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With all of the build alternatives, private driveways now intersecting an existing roadway would be connected into the proposed roadway. However, if a four lane facility is selected, these entrances would function as right-in, right-out access points. Vehicles would have to move to the next median opening and U turn to travel in the opposite direction.

The improvements envisioned under all the build alternatives would also enhance the effectiveness of emergency services. Alternatives 2A and 2B (all options), in particular, provide improved access into the region sandwiched between the Brightview Drive/Obrecht Road and Benfield Boulevard corridors. This improved access, in turn, benefits the provision of emergency services by shortening response times to the interior of this area and providing a more direct route, particularly since a new fire station is to be constructed in this area. Capacity improvements would reduce congestion, particularly during peak hour periods, which could improve the response times of emergency vehicles.

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These same benefits are not true with the No-Build condition. Although Anne Arundel County has not indicated any major problems with current emergency vehicle access, during peak hour periods traffic congestion may hinder response times. This condition would continue under the No-Build condition and would worsen as traffic volumes increase.

The Anne Arundel Police Department has indicated that any roadway improvements or the construction of new roads in the study area would be beneficial (See Section VI for correspondence).

The Anne Arundel County Fire Department has indicated that all of the build alternatives would enhance emergency equipment response times. They have determined that Alternative 2 would have the least impact on fire department response times during construction, and that if Alternatives 3 or 4 were selected, response times would be hindered during construction, but would be enhanced after completion of the project.

The Fire Department also expressed concern about the use of a median associated with the four lane alternatives. The department feels that while this is not an immediate problem with the current access



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points, it may be a future concern due to the projected growth of the area and the new streets that may intersect these alternatives. The Anne Arundel County Fire Department recommends that if future streets intersect the four lane Alternative 2 alignment, crossovers be provided for access from the east or west-bound travel lanes (See Section VI for correspondence).

**f. Public Parks and Recreational Areas**

Alternatives 1 (No-Build) and 4B would not require any property from publicly owned park or recreational resources in the study area. Robinson Road currently crosses the Baltimore and Annapolis (B&A) Trail. However, since improvements associated with Alternative 4B would end just east of Evergreen Road, use of the trail by hikers and cyclists would not be altered by this alternative (See Figure I-1).

Alternatives 3A and 3B cross the B&A Trail south of the current Elvaton Road intersection with the Trail. Alternatives 2A and 2B, regardless of option, also cross the Trail at a new intersection opposite Mission Street.

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A number of intersecting roads currently cross the Trail with at-grade crossings throughout its length. It is not anticipated that an additional intersection under any of these alternatives would hinder use of the facility by hikers and bikers.

Appropriate signing and marking of the new crossing would help to ensure that conflicts between trail users and motorists are minimized. Impacts to the B&A Trail are described in more detail in the **Section 4(f) Evaluation** located in **Section V** of this document.

Alternatives 2A and 2B (Options 1 and 3) would affect Elvaton Park on the south side. Option 1, with either alternative, has the most impact on the facility and directly affects a ballfield in the southeast quadrant of the park. Option 3 is a minimization alignment associated with Alternatives 2A and 2B, where the alignment would be shifted slightly to the south. Although the impacts to the ballfield are eliminated, the south corners of the park are impacted. However, no active recreational facilities would be impacted under Option 3. Alternatives 2A or 2B (Option 2) and Alternatives 3A or 3B do not affect Elvaton Park. Impacts to this resource

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are also addressed in more detail in the Section 4(f) Evaluation in Section V of this document.

None of the proposed alternatives and options would affect Kinder Park, the Severn Run Natural Environment Area or any publicly owned recreational areas associated with public schools in the study area.

**g. Farms**

Alternatives 1, 3A, 3B and 4B would not affect any working farms. Alternatives 2A & B (all options) would pass through several cultivated fields on the west side of the study area, but these areas are either planned to be developed for residential development or are leased from the Anne Arundel Police and Fire Departments. These agricultural areas can continue to be used for such purposes, outside of the proposed right-of-way, until these parcels are either developed or utilized for other purposes by the Police and/or Fire Departments.

**h. Visual Impacts**

Although the improvements would alter the visual environment, commercial and residential development along Benfield Boulevard and Robinson Road, Brightview Drive/Obrecht Road,

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and the existing portion of East-West Boulevard already shape the visual quality of the project corridors. The proposed alignments have been developed to adhere as best as possible to the neighborhood theme of the corridor.

Other areas along the portions of the Master Plan alignment (unconstructed Alternatives 2A & 2B all options) contain residential development along secondary roads or are planned for future residential subdivision activity.

Consequently, under any of the alternatives, the proposed improvements would be compatible with a developed suburban landscape.

## **2. Effects on Water and Sewer Service**

All alternatives would require the crossing of a number of existing water and sewer lines. This a common aspect of road construction and all crossings and pipeline relocations would be fully coordinated with the Anne Arundel County Public Works Department.

During construction there could potentially be short-term localized loss of service. However, the time frame of this loss of service would be in hours, not days or weeks. Long-term losses in

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water and sewer service are not expected for any areas that currently have public water and sewer systems.

As stated previously, there are several older communities within the Brightview Drive/Obrecht Road and Alternative 2 corridors that utilize wells and septic systems. These systems have not been identified at this time. If they are affected and can not be relocated or replaced, these residences may be considered additional displacements.

### **3. Economic Impacts**

#### **a. Business Displacements and Relocations**

Alternative 2B (all options and Concepts 1 and 2) results in the displacement of one vacant business site at the intersection of Mission Street and MD 2. This site was last used as a seafood retailer, but that business has since vacated the building. Alternatives 2A and 2B (all options) affect a business operated out of an office trailer. This trailer is situated on a residential parcel and may simply be moved to another location on the property. No business displacements are associated with Alternatives 3A, 3B and 4B.

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**b. Effects on the Local and Regional Business Community**

The provision of an improved east-west crossing in this area of Anne Arundel County, under any of the build alternatives, could have the effect of promoting access to and from businesses in the MD 2 and Veterans Highway corridors as well as businesses throughout the region. This improved access would benefit both consumers and the providers of the goods and services.

The businesses located along Benfield Boulevard generally serve the surrounding neighborhoods and communities and are more locally oriented. They are not dependent on through traffic. The diversion of through traffic may improve access to these businesses, particularly during peak hour periods. In addition, the diversion of additional traffic onto an improved Brightview Drive/Obrecht Road, as proposed under Alternatives 3A and 3B, may benefit and increase patronage to businesses scattered along this corridor.

The same is not true of Alternative 4B as through traffic is not diverted off of Benfield Boulevard. Although additional capacity would be provided under this

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alternative, increasing traffic volumes could hinder access to this local commercial area.

Under the No-Build condition, increasing congestion along Benfield Boulevard would also interfere with access to the aforementioned local commercial area, particularly during peak hour periods.

**c. Effects on the Tax Base**

Alternatives 2A and 2B (all options), and to a lesser extent Alternatives 3A and 3B, provide the necessary roadway improvements that support the County's plans to develop the study area with additional residential uses. In turn, this additional subdivision activity results in positive effects on the County's assessable tax base and taxes associated with the construction industry and their workers.

The Benfield Boulevard corridor is generally developed and improvements along this road, as envisioned under Alternative 4B, would not as easily support additional growth planned by the County to the north.

No tax benefits would accrue to the County under the No-Build Alternative.

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4. Land Use and Land Use Planning

Alternatives 2A and 2B (all options) are consistent with the Anne Arundel County General Plan (1978, as amended in 1986) (Plan), as the alignments associated with these alternatives are shown in the Plan for an improved east-west connection between MD 2 and Veterans Highway/I-97.

These alternatives would also provide the necessary roadway infrastructure to support existing and planned development as envisioned by the County for the study area in the Plan. This alignment would support this planned development without adding traffic to the congested roadways in the study area. Anne Arundel County through the development of their Master Plan/General Plan has determined that a local roadway that connects Veterans Highway with MD 2 would be the most appropriate facility to handle development in the study area.

These alternatives are also consistent with the existing location of a portion of East-West Boulevard which has been built as part of the Shipley's Choice subdivision. As mentioned previously, the developer is currently constructing an extension of the existing East - West Boulevard.

Alternatives 1, 3A, 3B and 4B are therefore not consistent with the Plan's goals and objectives for the study area.



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**5. Transportation**

This project would provide additional traffic capacity and improved roadway geometrics for the east-west direction between the MD 3 (I-97) and MD 2 (Governor Ritchie Highway) transportation corridors. A more detailed discussion of the levels of service and average daily traffic estimates that would occur as a result of this project is provided in Section I - Need for the Project of this document.

**6. Impacts to Pedestrians, Bicyclists and Transit**

Alternatives 2A (all options) and 3A provide for 10-foot shoulders on the outside of each travel lane, which can safely accommodate pedestrians and bicyclists. Alternatives 2B (all options) and 3B include provisions for a sidewalk behind the curb along the entire length of their alignment, which too, can safely accommodate non-vehicular traffic.

The restriping of Benfield Boulevard as a four-lane facility under Alternative 4B reduces the amount of shoulder area along this roadway between Veterans Highway and east of Jumpers Hole Road. Consequently, non-vehicular traffic would not be as easily or as safely accommodated as they are under current conditions. East of Jumpers Hole Road, the sidewalk along Benfield Boulevard would remain in place; west of the Benfield Road/Benfield Boulevard

merge, an existing shoulder along this four-lane section would also remain under Alternative 4B. In these sections, non-vehicular traffic would have a safe means of travel in this corridor.

All of the build alternatives, except Alternative 4B, cross the B&A Trail in a perpendicular fashion. A number of roadways already intersect the Trail along its length. Examples within the study areas include Evergreen, Robinson and West Pasadena Roads. The addition of another crossing, properly signed and marked and with a similar typical section, would not change the situation to which hikers and bikers on the Trail are now accustomed, that is, to cross busy roadways along the Trail. The selection of any of these alternatives would not affect hiker/biker use of the Trail.

Under the No-Build condition, shoulders and sidewalks accommodate bicyclists and pedestrians, but increasing volumes of traffic and congestion along Benfield Boulevard could compromise safety in this area. In addition, Brightview Drive/Obrecht Road would remain as a substandard roadway lacking shoulders which reduces safety for non-vehicular traffic. This situation is compounded by the fact that as traffic increases on Benfield Boulevard, the Brightview Drive/Obrecht Road corridor could experience overflow traffic growth.

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This project intersects with MD 2 and Veterans Highway which are currently served by transit bus service. This bus network would eventually provide service to the light rail system in Glen Burnie. In addition, park and ride lots are located near the termini of this project.

**B. Cultural Resources Impacts**

**1. Historic Standing Structures**

The Earleigh Height's Store, Post Office, and Station, which is eligible for the National Register of Historic Places, is located over three quarters of a mile from any of the alternative corridors. Therefore, this project would have no effect upon this site (See letter from the Maryland Historical Trust (MHT) in Comments and Coordination Section).

**2. Archeological Sites**

The results of Phase I archeological survey that was completed for this project did not identify any historic or prehistoric archeological resources on or eligible for the National Register of Historic Places (See letter from MHT in Comments and Coordination Section). However, several parcels remain untested due to access problems.

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Further Phase I investigations may be warranted within the selected alignment, in order to complete the identification and evaluation of archeological resources. This testing if required would be completed once a selected alternative is identified.

**C. NATURAL ENVIRONMENTAL IMPACTS**

**1. Effects on Topography, Geology, and Soils, Including Prime Farmland Soils**

Alternative 2 is located primarily on new alignment and thus would have the largest impact on topography and geology. Even so, its impact would be relatively small, with the maximum cut being 20'± feet and the maximum fill being 22'± feet.

Alternative 3 involves the realignment and widening of Brightview Drive/Obrecht Road, and thus its impact would consist of regrading along an existing roadway.

Alternative 4 consists of isolated improvements along Benfield Boulevard, and thus its impact on topography and geology would be the smallest of the build alternatives.

Table IV - 3 shows the area that would be disturbed by each of the build alternatives.

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**TABLE IV - 3**  
**SUMMARY OF SOILS IMPACTS**

| ALTERNATIVES                   | DISTURBED AREA<br>(acres) | FARMLAND SOILS<br>(acres) |                        |
|--------------------------------|---------------------------|---------------------------|------------------------|
|                                |                           | Prime                     | Statewide<br>Important |
| 1. No Build                    | 0                         | 0                         | 0                      |
| 2. Master Plan Alignment       |                           |                           |                        |
| 2A - Option 1                  | 34.73                     | 1.48                      | 7.23                   |
| 2A - Option 2                  | 34.60                     | 2.00                      | 8.45                   |
| 2A - Option 3                  | 35.93                     | 1.45                      | 7.97                   |
| 2B - Option 1                  | 37.42                     | 1.49                      | 7.63                   |
| 2B - Option 2                  | 36.81                     | 1.96                      | 8.99                   |
| 2B - Option 3                  | 37.48                     | 1.50                      | 8.56                   |
| 3. Brightview Dr./Obrecht Road |                           |                           |                        |
| 3A                             | 27.66                     | 0                         | 12.31                  |
| 3B                             | 28.27                     | 0                         | 12.70                  |
| 4. Benfield Blvd.              |                           |                           |                        |
| 4B                             | 0.63                      | 0                         | 0                      |

Each of the proposed build alternatives would affect soils through displacement and/or erosion. Displacement impacts to soils would occur due to cuts which would remove much or all of the soil profile, and fills which would bury soils in place. Displacement impacts would be long-term effects.

There are a few scattered areas along Benfield Boulevard and Brightview Drive/Obrecht Road that have severe erosion potential. However, none of the proposed alternatives would impact these areas.

All of the build alternatives would result in the potential for soil erosion and sedimentation. Erosion and sedimentation impacts from the project would be generally short-term, construction related effects, and would be expected to be minor in nature. Measures to mitigate these effects include structural, vegetative and operational methods. These methods would be developed as part of the Sediment and Erosion Control Plan for this project which would be submitted to the Maryland Department of the Environment for approval.

The impact to prime and statewide important farmland soils are summarized in Table IV - 3. Alternative 3 and 4 would have no effect upon prime farmland soils. Alternative 2 would impact between 1.5 and 2 acres of prime farmland soils depending on which option and alternative is selected. These areas are planned for future residential

development.

Coordination has been undertaken with the USDA, Soil Conservation Service through submission of the Farmland Conversion Impact Rating Form, as required by the Farmland Protection Policy Act.

## **2. Effects on Water Resources**

### **a. Water Quality**

Stream siltation can measurably alter chemical and physical factors of the aquatic environment. Dissolved oxygen concentrations are often temporarily reduced in streams experiencing sudden severe sediment loads. Dissolved carbon dioxide levels often rise. Turbidity rises as sediments increase, resulting in declines in photosynthesis and respiration in aquatic organisms. Siltation is often a major factor in altering benthic diversity. Distribution of fish species is negatively affected by siltation.

Erosion would be minimized and maximum protection provided for the floodplains and streams by maintaining wooded cover and existing vegetation except where construction access or structures are needed. Standard erosion control measures, such as sediment basins and traps, erosion cloth fencing, and flexible hose bypass systems, would be

maximized to maintain stream water quality.

**b. Individual Stream Impacts**

The following discussion of specific stream crossings addresses the potential effects of the project on aquatic environments.

**(1) Severn River**

No relocation of the Severn River or Severn Run is anticipated with any of the alternatives. Sedimentation impacts associated with construction may temporarily lower aquatic habitat quality due to increased turbidity. These impacts can be mitigated by the strict implementation of sediment control measures.

No adverse impacts to the naturally reproducing brook trout population in Jabez Branch (located west of the study area) are anticipated since all project related activities would occur downstream of this area. A small portion of Alternative 2 would be constructed within the watershed of a tributary to Severn Run.



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Considering the small portion of the Severn Run watershed that would be disturbed, and the fact that erosion/sediment control and stormwater management facilities would be provided, no substantial impact to Severn Run is anticipated.

(2) Magothy River

Approximately 50 feet of a Magothy River tributary located in the north-west quadrant of Obrecht Road/Jumpers Hole Road intersection would require relocation by the project. The Magothy is currently degraded by nutrient loading and sedimentation from urban and agricultural runoff within its watershed. This tributary is part of a high quality wetland (Wetland 3-C) supporting a wide diversity of vegetation and wildlife. In addition, this wetland is a valuable nutrient sink and sediment trap, which is sustained by the existence of an undersized culvert under Jumpers Hole Road. The impacts to this stream include potential changes in habitat and possible sedimentation effects during the relocation.

c. **Groundwater**

Potential groundwater effects may result from cut and fill operations causing changes in groundwater level and flow. Large cuts could expose springs resulting in the reduction of the total amount of water in the aquifer. This factor, in combination with the minimal decrease in the total area available for groundwater recharge resulting from the highway, could lower the water table in certain areas. However, considering the relatively shallow cuts associated with the build alternatives and the depth of the wells in the study area, no substantial impacts to groundwater are anticipated.

The State Highway Administration would conduct a pre-construction survey of wells in the vicinity of the selected alternate to determine existing quantity and quality. If significant changes to either the quantity or quality of well water occur as a result of the roadway construction, the State Highway Administration would either provide a replacement well for affected property or compensate the property owner.

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d. **Effects on Aquatic Habitat**

(1) **Short Term Impacts**

Short-term impacts apply to stream crossings and relocations as well as to those streams draining areas where construction activities occur. Short term impacts include:

- (a) Siltation from increased erosion and sedimentation
- (b) Changes in water quality stemming from altered riparian habitat
- (c) Changes in stream flow patterns resulting from impoundments and debris

As stated previously, to minimize these impacts, sediment control plans would be developed by this Administration during final design.

Since the alternatives would pass through areas of varying slope, soil erodibility, stream size, and vegetation associations, specific control measures cannot now be identified but would include:

- (a) Staging of construction activities to permanently stabilize ditches at the tops of cuts and at the bottom of fill slopes prior to excavation and formation of embankments.

- (b) Seeding, sodding, or otherwise stabilizing slopes as soon as practicable to minimize the area exposed at any time.
- (c) Appropriate placement and maintenance of sediment traps, temporary slope drains and other control measures.
- (d) Placement of diversion dikes, energy dissipators, mulches and netting of slopes too steep to support vegetation.

Appropriate mitigation techniques would be selected during the final design phase. Such techniques may include flexible pipe to carry clean water over the construction site and revegetation with natural grasses, shrubs and trees.

The final contract documents would limit the area to be disturbed to that area required for construction of the project and the proper wasting of excess material.

Impoundments such as sediment ponds would be sized and located so as to maintain as much base flow as possible, generally by allowing the drainage from undisturbed areas to bypass the construction site and go to its natural drainage course. The construction would be closely monitored to minimize debris and control waste areas.

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With the application of the above procedures, short-term impacts to surface waters would be minimal.

(2) Long Term Impacts

Long term impacts apply primarily to the one stream relocation, although some also may be associated with stream crossings as well as streams draining areas where construction activities have occurred. Long term impacts include:

- (a) Potential changes in water quantity in receiving streams from alteration of drainage patterns or sources and stream flow characteristics.
- (b) Potential changes in water quality parameters in receiving streams resulting from:
  - (1) erosion and sedimentation.
  - (2) roadway runoff carrying various pollutants.
- (c) Habitat loss or alteration resulting from stream relocation and/or modification of riparian habitat.
- (d) Possible changes in wetland vegetative communities as a result of altered hydrology.

Stormwater management would be managed in accordance with the Maryland Department of the Environment's "Stormwater Management Guidelines for State and Federal Projects". Infiltration practices would be employed, where practicable. Vegetated swales and

retention and detention ponds probably would be the most feasible stormwater management techniques. In addition to controlling the rate of runoff, these practices would also tend to filter out pollutants from the roadway.

Revegetation would be applied promptly and the minimum area required for construction would be disturbed. These measures would minimize erosion and sedimentation.

Mitigation of the relocated stream and impacted riparian habitat can be provided via the following practices:

- (1) Construction would be subject to seasonal restrictions to minimize adverse effect on fisheries.
- (2) Effective sedimentation and erosion control procedures would be utilized during the process of relocation to minimize downstream siltation.
- (3) the length and the width of the new stream channel would be the same or nearly the same as the original stream channel.
- (4) Riffle to pool ratios would be maintained.
- (5) Bank vegetation would be re-established as soon as possible.

The final design for the proposed improvements would include plans for grading, erosion and sediment control, stormwater management, staging of construction

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activities, stream channel alterations, and revegetation.

The stream relocation and stream crossings would require Waterway Construction Permits from the Maryland Department of Natural Resources, Water Resources Administration and, in some cases wetland permits from the Maryland Department of Natural Resources and/or the U.S. Army Corps of Engineers.

With the use of the above-described techniques and procedures, no significant long-term impacts to surface waters are anticipated.

### **3. Floodplain Impacts**

Alternatives 2 and 4 would not have 100-year floodplain involvement.

Alternative 3 would encroach on the Magothy River floodplain in the vicinity of the Obrecht Road/Jumpers Hole Road intersection. There is an existing culvert at this crossing. This alternative would require the replacement of this structure. Although 100-year flood elevations have not been determined, it is estimated that Alternatives 3A or 3B would impact approximately 1.16 acres of the floodplain. This determination was made based upon impacts the grading limits for

this alternative would have upon the floodplain boundaries identified on the FEMA floodplain mapping.

The type of drainage structure to be utilized at this location would be determined during the final design phase.

This Administration would prepare a detailed hydrologic and hydraulic study for the Selected Alternative during the final design phase to identify the existing 100-year storm discharge and floodplain. Stormwater management would be provided and all hydraulic structures would be designed to accommodate the 100-year flood without causing substantial impact.

The use of standard hydraulic design techniques for all waterway openings which limit upstream flood level increases and approximate existing downstream flow rates would be utilized where feasible.

Use of state-of-the-art sediment and erosion control techniques and stormwater management controls would ensure that none of the encroachments would result in risks or impacts to the beneficial floodplain values or provide direct or indirect support to further development within the floodplain.



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In accordance with the requirements of FHPM 6-7-3-2, which is a FHWA guideline for ensuring compliance with Executive Order No. 11988, the impacts of each encroachment have been evaluated as part of this study to determine if it is a significant encroachment.

A significant encroachment would involved one of the following:

- a significant potential for interruption or termination of a transportation facility which is needed for emergency vehicles or provides a community's only evacuation route,
- a significant risk, or
- a significant adverse impact on natural and beneficial floodplain values.

The U.S. Army Corps of Engineers has indicated that significant floodplain impacts could occur with Alternative 3 due to adverse impacts on natural and beneficial floodplain values (See Comments and Coordination Section). The Corps have stated that flow patterns associated with the construction of a new culvert, as proposed under this alternative, could be significantly affected. The duration of saturation and inundation could also be affected, thereby altering the vegetative community. No significant floodplain impacts are expected to occur as a result of any of the other proposed build alternatives. A floodplain finding, if required, would be presented in the final environmental document.

#### 4. Effects on Terrestrial Habitats and Wildlife

##### a. Terrestrial Habitats

Alternative 2 would impact between 24 and 27 acres of woodland. Alternative 3 would impact 7.5 acres of woodland and Alternative 4 would impact less than a half an acre of woodland. The Forest Conservation Act of 1991 includes Section 2 (the "Reforestation Act") which requires the minimization of cutting or clearing trees and/or contributions to a Reforestation Fund for highway construction projects.

The State Reforestation Program call for woodlands to be replaced at a 1:1 ration on site if possible at a cost not to exceed \$500 per acre. If on-site reforestation is not possible, off-site replacement within the same watershed is permitted. If no suitable replacement area is available, a contribution of \$500 for each acre that is deforested, is to be deposited in the reforestation fund of the Maryland Department of Natural Resources.

Impacts to agricultural areas would range from 1.5 to 2.5 acres depending on which alternative is selected. The extent of land use impact associated with each build alternative is summarized in Table IV - 4.

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**TABLE IV - 4**  
**HABITATS REQUIRED**  
**(ACRES)**

| ALTERNATIVE   | WOODED | AGRICULTURAL |
|---------------|--------|--------------|
| 2A - Option 1 | 24.94  | 2.21         |
| 2A - Option 2 | 23.40  | 2.11         |
| 2A - Option 3 | 26.03  | 2.47         |
| 2B - Option 1 | 26.93  | 2.34         |
| 2B - Option 2 | 24.97  | 2.22         |
| 2B - Option 3 | 27.16  | 2.56         |
| 3A            | 7.33   | 1.84         |
| 3B            | 7.61   | 1.84         |
| 4B            | 0.05   | 0            |

Given the amount of similar habitats in the region that exist outside the project corridor, it is unlikely that vegetative diversity would be measurably diminished. It is more likely that a shift in the relative abundance of those species that are already present would take place. However, with the residential development planned for the area there could be a decrease in the number of species which require large open areas.

For Alternative 2 ground cover, shrub, and tree species common to managed rights-of-way can be expected to replace many existing plants in the project corridor. Vegetation lost would be partially replaced through landscaping of the rights-of-way. For Alternatives 3 and 4, which involve improvement of an existing roadway, no substantial change in species diversity is anticipated.

**b. Wildlife**

Highway construction affects wildlife populations through several means, including:

- reducing and/or fragmenting habitat areas.
- forming a barrier to small mammal movement.

- contributing pollutants to streams and the roadside environment.
- causing noise which may interfere with the breeding efficiency of some birds.

Alternative 4 would have little or no effect upon wildlife.

The greatest comparable impact on wildlife would be associated with Alternative 2, primarily attributable to loss of wooded habitat (See Table IV-4). However, considering the heavily urbanized nature of the study area, the Stormwater Management Practices (to protect stream water quality) that would be implemented, and the reforestation measures that would be employed, no substantial impact to wildlife is anticipated to result from any of the build alternatives.

#### **5. Effects on Threatened and Endangered Species**

Although one federally-listed rare plant species (Swamp Pink) and two state-listed rare plant species (Climbing Fern and Giant Cane) are known to exist in the general vicinity of the project, a field investigation conducted as part of this project indicated that, of those plants, only one small population of giant cane exists near any

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of the build alternatives. Because this population is approximately 500'± upstream of the Alternative 3 corridor, no impacts to this particular population of Giant Cane would occur.

Consequently, the project is not expected to have any impact on any known rare, threatened, or endangered species.

## **6. Wetlands Impacts**

### **a. Areas to be Impacted**

Pursuant to Executive Order 11990, Protection of Wetlands, palustrine and riverine wetland areas were identified in the project study area by use of procedures described in the 1987 Corps of Engineers Wetlands Delineation Manual. National Wetlands Inventory (USFWS) maps and hydric soils maps were used to support and confirm findings.

Twenty-two wetlands were found within close proximity of the build alternatives. Of these 22, seven would be directly impacted by this project. Table IV - 5 shows the wetlands impacts associated with each alternative. A wetland Field Review was conducted on August 27, 1992 at which representatives from U.S. Army Corps of Engineers and Maryland Department of Natural Resources concurred on

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the wetland boundaries as delineated (See Section VI for minutes of Field Review).

Avoidance and Minimization options have been investigated for all of the affected wetland areas and are described below. Because the alignments have been developed in three distinct corridors, alignments in other corridors represent Avoidance alternatives for each corridor. For example, for Alternative 3, Alternatives 2A & 2B, and Alternative 4B are avoidance alternatives that satisfy the need for the project. In all cases Alternative 1 (No-Build) also provides an avoidance alternative, but does not address the project need, as described in Section I.

Several minimization alternatives have been investigated for the wetland areas in each of the three study corridor. The Alternative 2 and 3 corridors include either two or four lane sections. The two lane section, in some cases, represents a minimization alternative and is summarized below. Reductions of the dimensions of the typical sections were considered as minimization options. However, all of the options, where the new roadway alignment is planned, are proposed within a 110 foot right-of-way. Unless, the grading limits fall

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outside of the proposed right-of-way (as an easement area), the wetland impact would not be altered by these reductions.

#### **Alternative 2 (Master Plan Alignment)**

Two wetlands, W2-8 and W2-24 (See Figure IV-1 and the Alternatives Mapping in Section II) would be impacted within this corridor. These wetland impacts are the same for Options 1 - 3. Total wetland impacts for Alternative 2A and 2B are 0.39 acre and 0.41 acre respectively.

#### **Wetland Area W2-8**

Wetland 2-8 is located east of Jumpers Hole Road at Sta. 149, within the Magothy River Watershed. This wetland consists of palustrine emergent persistent (PEM1A,C) portions and Palustrine Open Water (POWZ), in a low area of former sand/gravel quarry. This wetland is supported primarily by runoff. The function of this wetland is for sediment trapping and wildlife habitat. Its value is considered low. Alternative 2A would impact 0.09 acre of W2-8 while Alternative 2B would impact 0.10 acre of this wetland.

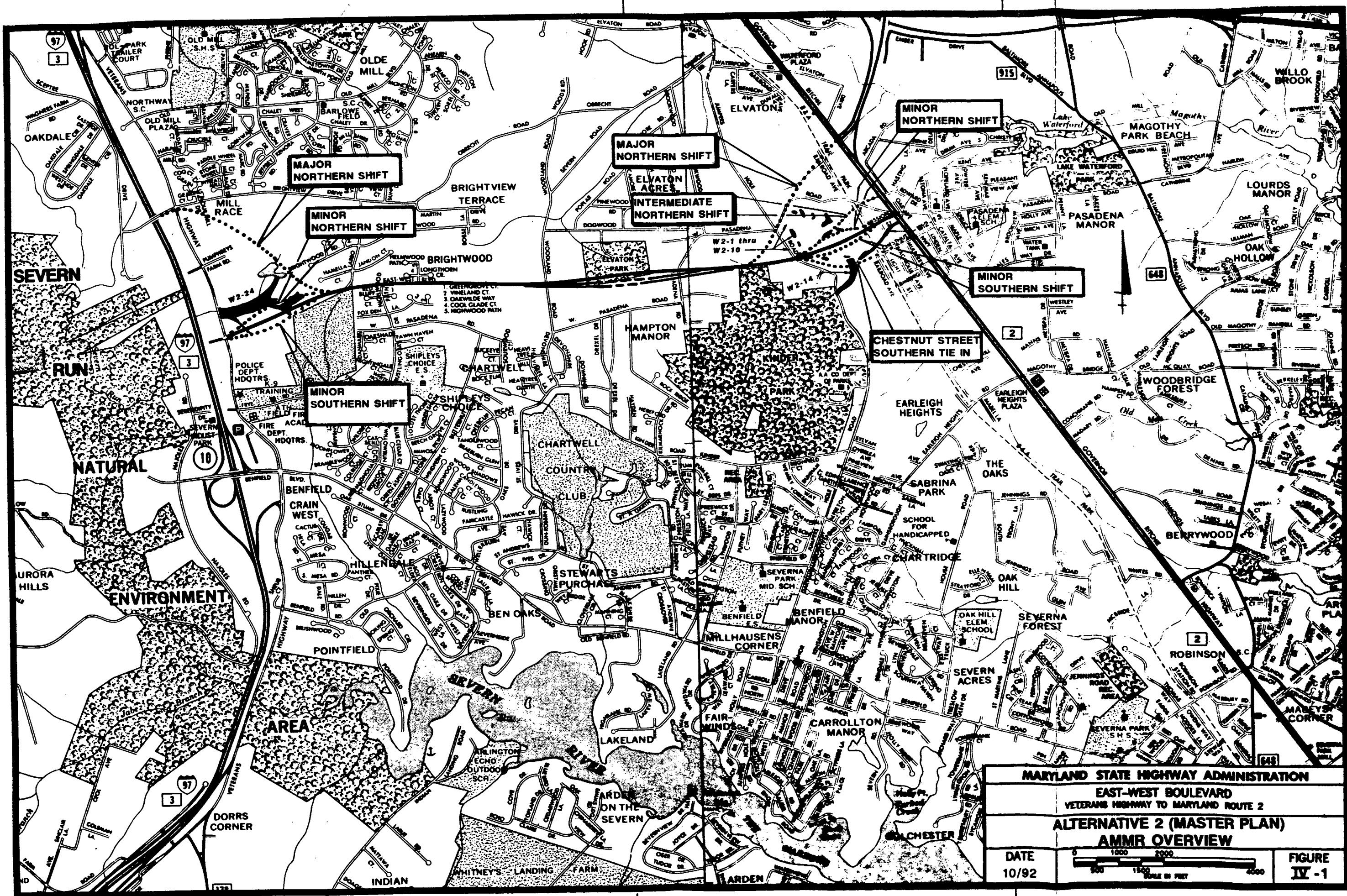


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#### Avoidance of Wetland W2-8

Wetland area 2-8 is located on the western edge of the sand and gravel pit, east of Jumpers Hole Road. The wet area is shaped like an oval tapering at the bottom (See Figure II-4 and 5). Shifts to the north and south have been investigated to avoid this wetland. Minor northern shifts (25-50 feet) that would eventually join the proposed alignment would impact approximately 0.1 acre of Wetland 2-7 and an additional residential structure at station 143+50. Larger shifts to the north through the sand and gravel pit were also investigated (See Figure IV-1). These alignments would avoid impact to W2-8, but would impact between 0.05 and 0.20 acre of wetland areas W2-1, 2, 3 and 7, depending on the alignment.

All of these extensive northern shifts would require an additional crossing of the B&A hiker/biker trail in the vicinity of its current crossing of West Pasadena Road. Two closely spaced trail crossings would be in violation of driver, bicyclists and pedestrian expectations. The shifted alignments would also require an intersection with MD 2 farther north than Mission Street. This intersection point would be approximately 1000 feet south



|   |  |                  |
|---|--|------------------|
| <b>MARYLAND STATE HIGHWAY ADMINISTRATION</b>                |  |                  |
| EAST-WEST BOULEVARD<br>VETERANS HIGHWAY TO MARYLAND ROUTE 2 |  |                  |
| <b>ALTERNATIVE 2 (MASTER PLAN)</b>                          |  |                  |
| <b>AMMR OVERVIEW</b>  |  |                  |
| DATE<br>10/92   | <br>0 1000 2000 3000 4000<br>SCALE IN FEET | FIGURE<br>IV - 1 |

of the southern ramps of the MD 2/MD 10 intersection.

The newly created intersection would have to be located on a vertical crest severely compromising driver sight distance. In addition, the new intersection would be located only 500 feet north of the current MD 2/West Pasadena Road intersection. Due to wetland impact and operational problems along MD 2, this northern shift was not carried forward for detailed study.

If the alignments were shifted farther to the north to intersect MD 2 opposite MD 10, a regional type connection would be created, which is not consistent with the purpose of this study (See Section I - Need for the Project). A southern shift of the proposed alignment would also impact Wetlands 2-9 and 2-10, with approximately 0.4 and 0.1 acre respectively. In addition, five residences would potentially be impacted. A 100 foot structure carrying the proposed alignment over W2-8 would cost approximately \$972,000 for the four lane section and \$594,000 for the two lane roadway. Due to the relative low quality of the W2-8, additional residential displacements, impacts to higher quality wetlands and/or prohibitive construction

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costs, these concepts were not considered reasonable.

#### **Minimization Efforts for Wetland W2-8**

Options to minimize impact to Wetland 2-8 have also been investigated. The two-lane typical section or a reduction of the typical sections does not provide minimization in this area due the existing topography. The wetland area is located just east of Jumpers Hole Road. Introducing a curve, where a tangent (straight) section is currently being proposed, close to the intersection, could create diminished operations at the intersection. These options were not carried forward, because of the small area of impact combined with the relatively low quality of the wetland.

#### **Wetland Area W2-24**

Wetland 2-24 is located west of Brightwood Road and east of Veterans Highway, within the Severn River watershed. This wooded swamp is a well developed palustrine forested broad-leaved deciduous wetland system (PF01A). The functions of this wetland include food chain support, wildlife habitat, flood desynchronization, sediment trapping and

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nutrient retention. Considering the importance of its multiple uses, its value is considered high. The two lane alternative would impact 0.30 acre of W2-24 and the four lane alternative would impact 0.31 acre of this wetland. The impact noted is associated with construction of a new facility, either two or four lanes. However, it is likely (See Section I-G), that a two lane facility, as proposed by Anne Arundel County will be in place.

#### **Avoidance of Wetland W2-24**

Alternative 2 crosses this wetland at two separate locations approximately 450 feet east of Veterans Highway and again 1000 feet east of the first crossing. Concepts to avoid these wetland crossings by shifting the alignment to the north or south were investigated (See Figure IV-1). W2-24 is a large wetland system that expands to the north of the proposed alignment. It has three fingers which dip to the south, two of which are impacted by this alternative (See Figures II-4 and 5). Any shifts to the north would result in greater wetland impacts because the wetland area expands north of the alignment. An extensive shift, to create a new Veterans

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Highway intersection at Brightview Drive was studied and dropped (See Section II-B) because of extensive wetland impacts. Shifts to the south of the proposed alignment would avoid impact to this wetland. However, with either shift, the alignment would be different than the Anne Arundel County portion of East - West Boulevard. As described in Section I - Need for the Project, Anne Arundel County, Department of Public Works is planning to advertise construction of a two-lane section of the ultimate Master Plan alignment in the Spring of 1993. The County's portion of the roadway will consist of two lanes within an eighty foot right-of-way. The County has obtained a Nationwide Permit from U.S. Army Corps of Engineers. If a four lane alternative is selected as proposed with Alternative 2B, a permit would need to be acquired for the additional 0.01 acre of wetland impact. Structures spanning these wetland areas were not investigated because of the County's plans. Since continued coordination with Anne Arundel County has taken place throughout the development of the project and the roadway would be in place, these shifts were determined to not be reasonable.

#### **Minimization for Wetland W2-24**

Minimization concepts investigated include minor southern shifts of the alignment and typical section reductions. The minimization alternatives yield similar consequences as the avoidance options. Minor shifts to the alignment would reduce the wetland impact, however, the Anne Arundel County portion of the ultimate roadway would be disturbed. A shift of the alignment would result in reconstruction of a newly constructed roadway. A two lane facility, as proposed with Alternative 2A would not provide a reduction of the four lane impacts because it is also contained in a 110 foot right-of-way. However, if the two lane section is selected, no additional construction above and beyond what the County is planning would be necessary and therefore no additional wetland impact. The right-of-way would not be expanded from 80 feet to 110 feet if the two lane section is selected.

#### **Alternative 3 (Brightview Drive/Obrecht Road)**

Four wetland areas would be impacted within this project corridor.

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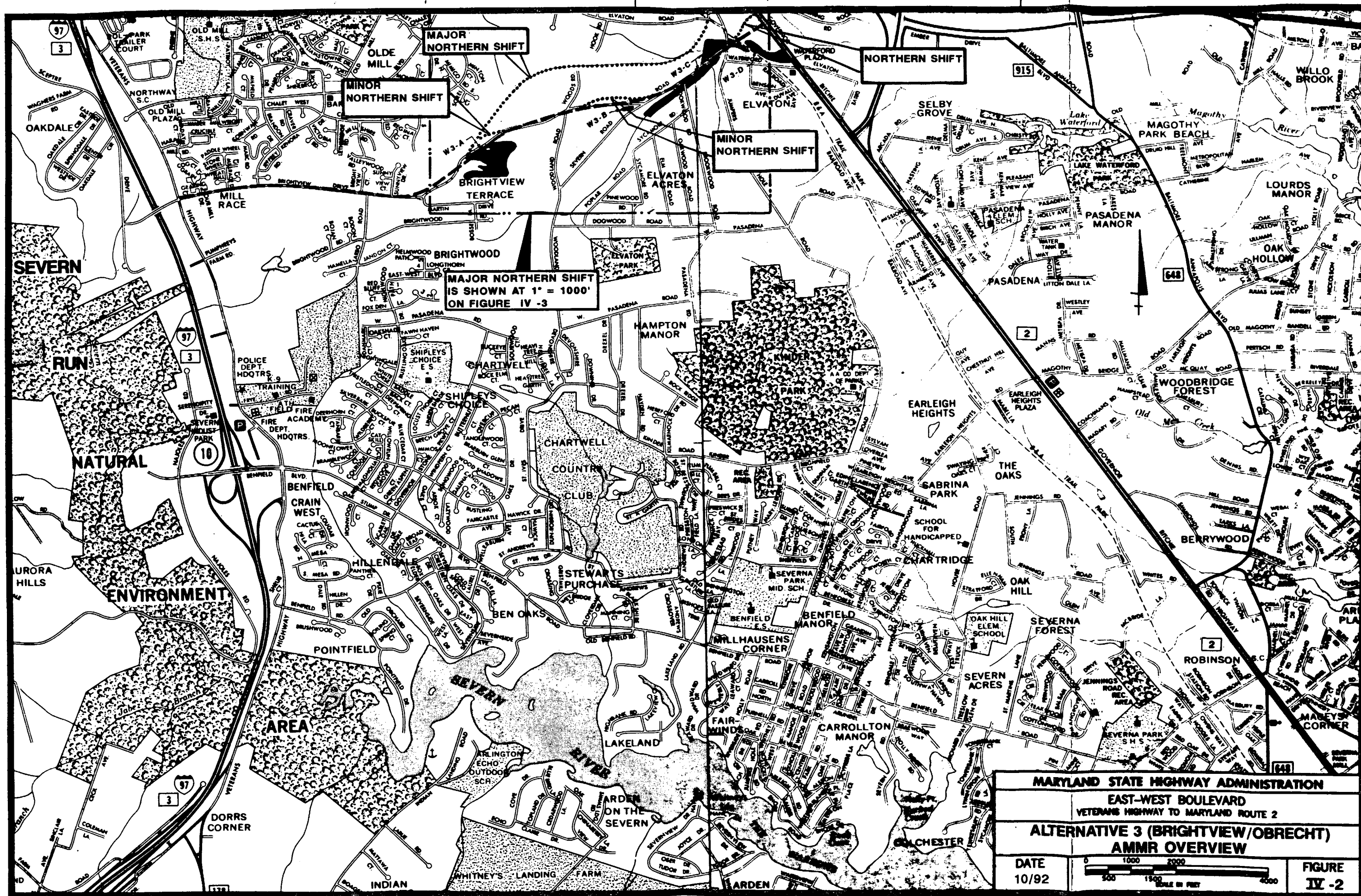
#### **Wetland Area W3-A**

Wetland W3-A (same as W2-22) is located west of Woodland Road, within the Magothy River Watershed. This is a well developed palustrine forested broad-leaved deciduous wetland (PF01A), located along a small meandering stream course. The functions of this wetland include food chain support, passive recreation, wildlife habitat, flood desynchronization, sediment trapping and nutrient retention. Its value is considered high. Alternative 3A would impact 0.10 acre of W3-A, while Alternative 3B requires 0.15 acres of the wetland.

#### **Avoidance of Wetland W3-A**

W3-A is a large wet area contained on the south side of the Obrecht Road. Two large fingers of the wetland are impacted by Alternative 3 (See Figures II-10 and 11). To avoid Wetland 3-A shifts to the north were investigated (See Figure IV-2). In order to avoid wetland 3-A and then tie back into the Alternative 3 alignment, additional right-of-way and possible displacement of two residences would be required. Because residential development spreads continuously away from the corridor, further shifts to the





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north would also cause numerous residential impacts. An alternative alignment has been investigated that would avoid impact to this and other wetlands in this corridor. It is described as avoidance to W3-C below. A 75 foot structure spanning the impacted finger of W3-A would cost approximately \$729,000 for the four lane roadway and \$450,000 for the two lane section. Because additional residential displacements would result and a relatively small impacted area the shifts were not considered reasonable. The structure cost and characteristics will be investigated further as the study progresses.

#### **Minimization for Wetland W3-A**

Options to minimize impact to wetland area 3-A have been investigated. As with Alternative 2, the two lane roadway has the same impact as the four lane alternative. Shifts of the alignment to the north could provide minimization to this wetland. The area north of the existing roadway, across from W3-A contains space for the shifted alignment. However, the area just west of the wetland area is one of the worst areas of horizontal curvature in the corridor. In order to adequately correct this poor

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geometry, while minimizing impact to the residential properties on either side of Brightview Drive, the centerline of the proposed roadway bisects the series of curves along the existing roadway. If the proposed centerline were shifted to the north to avoid or minimize the wetland, additional residences on the north side of the roadway, west of W3-A would be displaced. Due to the small savings and increased residential impacts, the shifted alignment options were not considered reasonable.

#### Wetland Area W3-B

Wetland 3-B is located west of Severn Road and south of Sta. 114 to 116±, within the Magothy River watershed. This is a small isolated palustrine forested broad-leaved deciduous wetland (PFO1A). The functions of this wetland include sediment trapping and nutrient retention, and it is supported by runoff. Its value is considered medium. Both Alternative 3A and 3B would impact approximately 0.05 acre of this wetland.

#### Avoidance of Wetland W3-B

W3-B is a very small strip like area approximately 200 feet long (See Figures II-10 and 11) in the south west quadrant of the Obrecht/Severn Road intersection. Shifts to the north and south have been investigated to avoid impacts to this area (See Figure IV-2). In order to shift the alignment to the north and avoid W3-B, and tie back into the Alternative 3 alignment, additional right-of-way and possible displacement of five residences would be required between stations 110+ and 125+. Shifting the alignment to the south to avoid this wetland would impact six residences and 0.3 acre of additional impact to W3-C. The 200 foot structure needed to span this wetland would cost approximately \$ 1.944 million for the four lane section and \$ 1.20 million for the two lane roadway. Due to the additional residential impacts and displacements, the shifts of the alignment were not carried forward. The structure characteristics and cost effectiveness will be evaluated as the study progresses.

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### **Minimization of impact to Wetland W3-B**

Options to minimize impact to this wetland area were also investigated. The two lane roadway would have the same impact as the four lane alternative with this alignment. Minor shifts of the alignment to the north have also been studied. Even minor shifts to minimize impact would cause increased property impacts to approximately 10 properties between stations 110+000 and 125+00. Due to the small savings and increased residential impacts, the shifted alignment options were not considered reasonable. Structures of less length than required as avoidance will continue to be considered as the study progresses.

### **Wetland Area W3-C**

Wetland 3-C is located along Obrecht Road, east of Severn Road, at Sta. 119+50 to 141+50±, within the Magothy River watershed. This is a well developed palustrine broad-leaved deciduous wetland (PF01A,C,E), located along a small stream course. The functions of this wetland include food chain support, passive recreation, wildlife habitat, flood desynchronization, sediment trapping, active recreation, and nutrient retention. Its value is considered high. Both Alternative 3A and

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3B would impact approximately 2.70 acres of this wetland system. This by far represents the single largest impact to all wetland by all alternatives.

#### **Avoidance of Wetland W3-C**

The wetland area is located on both sides of the existing roadway, between Severn Road and Jumpers Hole Road. The areas to the south are along the roadway for a total length of approximately 1700 feet (See Figure IV-2). The area on the north side of the existing roadway extend farther than on the south side (See Figures II-10 and 11). Shifts north or south within the study area would not avoid this wetland system and would cause residential displacements along Brookwood, Jumpers Hole, Waterford, and Elvaton Roads. A 2230 foot structure necessary to span the entire wetland area was estimated to cost \$21,675,600 for the four lane and \$13,246,200 for the two lane facility. Due to the increased residential impacts and the prohibitive structure costs, these options were not considered reasonable.

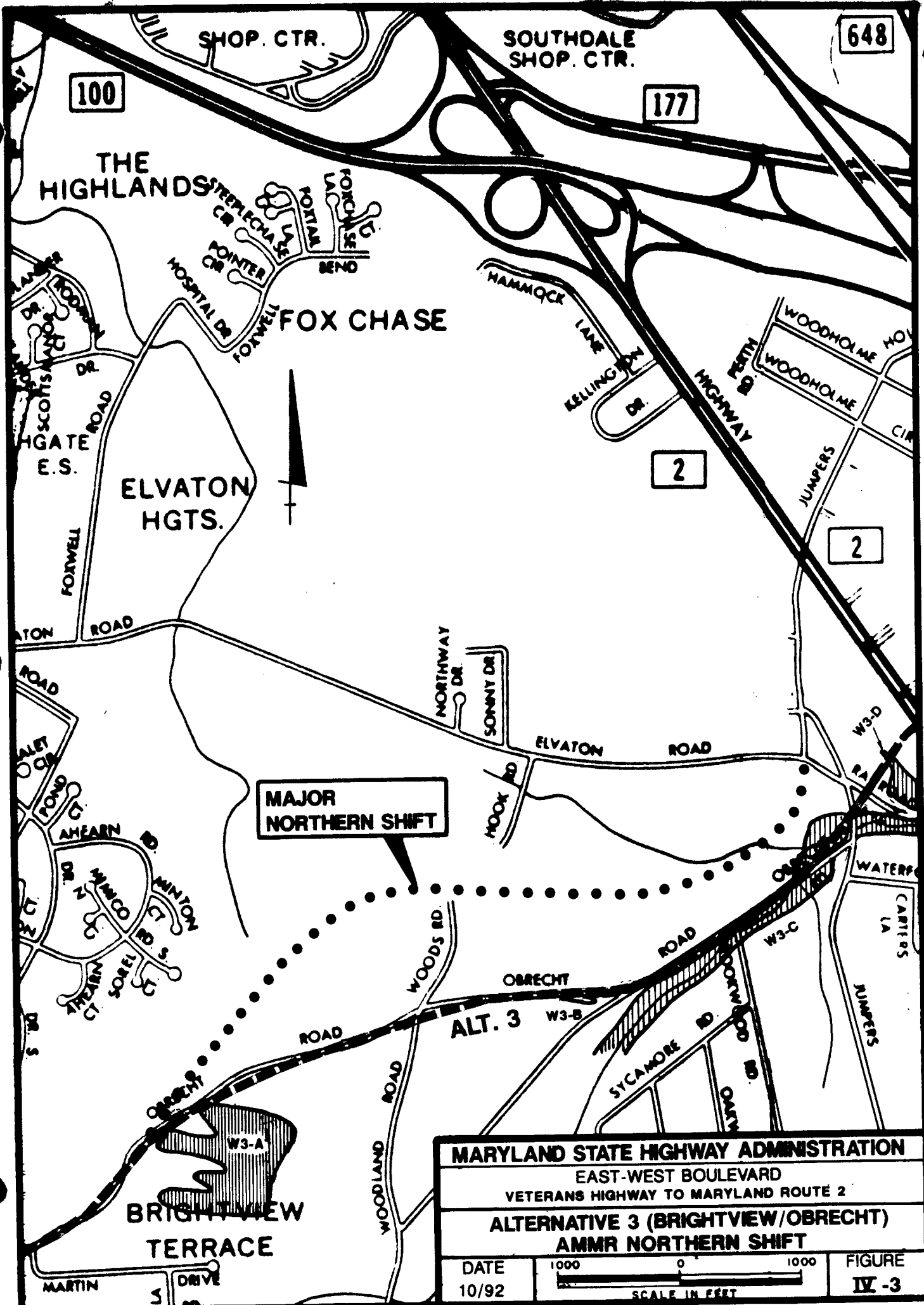
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### Minimization of impact to Wetland W3-C

As described earlier, W3-C is present on both sides of existing Obrecht Road between stations 120+00 and 140+50. Residences are located very close to the existing roadway in this area. A minor shift of the alignment would result in increased residential impact and/or equal or greater impacts to the same wetland area. Although this wetland area represents the largest area of impact, none of the minor alignments shifts provided a reduction of that impact, therefore, were not carried forward.

In an attempt to reduce the residential and wetland impact of the Brightview Drive/Obrecht Road alignment, an alternative alignment for improvements to this corridor has been evaluated (See Figure IV-3). This alignment would depart northward from the existing road between Martin and Zeman Drives. The roadway, which could be constructed with the same typical section choices as the other alternatives (2 & 3), would proceed parallel to Obrecht Road behind the residences adjacent to the existing roadway. The alignment would turn north to intersect Elvaton Road opposite the existing five lane section of Jumpers Hole Road. The alignment would avoid the

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|   |                              |                 |
|---|------------------------------|-----------------|
| <b>MARYLAND STATE HIGHWAY ADMINISTRATION</b>                            |                              |                 |
| EAST-WEST BOULEVARD<br>VETERANS HIGHWAY TO MARYLAND ROUTE 2             |                              |                 |
| <b>ALTERNATIVE 3 (BRIGHTVIEW/OBRECHT)</b><br><b>AMMR NORTHERN SHIFT</b> |                              |                 |
| DATE<br>10/92   | 1000 0 1000<br>SCALE IN FEET | FIGURE<br>IV -3 |



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displacement of seven homes along Obrecht Road. This option would impact approximately 2.2 - 2.5 acres of floodplain and wetland associated with the northern reaches of W3-C. This wetland impact compares to 2.96 acres (W 3-A, B and C) associated with the Alternative 3 alignment. The new roadway would be shifted to the north, abandoning the current intersections with numerous local roadways. Neighborhood roadways, such as, Woodland, Severn and Brookwood Roads currently end at their intersection with Obrecht Road. If this alternative alignment were selected, these roadways would have to be extended or traffic will continue to use existing Obrecht Road. In addition, the direct connection to Jumpers Hole Road would create a regional connection to points east of MD 2. The Anne Arundel County Department of Public Works is currently working to obtain a Section 404 Permit from the U.S. Army Corps of Engineers for wetland impacts associated with the construction of Jumpers Hole Road Relocated between Elvaton and Waterford Roads. Due to the regional nature of this connection north of MD 100/MD 10 and coordination with Anne Arundel County, this option was not carried forward for detailed study.

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**Wetland Area W3-D**

Wetland 3-D is located west of MD 2 and east of W3-C, within the Magothy River watershed. This somewhat degraded palustrine forested broad-leaved deciduous wetland (PF01A) is part of the W3-C System separated by Jumpers Hole Road. The functions of this wetland include sediment trapping, flood desynchronization and nutrient retention. Its value is considered medium. Alternatives 3A and 3B both impact approximately 0.06 acre of this wetland.

**Avoidance of Wetland W3-D**

W3-D is a large wetland area that expands to the south of the study alignment. A finger of the system extends north back to the developed areas along MD 2 (See Figures II-10 and 11). Shifts to the north and south have been investigated to avoid impacts to this area (See Figure IV-2). Because this wetland is so close to MD 2 any shifts to the alignment would alter the ultimate MD 2 tie-in point which occurs at a vacant parcel. The Alternative 3 traverse crossing of this wetland occurs at its thinnest point, which is approximately 30 feet wide. Shifting the alignment to the north to avoid W3-D would

require numerous business displacement along MD 2 such as Franks Nursery and Garden and Pier 1 Imports. Shifts to the south would also require numerous business displacements along Ritchie Highway. A structure carrying the proposed roadway over W3-D would cost approximately \$ 389,000 for the four lane alternative and \$ 238,000 for the two lane roadway. These structures would be considered further if Alternative 3 is the selected alternative.

#### **Minimization of Impact to Wetland W3-D**

The proposed alignment crosses Wetland 3-D at its thinnest point, a width of about 30 feet. Any shifts of the alignment would again cause a new intersection point with MD 2 and increased business displacements. Shifts to the south would increase impact because the wetland area expands to the south. Therefore, none of the minimization alignments were carried forward.

#### **Alternative 4 (Benfield Boulevard)**

Only Wetland 4-7 would be impacted by improvements along Benfield Boulevard.

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**Wetland Area W4-7**

Wetland 4-7 is located west of Faircastle Avenue, within the Severn River watershed. This is a palustrine forested broad-leaved deciduous wetland (PF01A). Located along a small stream course, the functions of this wetland include food chain support, wildlife habitat, passive recreation, flood desynchronization, sediment trapping and nutrient retention. Its value is considered high. The single build alternative along Benfield Boulevard, Alternative 4B, would impact 0.01 acre of this wetland.

**Avoidance of Wetland W4-7**

W4-7 includes a small finger on the north side of existing Benfield Boulevard (See Figure III-8). The complete avoidance of this wetland by shifting the alignment or constructing a structure would require the reconstruction of Benfield Boulevard in this area. A 55 foot structure needed to carry the roadway over the wetland would cost approximately \$342,000 to construct. Since no major improvements to this roadway are being considered as part of this project, avoidance of W4-7 is not considered reasonable due to the resultant impact upon the existing roadway

and associated residential development.

**Minimization of impact to Wetland W4-7**

Minimization techniques include similar options as outlined above. Because no major reconstruction is planned with this alternative, these options were also not considered reasonable.

**b. Mitigation Techniques**

A Jurisdictional Wetland Field Review has been conducted. Representatives from the U.S. Army Corps of Engineers and the Department of Natural Resources were present to determine the extent of wetland impact and to identify possible areas of mitigation for those impacts determined to be unavoidable. Several areas were identified and will be investigated as the study progresses.

To provide mitigation for the low quality wetland areas new or expand wetlands could be created in the sand and gravel pit. There are currently ten wetland areas in the gravel pit that could be expanded. The Corps has recommended that for in-kind mitigation a hydrologic connection be created that would link two isolated ponds (W2-9 and W2-10).

**TABLE IV - 5**  
**WETLAND IMPACTS**  
**(ACRES)**

| WETLANDS     | Alt.1<br>(No-Build) | ALT. 2A     |             |             | ALT. 2B     |             |             | ALT. 3      |             | ALT.<br>4B  |
|--------------|---------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
|              |                     | Opt.<br>1   | Opt.<br>2   | Opt.<br>3   | Opt.<br>1   | Opt.<br>2   | Opt.<br>3   | 3A          | 3B          |             |
| W2-8         | -                   | 0.09        | 0.09        | 0.09        | 0.10        | 0.10        | 0.10        | -           | -           | -           |
| W2-24*       | -                   | 0.30        | 0.30        | 0.30        | 0.31        | 0.31        | 0.31        | -           | -           | -           |
| W3-A*        | -                   | -           | -           | -           | -           | -           | -           | 0.10        | 0.15        | -           |
| W3-B         | -                   | -           | -           | -           | -           | -           | -           | 0.05        | 0.05        | -           |
| W3-C*        | -                   | -           | -           | -           | -           | -           | -           | 2.70        | 2.70        | -           |
| W3-D         | -                   | -           | -           | -           | -           | -           | -           | 0.06        | 0.06        | -           |
| W4-7         | -                   | -           | -           | -           | -           | -           | -           | -           | -           | 0.01        |
| <b>TOTAL</b> | -                   | <b>0.39</b> | <b>0.39</b> | <b>0.39</b> | <b>0.41</b> | <b>0.41</b> | <b>0.41</b> | <b>2.91</b> | <b>2.96</b> | <b>0.01</b> |

\* High Quality Wetlands

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These ponds would then be connected to the existing stream channel (W2-14).

**7. Effects on Coastal Zone Management and Chesapeake Bay Critical Areas**

Within the Coastal Zone Management Area an "Area of Focus" has been identified for special attention. As stated previously the Area of Focus within Anne Arundel County coincides with the 100 year floodplain bordering the tidal waters of the county. Since Alternative 3 does require approximately 1.16 acres of encroachment on the 100 year floodplain of the Magothy River, this alternative would affect the Coastal Zone Area of Focus.

A copy of this document will be submitted to the Maryland Department of Natural Resources (DNR). Upon their review of the document DNR would issue a Coastal Zone Consistency Certification for this project, consistent with the Memorandum of Understanding between the Maryland Department of Transportation and the Maryland Department of Natural Resources.

Only the Benfield Boulevard Alternative (Alternative 4B) would occur within the Chesapeake Bay Critical Area boundary. Since this alternative would not involve the creation of additional impervious surfaces within the critical area, it

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should have little effect upon this sensitive area. A copy of this document would be circulated to the Chesapeake Bay Critical Areas Commission for their review and comment.

**D. Air Quality Impacts**

**1. Objectives and Type of Analysis**

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

A microscale CO pollution diffusion analysis was conducted using the third generation California Line Source Dispersion Model, CALINE 3QHC. This microscale analysis consisted of projections of one-hour and eight-hour CO concentrations at sensitive receptor sites under worst-case meteorological conditions for the No-Build (Alternative 1) and Build Alternatives 2, 3 and 4 for the design year (2015) and the estimated year of completion (1998).



## 2. Analysis Inputs

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

### Background CO Concentrations

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

The background levels were derived from the application of rollback methodology to on-site monitoring conducted by the Maryland Air Management Administration at their Essex Monitoring Site during the period of 1988.

#### Background CO, PPM

|      | <u>One-Hour</u> | <u>Eight-Hour</u> |
|------|-----------------|-------------------|
| 1998 | 7.1             | 3.8               |
| 2015 | 7.1             | 3.8               |

### Traffic Data, Emission Factors and Speeds

The appropriate traffic data were utilized as supplied by the Traffic Forecasting Section (April 1992) of this Administration.

The composite emission factors used in the analysis were derived from the Environmental Protection Agency (EPA) Compilation of Air Pollutant Emission Factors: Highway Mobile Sources and were calculated using the EPA MOBILE 4.1 computer program. An ambient air temperature of 20°F was assumed in calculating the emission factors for the one-hour and 35°F was used for the eight-hour analysis in order to approximate worst-case results for each analysis case.

Average vehicle operating speeds used in calculating emission factors were based on the capacity of each roadway link considered, the applicable speed limit and external influences on speed through the link from immediately adjacent links. Average operating speeds ranged from 30 miles per hour to 55 miles per hour depending upon the roadways and alternative under consideration.

### Meteorological Data

Worst-case meteorological conditions of one meter/second for wind speed and atmospheric stability Class F were assumed for the one-hour

analysis and a combination of one meter/second and two meters/second for wind speed and atmospheric stability Classes D and F were used for the eight-hour calculations.

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

### **3. Receptor Site Descriptions**

Site selection of sensitive receptors were made on the basis of proximity to the roadway, type of adjacent land use and changes in traffic patterns on the roadway network. Thirty-seven receptor sites were chosen for this analysis consisting of 29 residences, two churches, a high school, four public park sites and one right-of-way site (see Table III-2). The receptor site locations were verified during study area visits by the analysis team on July 29, 1992. The receptor site locations are shown in Figure III-9 and on Figures II-4 through II-11 in **Section II - Alternatives Considered** of this document.

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#### 4. Results of Microscale Analysis

The results of the calculations of CO concentrations at each of the sensitive receptor sites for the No-Build and Build Alternatives are shown on Tables IV-6 through IV-9. The values shown consist of predicted CO concentration attributable to traffic on various roadway links plus projected background levels. A comparison of the values in these tables with the S/NAAQS shows that no violations would occur for the No-Build or Build Alternatives in 1998 or 2015 for the one-hour or eight-hour concentrations of CO.

The projected CO concentrations vary between alternatives depending on receptor locations as a function of the roadway locations and traffic patterns associated with each alternate. The projected CO concentrations also vary between 1998 and the design year 2015.

As shown in Tables IV-6 through IV-9, the projected CO concentrations generally decrease between 1998 and the design year 2015 while projected CO concentrations for the individual alternatives do not vary substantially.

TABLE IV-6  
EAST/WEST BOULEVARD AIR QUALITY ANALYSIS  
1998 1-HOUR CO CONCENTRATIONS  
(PPM)

| RECEPTOR | DESCRIPTION                 | NO-BUILD | ALTERNATE 2 |     |       |     |       |     | ALT 3 |     | ALT 4 |     |
|----------|-----------------------------|----------|-------------|-----|-------|-----|-------|-----|-------|-----|-------|-----|
|          |                             |          | OPT 1       |     | OPT 2 |     | OPT 3 |     | 2LN   | 4LN | 2LN   | 4LN |
|          |                             |          | 2LN         | 4LN | 2LN   | 4LN | 2LN   | 4LN |       |     |       |     |
| 2-1      | RESIDENCE, VETERANS HWY     |          | 7.3         | 7.4 | 7.3   | 7.3 | 7.3   | 7.4 |       |     |       |     |
| 2-2      | RESIDENCE, LARBO ROAD       |          | 7.2         | 7.4 | 7.2   | 7.4 | 7.2   | 7.4 |       |     |       |     |
| 2-3      | RESIDENCE, RED BLUFF CT.    |          | 7.2         | 7.3 | 7.2   | 7.3 | 7.2   | 7.3 |       |     |       |     |
| 2-4      | RESIDENCE, COOL GLADE       |          | 7.2         | 7.4 | 7.2   | 7.4 | 7.2   | 7.4 |       |     |       |     |
| 2-5      | RIGHT-OF-WAY                |          | 7.3         | 7.5 | 7.3   | 7.4 | 7.3   | 7.5 |       |     |       |     |
| 2-6      | RESIDENCE, WOODLAND ROAD    |          | 7.2         | 7.3 | 7.2   | 7.2 | 7.4   | 7.4 |       |     |       |     |
| 2-7      | RESIDENCE, WOODLAND ROAD    |          | 7.2         | 7.3 | 7.4   | 7.5 | 7.2   | 7.4 |       |     |       |     |
| 2-8      | PARK RIGHT-OF-WAY           |          | 7.3         | 7.6 | 7.2   | 7.3 | 7.2   | 7.5 |       |     |       |     |
| 2-9      | RESIDENCE, W. PASADENA ROAD |          | 7.2         | 7.3 | 7.2   | 7.3 | 7.2   | 7.3 |       |     |       |     |
| 2-10     | RESIDENCE, W. PASADENA ROAD |          | 7.2         | 7.3 | 7.2   | 7.2 | 7.2   | 7.3 |       |     |       |     |
| 2-11     | RESIDENCE, BOLM ROAD        |          | 7.3         | 7.3 | 7.3   | 7.3 | 7.3   | 7.3 |       |     |       |     |
| 2-12     | B&A TRAIL RIGHT-OF-WAY      |          | 7.5         | 7.6 | 7.5   | 7.6 | 7.5   | 7.6 |       |     |       |     |
| 2-13     | RESIDENCE, MISSION STREET   |          | 7.7         | 7.7 | 7.7   | 7.7 | 7.7   | 7.7 |       |     |       |     |
| 3-1      | RESIDENCE, WHEAT MILL COURT | 7.3      |             |     |       |     |       |     | 7.5   | 7.6 |       |     |
| 3-2      | RESIDENCE, BRIGHTVIEW DRIVE | 7.3      |             |     |       |     |       |     | 7.6   | 7.8 |       |     |
| 3-3      | RESIDENCE, BRIGHTVIEW DRIVE | 7.2      |             |     |       |     |       |     | 7.4   | 7.5 |       |     |
| 3-4      | RESIDENCE, BRIGHTVIEW DRIVE | 7.2      |             |     |       |     |       |     | 7.4   | 7.5 |       |     |
| 3-5      | RESIDENCE, MARTIN DRIVE     | 7.2      |             |     |       |     |       |     | 7.4   | 7.6 |       |     |
| 3-6      | RESIDENCE, BRIGHTVIEW DRIVE | 7.5      |             |     |       |     |       |     | 7.5   | 7.8 |       |     |
| 3-7      | RESIDENCE, BRIGHTVIEW DRIVE | 7.2      |             |     |       |     |       |     | 7.4   | 7.5 |       |     |
| 3-8      | RESIDENCE, OBRECHT ROAD     | 7.3      |             |     |       |     |       |     | 7.5   | 7.6 |       |     |
| 3-9      | RESIDENCE, OBRECHT ROAD     | 7.5      |             |     |       |     |       |     | 7.5   | 7.6 |       |     |
| 3-10     | B&A TRAIL RIGHT-OF-WAY      |          |             |     |       |     |       |     | 7.5   | 7.6 |       |     |

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TABLE IV-7  
EAST/WEST BOULEVARD AIR QUALITY ANALYSIS  
1998 8-HOUR CO CONCENTRATIONS  
(PPM)

| RECEPTOR | DESCRIPTION                 | NO-BUILD | ALTERNATE 2 |     |       |     |       |     | ALT 3 |     | ALT 4 |     |
|----------|-----------------------------|----------|-------------|-----|-------|-----|-------|-----|-------|-----|-------|-----|
|          |                             |          | OPT 1       |     | OPT 2 |     | OPT 3 |     | 2LN   | 4LN | 2LN   | 4LN |
|          |                             |          | 2LN         | 4LN | 2LN   | 4LN | 2LN   | 4LN |       |     |       |     |
| 2-1      | RESIDENCE, VETERANS HWY     |          | 3.9         | 4.0 | 3.9   | 4.0 | 3.9   | 4.0 |       |     |       |     |
| 2-2      | RESIDENCE, LARBO ROAD       |          | 3.9         | 3.9 | 3.9   | 3.9 | 3.9   | 3.9 |       |     |       |     |
| 2-3      | RESIDENCE, RED BLUFF CT.    |          | 3.9         | 3.9 | 3.9   | 3.9 | 3.9   | 3.9 |       |     |       |     |
| 2-4      | RESIDENCE, COOL GLADE       |          | 3.9         | 4.0 | 3.9   | 3.9 | 3.9   | 4.0 |       |     |       |     |
| 2-5      | RIGHT-OF-WAY                |          | 3.9         | 4.0 | 3.9   | 4.0 | 3.9   | 4.0 |       |     |       |     |
| 2-6      | RESIDENCE, WOODLAND ROAD    |          | 3.9         | 3.9 | 3.8   | 3.9 | 3.9   | 4.1 |       |     |       |     |
| 2-7      | RESIDENCE, WOODLAND ROAD    |          | 3.8         | 3.9 | 3.9   | 4.1 | 3.8   | 3.9 |       |     |       |     |
| 2-8      | PARK RIGHT-OF-WAY           |          | 4.0         | 4.1 | 3.9   | 4.0 | 3.9   | 4.0 |       |     |       |     |
| 2-9      | RESIDENCE, W. PASADENA ROAD |          | 3.9         | 3.9 | 3.9   | 3.9 | 3.9   | 4.0 |       |     |       |     |
| 2-10     | RESIDENCE, W. PASADENA ROAD |          | 3.9         | 3.9 | 3.9   | 3.9 | 3.9   | 3.9 |       |     |       |     |
| 2-11     | RESIDENCE, BOLM ROAD        |          | 4.0         | 4.0 | 4.0   | 4.0 | 4.0   | 4.0 |       |     |       |     |
| 2-12     | B&A TRAIL RIGHT-OF-WAY      |          | 4.1         | 4.3 | 4.1   | 4.3 | 4.1   | 4.3 |       |     |       |     |
| 2-13     | RESIDENCE, MISSION STREET   |          | 4.3         | 4.3 | 4.3   | 4.3 | 4.3   | 4.3 |       |     |       |     |
| 3-1      | RESIDENCE, WHEAT MILL COURT | 4.0      |             |     |       |     |       |     | 4.0   | 4.1 |       |     |
| 3-2      | RESIDENCE, BRIGHTVIEW DRIVE | 3.9      |             |     |       |     |       |     | 4.0   | 4.2 |       |     |
| 3-3      | RESIDENCE, BRIGHTVIEW DRIVE | 3.9      |             |     |       |     |       |     | 3.9   | 4.0 |       |     |
| 3-4      | RESIDENCE, BRIGHTVIEW DRIVE | 3.9      |             |     |       |     |       |     | 3.9   | 4.0 |       |     |
| 3-5      | RESIDENCE, MARTIN DRIVE     | 3.9      |             |     |       |     |       |     | 4.0   | 4.1 |       |     |
| 3-6      | RESIDENCE, BRIGHTVIEW DRIVE | 3.9      |             |     |       |     |       |     | 4.0   | 4.0 |       |     |
| 3-7      | RESIDENCE, BRIGHTVIEW DRIVE | 3.9      |             |     |       |     |       |     | 3.9   | 4.0 |       |     |
| 3-8      | RESIDENCE, OBRECHT ROAD     | 3.9      |             |     |       |     |       |     | 3.9   | 4.1 |       |     |
| 3-9      | RESIDENCE, OBRECHT ROAD     | 4.1      |             |     |       |     |       |     | 4.0   | 4.1 |       |     |
| 3-10     | B&A TRAIL RIGHT-OF-WAY      |          |             |     |       |     |       |     | 4.1   | 4.1 |       |     |

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TABLE IV-8  
EAST/WEST BOULEVARD AIR QUALITY ANALYSIS  
2015 1-HOUR CO CONCENTRATIONS  
(PPM)

| RECEPTOR | DESCRIPTION                 | NO-BUILD | ALTERNATE 2 |     |       |     |       |     | ALT 3 |     | ALT 4 |     |
|----------|-----------------------------|----------|-------------|-----|-------|-----|-------|-----|-------|-----|-------|-----|
|          |                             |          | OPT 1       |     | OPT 2 |     | OPT 3 |     | 2LN   | 4LN | 2LN   | 4LN |
|          |                             |          | 2LN         | 4LN | 2LN   | 4LN | 2LN   | 4LN |       |     |       |     |
| 2-1      | RESIDENCE, VETERANS HWY     |          | 7.1         | 7.1 | 7.1   | 7.1 | 7.1   | 7.1 |       |     |       |     |
| 2-2      | RESIDENCE, LARBO ROAD       |          | 7.1         | 7.2 | 7.1   | 7.2 | 7.1   | 7.2 |       |     |       |     |
| 2-3      | RESIDENCE, RED BLUFF CT.    |          | 7.1         | 7.2 | 7.1   | 7.2 | 7.1   | 7.2 |       |     |       |     |
| 2-4      | RESIDENCE, COOL GLADE       |          | 7.1         | 7.2 | 7.1   | 7.2 | 7.1   | 7.1 |       |     |       |     |
| 2-5      | RIGHT-OF-WAY                |          | 7.2         | 7.2 | 7.2   | 7.2 | 7.2   | 7.1 |       |     |       |     |
| 2-6      | RESIDENCE, WOODLAND ROAD    |          | 7.1         | 7.2 | 7.1   | 7.1 | 7.1   | 7.1 |       |     |       |     |
| 2-7      | RESIDENCE, WOODLAND ROAD    |          | 7.1         | 7.1 | 7.1   | 7.2 | 7.1   | 7.1 |       |     |       |     |
| 2-8      | PARK RIGHT-OF-WAY           |          | 7.2         | 7.2 | 7.1   | 7.2 | 7.1   | 7.4 |       |     |       |     |
| 2-9      | RESIDENCE, W. PASADENA ROAD |          | 7.1         | 7.1 | 7.1   | 7.2 | 7.1   | 7.5 |       |     |       |     |
| 2-10     | RESIDENCE, W. PASADENA ROAD |          | 7.2         | 7.2 | 7.2   | 7.2 | 7.2   | 7.2 |       |     |       |     |
| 2-11     | RESIDENCE, HOLM ROAD        |          | 7.2         | 7.2 | 7.2   | 7.2 | 7.2   | 7.2 |       |     |       |     |
| 2-12     | B&A TRAIL RIGHT-OF-WAY      |          | 7.4         | 7.4 | 7.4   | 7.4 | 7.4   | 7.4 |       |     |       |     |
| 2-13     | RESIDENCE, MISSION STREET   |          | 7.4         | 7.5 | 7.4   | 7.5 | 7.4   | 7.5 |       |     |       |     |
| 3-1      | RESIDENCE, WHEAT MILL COURT | 7.1      |             |     |       |     |       |     | 7.2   | 7.3 |       |     |
| 3-2      | RESIDENCE, BRIGHTVIEW DRIVE | 7.1      |             |     |       |     |       |     | 7.2   | 7.3 |       |     |
| 3-3      | RESIDENCE, BRIGHTVIEW DRIVE | 7.1      |             |     |       |     |       |     | 7.2   | 7.2 |       |     |
| 3-4      | RESIDENCE, BRIGHTVIEW DRIVE | 7.1      |             |     |       |     |       |     | 7.2   | 7.2 |       |     |
| 3-5      | RESIDENCE, MARTIN DRIVE     | 7.1      |             |     |       |     |       |     | 7.3   | 7.3 |       |     |
| 3-6      | RESIDENCE, BRIGHTVIEW DRIVE | 7.2      |             |     |       |     |       |     | 7.3   | 7.3 |       |     |
| 3-7      | RESIDENCE, BRIGHTVIEW DRIVE | 7.1      |             |     |       |     |       |     | 7.2   | 7.3 |       |     |
| 3-8      | RESIDENCE, OBRECHT ROAD     | 7.1      |             |     |       |     |       |     | 7.2   | 7.3 |       |     |
| 3-9      | RESIDENCE, OBRECHT ROAD     | 7.2      |             |     |       |     |       |     | 7.2   | 7.2 |       |     |
| 3-10     | B&A TRAIL RIGHT-OF-WAY      |          |             |     |       |     |       |     | 7.2   | 7.2 |       |     |

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TABLE IV-9  
EAST/WEST BOULEVARD AIR QUALITY ANALYSIS  
2015 8-HOUR CO CONCENTRATIONS  
(PPM)

| RECEPTOR | DESCRIPTION                 | NO-BUILD | ALTERNATE 2 |     |       |     |       |     | ALT 3 |     | ALT 4 |     |
|----------|-----------------------------|----------|-------------|-----|-------|-----|-------|-----|-------|-----|-------|-----|
|          |                             |          | OPT 1       |     | OPT 2 |     | OPT 3 |     | 2LN   | 4LN | 2LN   | 4LN |
|          |                             |          | 2LN         | 4LN | 2LN   | 4LN | 2LN   | 4LN |       |     |       |     |
| 2-1      | RESIDENCE, VETERANS HWY     |          | 3.8         | 3.8 | 3.8   | 3.8 | 3.8   | 3.8 |       |     |       |     |
| 2-2      | RESIDENCE, LARBO ROAD       |          | 3.8         | 3.9 | 3.8   | 3.9 | 3.8   | 3.9 |       |     |       |     |
| 2-3      | RESIDENCE, RED BLUFF CT.    |          | 3.8         | 3.9 | 3.8   | 3.9 | 3.8   | 3.9 |       |     |       |     |
| 2-4      | RESIDENCE, COOL GLADE       |          | 3.9         | 3.9 | 3.8   | 3.9 | 3.9   | 3.8 |       |     |       |     |
| 2-5      | RIGHT-OF-WAY                |          | 3.9         | 3.9 | 3.9   | 3.9 | 3.9   | 3.8 |       |     |       |     |
| 2-6      | RESIDENCE, WOODLAND ROAD    |          | 3.9         | 3.9 | 3.9   | 3.9 | 3.9   | 3.9 |       |     |       |     |
| 2-7      | RESIDENCE, WOODLAND ROAD    |          | 3.9         | 3.9 | 4.0   | 4.0 | 3.9   | 3.9 |       |     |       |     |
| 2-8      | PARK RIGHT-OF-WAY           |          | 4.0         | 4.0 | 3.9   | 3.9 | 3.9   | 4.2 |       |     |       |     |
| 2-9      | RESIDENCE, W. PASADENA ROAD |          | 3.9         | 3.9 | 3.9   | 3.9 | 3.9   | 4.2 |       |     |       |     |
| 2-10     | RESIDENCE, W. PASADENA ROAD |          | 3.9         | 3.9 | 3.9   | 3.9 | 3.9   | 3.9 |       |     |       |     |
| 2-11     | RESIDENCE, BOLM ROAD        |          | 3.9         | 4.0 | 3.9   | 4.0 | 3.9   | 4.0 |       |     |       |     |
| 2-12     | B&A TRAIL RIGHT-OF-WAY      |          | 4.2         | 4.2 | 4.2   | 4.2 | 4.2   | 4.2 |       |     |       |     |
| 2-13     | RESIDENCE, MISSION STREET   |          | 4.3         | 4.4 | 4.3   | 4.4 | 4.3   | 4.4 |       |     |       |     |
| 3-1      | RESIDENCE, WHEAT MILL COURT | 3.8      |             |     |       |     |       |     | 3.9   | 3.9 |       |     |
| 3-2      | RESIDENCE, BRIGHTVIEW DRIVE | 3.9      |             |     |       |     |       |     | 3.9   | 4.0 |       |     |
| 3-3      | RESIDENCE, BRIGHTVIEW DRIVE | 3.9      |             |     |       |     |       |     | 3.9   | 3.9 |       |     |
| 3-4      | RESIDENCE, BRIGHTVIEW DRIVE | 3.9      |             |     |       |     |       |     | 3.9   | 3.9 |       |     |
| 3-5      | RESIDENCE, MARTIN DRIVE     | 3.8      |             |     |       |     |       |     | 3.9   | 4.0 |       |     |
| 3-6      | RESIDENCE, BRIGHTVIEW DRIVE | 3.9      |             |     |       |     |       |     | 3.8   | 4.0 |       |     |
| 3-7      | RESIDENCE, BRIGHTVIEW DRIVE | 3.8      |             |     |       |     |       |     | 3.9   | 3.9 |       |     |
| 3-8      | RESIDENCE, OBRECHT ROAD     | 3.9      |             |     |       |     |       |     | 3.9   | 3.9 |       |     |
| 3-9      | RESIDENCE, OBRECHT ROAD     | 4.0      |             |     |       |     |       |     | 3.9   | 3.9 |       |     |
| 3-10     | B&A TRAIL RIGHT-OF-WAY      |          |             |     |       |     |       |     | 4.0   | 4.0 |       |     |

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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. This Administration has addressed this possibility by establishing Specifications for Construction and Materials procedures that are to be followed by contractors involved in state work.

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

6. **Conformity with Regional Air Quality Planning**

This project is located within the Metropolitan Baltimore Intrastate Air Quality Control Region. This project is in an air quality nonattainment area which has transportation control measures in the State Implementation Plan (SIP).

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The project conforms with the SIP as it originates from the conforming transportation improvement program.

**7. Agency Coordination**

Copies of the technical Air Quality analysis will be circulated to the U. S. Environmental Protection Agency and the Maryland Air Management Administration for review and comment.

**E. Noise Levels and Associated Impacts**

**1. Abatement Criteria and Land Use Relationships**

This noise analysis was completed in accordance with 23 CFR, Part 772. Noise impacts occur when the predicted noise levels approach or exceed the noise abatement criteria, or when the predicted traffic noise levels are substantive or exceed the existing or ambient noise levels (see Table IV - 10). This Administration uses a 10 dBA increase over existing levels to define a substantive increase. Noise abatement or mitigation would be evaluated when a noise impact is identified. The factors that were considered in identifying noise impacts are:

Table IV-10

NOISE ABATEMENT CRITERIA  
SPECIFIED IN 23 CFR 772

| <u>Activity Category</u> | <u>Leg (h)</u> | <u>Description of Activity Category</u>   |
|--------------------------|----------------|---|
| A                        | 57 (Exterior)  | Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose. |
| B                        | 67 (Exterior)  | Picnic areas, recreation areas, playgrounds active sport 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.   |

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- Identification of existing land use;
  - Existing noise levels;
  - Prediction of future design year noise levels; and
  - Potential traffic increases.

The factors that were considered when determining whether mitigation is reasonable and feasible are:

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

An effective barrier should, in general, extend in both directions to four times the distance between receiver and roadway (source). In addition, an effective barrier should provide a 7-10 dBA reduction in the noise level as a preliminary design goal. However, any impacted noise receptor which would receive a 5 decibel reduction is considered when determining the cost-effectiveness of a barrier.

Cost-effectiveness is determined by dividing the total number of impacted sensitive sites in a specified noise sensitive area, that would receive at least a 5 dBA reduction of noise levels, into



the total cost of the noise mitigation. For the purpose of comparison, a total cost of \$16.50 per square foot is assumed to estimate total barrier cost.

This cost figure is based upon current costs experienced by this Administration and includes the cost of panels, footing, drainage, landscaping, and overhead. The State Highway Administration has established approximately \$40,000 per residence protected as being the maximum cost for a barrier to be considered reasonable.

Consideration is based on the size of the impacted area (number of structures, spatial distribution of structures, etc.), the predominant activities carried on within the area, the visual impact of the control measure, practicality of construction, feasibility, and reasonableness.

**2. Impact Analysis and Feasibility of Noise Abatement**  
**No-Build Alternative**

Evaluation of the No-Build Alternative was performed for Alternatives 3A, 3B, and 4B to serve as a base case from which to assess the specific noise level increases resulting from the proposed improvements.

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Alternatives 2A and 2B are mostly on new alignment. The No-Build Alternative assumes that no highway improvements, other than normal maintenance, would occur within the project area.

The results of the modeling revealed several site conditions where the predicted noise level is actually lower than an existing ambient level. Such an occurrence is attributable to fluctuations in traffic volumes by time of day, vehicle mixes, vehicle speeds, and other extraneous influences from non-highway sources (e.g., aircraft flyovers).

Noise abatement measures would not be provided under the No-Build Alternative. The increases over the ambient levels are shown on Table IV-12 and IV-13 and increase by as much as 8 dBA.

#### **Build Alternatives**

Construction of any of the alternatives would necessarily place traffic closer to most noise sensitive areas. Tables IV-11, 12 and 13 present the  $L_{eq}$  values predicted for each of the Build alternatives at each of the NSAs. These areas are shown on Figures II-4 through II-11 in Section 2 - Alternatives Considered of this document.

TABLE IV - 11

**2015 FUTURE YEAR NOISE LEVELS  
ALTERNATIVES 2A AND 2B**

| Receptor | Ambient Noise Level $L_{eq}$ in dBA | Alternative 2A           |                     |                          |                     |                          |                     | Alternative 2B           |                     |                          |                     |                          |                     |
|----------|-------------------------------------|--------------------------|---------------------|--------------------------|---------------------|--------------------------|---------------------|--------------------------|---------------------|--------------------------|---------------------|--------------------------|---------------------|
|          |                                     | Option 1                 |                     | Option 2                 |                     | Option 3                 |                     | Option 1                 |                     | Option 2                 |                     | Option 3                 |                     |
|          |                                     | Build $L_{eq}(h)$ in dBA | Change from Ambient | Build $L_{eq}(h)$ in dBA | Change from Ambient | Build $L_{eq}(h)$ in dBA | Change from Ambient | Build $L_{eq}(h)$ in dBA | Change from Ambient | Build $L_{eq}(h)$ in dBA | Change from Ambient | Build $L_{eq}(h)$ in dBA | Change from Ambient |
| 2-1      | 50                                  | 59                       | +9                  | 59                       | +9                  | 59                       | +9                  | 62                       | *+13                | 62                       | *+13                | 62                       | *+13                |
| 2-2      | 57                                  | 62                       | +5                  | 62                       | +5                  | 62                       | +5                  | 66                       | +9                  | 66                       | +9                  | 66                       | +9                  |
| 2-3      | 54                                  | 61                       | +7                  | 61                       | +7                  | 61                       | +7                  | 64                       | *+10                | 64                       | *+10                | 64                       | *+10                |
| 2-4      | 57                                  | 63                       | +6                  | 63                       | +6                  | 63                       | +6                  | 65                       | -8                  | 65                       | +8                  | 65                       | +8                  |
| 2-5      | 56                                  | 65                       | +9                  | 65                       | +9                  | 65                       | +9                  | *71                      | *+15                | *71                      | *+15                | *71                      | +15                 |
| 2-6      | 60                                  | 58                       | -2                  | 53                       | -7                  | 58                       | -2                  | 62                       | +2                  | 56                       | -4                  | 62                       | +2                  |
| 2-7      | 61                                  | 54                       | -7                  | 61                       | 0                   | 54                       | -7                  | 57                       | -4                  | 63                       | +2                  | 57                       | -4                  |
| 2-8      | 52                                  | 66                       | *+14                | 66                       | *+14                | 66                       | *+14                | *68                      | *+16                | *68                      | *+16                | *68                      | *+16                |
| 2-9      | 57                                  | 56                       | -1                  | 60                       | +3                  | 57                       | -1                  | 59                       | +2                  | 64                       | +7                  | 60                       | +3                  |
| 2-10     | 54                                  | 60                       | +6                  | 56                       | +2                  | 60                       | +6                  | 63                       | +9                  | 59                       | +5                  | 63                       | +9                  |
| 2-11     | 59                                  | 59                       | 0                   | 59                       | 0                   | 59                       | 0                   | 60                       | +1                  | 60                       | +1                  | 60                       | +1                  |
| 2-12     | 62                                  | 68                       | +6                  | *68                      | +6                  | *68                      | +6                  | *72                      | *+10                | *72                      | *+10                | *72                      | *+10                |
| 2-13     | 57                                  | *69                      | *+12                | *69                      | *+12                | *69                      | *+12                | *72                      | *+15                | *72                      | *+15                | *72                      | *+15                |

\* Equals or exceeds FHWA noise abatement criteria, or experiences an increase of 10 dBA or more over existing levels.

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TABLE IV - 12

**2015 FUTURE YEAR NOISE LEVELS  
ALTERNATIVES 3A AND 3B**

| Receptor | Ambient Noise Level<br>L <sub>eq</sub> (h)<br>in dBA | No-Build Noise Level<br>L <sub>eq</sub> (h)<br>in dBA | Alternative 3A                                     |                     |                      | Alternative 3B                                     |                     |                      |
|----------|--|---|--|---------------------|----------------------|--|---------------------|----------------------|
|          |  |   | Build Noise Level<br>L <sub>eq</sub> (h)<br>in dBA | Change from Ambient | Change from No-Build | Build Noise Level<br>L <sub>eq</sub> (h)<br>in dBA | Change from Ambient | Change from No-Build |
| 3-1      | 53   | 61  | 64   | *+11                | +3                   | *68  | *+15                | +7                   |
| 3-2      | 63   | 63  | 62   | -1                  | -1                   | 66   | +3                  | +3                   |
| 3-3      | 60   | 59  | 60   | 0                   | +1                   | 64   | +4                  | +5                   |
| 3-4      | 60   | 62  | 62   | +2                  | 0                    | 66   | +6                  | +4                   |
| 3-5      | 56   | 58  | 59   | +3                  | +1                   | 62   | +6                  | +4                   |
| 3-6      | 57   | 60  | 61   | +4                  | +1                   | 65   | +8                  | +5                   |
| 3-7      | 58   | 61  | 59   | +1                  | -2                   | 61   | +3                  | 0                    |
| 3-8      | 58   | 63  | 59   | +1                  | -4                   | 61   | +3                  | -2                   |
| 3-9      | 58   | 61  | 62   | +2                  | +1                   | 64   | +6                  | +3                   |
| 3-10     | 57   | N/A   | *69  | *+12                | --                   | *71  | *+14                | --                   |

\* Equals or exceeds FHWA noise abatement criteria, or experiences noise levels 10 dBA or greater over existing levels.

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**TABLE IV - 13**  
**2015 FUTURE YEAR NOISE LEVELS**  
**ALTERNATIVE 4B**

| Receptor | Ambient<br>Noise<br>Level<br>$L_{eq}(h)$<br>in dBA | No-Build<br>Noise<br>Level<br>$L_{eq}(h)$<br>in dBA | Build<br>Noise<br>Level<br>$L_{eq}(h)$<br>in dBA | Change<br>from<br>Ambient |
|----------|--|---|--|---------------------------|
| 4-1      | 63   | 61  | 64   | +1                        |
| 4-2      | 54   | 61  | 64   | +4                        |
| 4-3      | *68  | 56  | *68  | 0                         |
| 4-4      | 62   | 61  | 64   | +2                        |
| 4-5      | *69  | 62  | 64   | -5                        |
| 4-6      | 65   | 65  | *68  | +3                        |
| 4-7      | *67  | 64  | 66   | -1                        |
| 4-8      | 60   | 64  | 66   | +6                        |
| 4-9      | 65   | 56  | 60   | -6                        |
| 4-10     | *68  | 63  | 65   | -3                        |
| 4-11     | 66   | 66  | *68  | +2                        |
| 4-12     | 60   | *67   | *69  | +9                        |
| 4-13     | 65   | *68   | *68  | +3                        |
| 4-14     | 61   | *68   | *71  | *+10                      |

\* Equals or exceeds FHWA noise abatement criteria, or experiences an increase of 10 dBA or more over existing levels.

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A total of 37 noise sensitive sites were modeled which correspond to the five alternates being studied. Thirteen receptors were modeled for both Alternatives 2A and 2B, 10 separate receptors for Alternatives 3A and 3B, and yet 14 other receptors for Alternative 4B.

Impacts for the receptors are discussed below by alternative. Each of the receptors that equals or exceeds noise abatement criteria, or exceeds ambient levels by 10 dBA or more were considered for abatement. The analysis of abatement feasibility was initiated by placing barriers between the proposed alternatives and the previously described NSAs. Preliminary barrier heights and lengths were determined through the use of the OPTIMA model. The analysis involved consideration of noise barriers, the results of which are presented in Tables IV-14 to IV-16.

#### Noise Levels for Alternatives 2A and 2B

Four of the 13 receptors modeled for Options 1 through 3 at Alternative 2A would have resultant noise levels that equals or exceeds the noise abatement criteria of 67 dBA. In addition NSA 2-1, while having noise levels below design criteria, would experience a 10 dBA and a 13 dBA increase in noise levels under Alternative 2A and 2B (all options).

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**TABLE IV - 14  
ALTERNATIVES 2A AND 2B  
NOISE ABATEMENT SUMMARY**

| Noise Sensitive Area | Alternative Abated | Barrier Length (Feet) | Barrier Height (Feet) | Total Cost | Insertion Loss (dBA) | Residences Benefitted                           | Cost Per Residence |
|----------------------|--------------------|-----------------------|-----------------------|------------|----------------------|---|--------------------|
| 2-1                  | 2A and 2B          | 712                   | 15                    | \$176,200  | 8                    | 1   | \$176,200          |
| 2-2                  | 2B                 | 696                   | 13                    | \$149,300  | 8                    | 1   | \$149,300          |
| 2-4                  | 2B                 | 1,580                 | 13                    | \$339,100  | 10                   | 9   | \$37,680           |
| 2-8                  | 2A and 2B          | 2,180                 | 13                    | \$466,540  | 10                   | 1,600 L.F. of Elvaton Park equals 14 residences | \$33,324           |
| 2-13                 | 2A and 2B          | 500                   | 13                    | \$106,800  | 9                    | 2   | \$53,400           |

**TABLE IV - 15  
ALTERNATIVES 3A AND 3B  
NOISE ABATEMENT SUMMARY**

| Noise Sensitive Area | Alternative Abated | Barrier Length (Feet) | Barrier Height (Feet) | Total Cost | Insertion Loss (dBA) | Residences Benefitted | Cost Per Residence |
|----------------------|--------------------|-----------------------|-----------------------|------------|----------------------|-----------------------|--------------------|
| 3-1                  | 3A                 | 984                   | 13                    | \$211,100  | 9                    | 8                     | \$26,380           |
| 3-1 & 3-2            | 3B                 | 3,375                 | 13                    | \$723,900  | 10, 12               | 23                    | \$31,500           |
| 3-4                  | 3B                 | 1,600                 | 13                    | \$342,500  | 6                    | 7                     | \$48,400           |

**TABLE IV -16  
ALTERNATIVE 4B  
NOISE ABATEMENT SUMMARY**

| Noise Sensitive Area | Barrier Length (Feet) | Barrier Height (Feet) | Total Cost | Insertion Loss (dBA) | Residences Benefitted                                     | Cost Per Residence |
|----------------------|-----------------------|-----------------------|------------|----------------------|---|--------------------|
| 4-3                  | 900                   | 12                    | \$178,200  | 11                   | 4   | \$44,500           |
| 4-6                  | 1,195                 | 12                    | \$236,600  | 9                    | 5   | \$47,320           |
| 4-7                  | 1,560                 | 12                    | \$308,900  | 10                   | 5   | \$61,780           |
| 4-8                  | 1,100                 | 12                    | \$218,200  | 10                   | 7   | \$31,170           |
| 4-11                 | 1,830                 | 12                    | \$362,740  | 12                   | 16  | \$22,700           |
| 4-12                 | 800                   | 12                    | \$157,000  | 14                   | 600 L.F. of Severna Park High School equals 10 residences | \$15,700           |
| 4-13                 | 685                   | 12                    | \$135,400  | 11                   | 4   | \$33,850           |

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Under Alternative 2A, NSAs 2-8 and 2-13 were analyzed. Although NSAs 2-5 and 2-12 exceeded abatement criteria, these areas were not analyzed. NSA 2-5 is a right-of-way point adjacent to which is a development under construction. This location would need to be analyzed once this construction is completed.

NSA 2-12 is a right-of-way point on the B&A Trail, for which abatement was not considered because any type of structure would sever the trail.

Under Alternative 2B NSAs 2-1, 2-2, 2-4, 2-5, 2-8, and 2-13 were analyzed for abatement, while NSA 2-12 was not for the reasons stated above.

Six of the 13 receptors modeled for Options 1 through 3 of Alternative 2B would have resultant noise levels that approach or exceed the noise abatement criteria of 67 dBA. In addition, NSA 2-1 would experience a 13 dBA increase over ambient levels.

#### **Abatement Considerations for Alternatives 2A and 2B**

The abatement analysis for these two alternates are identical for NSAs 2-8 and 2-13 because the right-of-way and cut/fill limits are identical for the same option under each alternative. The abatement requirements for NSAs



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2-1, 2-2 and 2-4 under Alternative 2B would be the same for all options.

NSA 2-1 (Alternative 2A and 2B - all Options)  
- This is a single-family residence located off Veterans Highway. The predicted  $L_{eq}$  for this site is 59 dBA and 62 dBA for Alternatives 2A and 2B respectively. A barrier 712 feet long and 15 feet high would lower the predicted  $L_{eq}$  to 54 dBA with a total construction cost of \$176,200. This barrier only protects this single residence and the \$176,200 cost exceeds the \$40,000 established by this Administration and is therefore not considered reasonable

NSA 2-2 (Alternative 2B - Options 1, 2, and 3) - This is a single-family residence located on Larbo Road. The predicted  $L_{eq}$  for this site is 66 dBA for each option. A barrier 696 feet long and 13 feet high would lower the predicted  $L_{eq}$  to 58 dBA with a total construction cost of \$149,300. This barrier only protects this single residence and the \$149,300 cost exceeds the \$40,000 established by SHA and is not reasonable.

NSA 2-4 (Alternative 2B - Options 1, 2, and 3) - This noise sensitive area consists of approximately eleven single-family residences located on Cool Glade Court and Longthorn Circle. The predicted  $L_{eq}$  for area this is 65 dBA for all

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options.

A barrier 1,580 feet long and 13 feet high would provide at least a 5 dBA reduction for nine of these residences with a total construction cost of \$339,100. The resulting cost-per-residence benefitted is \$37,680. Construction of this barrier would eliminate the only ingress/egress point which is to East - West Boulevard. For this reason, abatement at this location is not considered feasible.

NSA 2-8 (Alternatives 2A and 2B - All Options) - This NSA is 1,600 linear feet of Elvaton Park adjacent to the proposed alternative. The predicted  $L_{eq}$  for this site is 66 dBA for Alternative 2A - All Options and 68 dBA for Alternative 2B - All Options. A barrier 2,180 feet long and 13 feet high would reduce noise levels 7 to 10 dBA at points adjacent to the proposed right-of-way. The total construction cost of this barrier is \$466,540. The equivalent cost per residence would be \$33,324, based on one equivalent residence for every 125 feet of linear impact. Active recreational facilities (ie: ballfields) are present immediately adjacent to the Alternative 2A and 2B (all options) alignment. A final decision on whether noise abatement is considered reasonable or feasible will be made

after further studies have been completed during the design phase. This decision will occur as a result of continued coordination with Anne Arundel County Park Officials.

NSA 2-13 (Alternative 2A and 2B - All Options) - this NSA consists of approximately four single-family residences located on the south side of Mission Street. The predicted  $L_{eq}$  for this site is 69 dBA for Alternative 2A - All Options, and 72 dBA for Alternative 2B - All Options.

A barrier 500 feet long and 13 feet high would provide a 9 dBA reduction for two of these impacted residences at this location. This barrier has a total construction cost of \$106,800 with a resulting cost-per-residence of \$53,400. In addition to the excessive cost-per-residence, this barrier would eliminate the ingress/egress to Mission Street which does not make this barrier feasible. Residences on the north side of Mission Street would experience similar impacts to those on the south side.

#### **Noise Levels for Alternatives 3A and 3B**

Under Alternative 3A, the only receptor to exceed 67 dBA was NSA 3-10, a right-of-way point located on the B&A Trail. This site was not analyzed for the reasons described under

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Alternatives 2A and 2B for NSA 3-12. One receptor, NSA 3-1 did exceed ambient levels by more than 10 dBA, therefore the site was analyzed for abatement.

Four of the 10 receptors modeled for Alternative 3B would approach or exceed the FHWA noise abatement criteria of 67 dBA. One of these four sites would also exceed ambient by more than 10 dBA. NSA 3-10 was not analyzed as discussed previously. Under this alternative, three areas were analyzed for abatement. NSAs 3-1, 3-2, and 3-4 each of which approached or exceeded the FHWA criteria of 67 dBA.

#### Abatement Considerations for Alternatives 3A and 3B

NSA 3-1 (Alternative 3A) - This NSA consists of approximately 14 single-family homes on Wheat Mill Court and Flour Mill Drive. The predicted  $L_{eq}$  for this site is 64 dBA, 11 dBA over the ambient, for Alternative 3A. A barrier 984 feet long and 13 feet high would provide a 7 to 9 dBA reduction to eight of these impacted residences. The total construction cost of this barrier is \$211,100 with a cost-per-residence of \$26,380. This barrier, however, would eliminate access to Flour Mill Drive and Millrace Drive, and this is not

considered reasonable.

NSAs 3-1 and 3-2 (Alternative 3B) - NSA 3-1 consists of approximately 14 single-family residences on Wheat Mill Court and Flour Mill Drive. NSA 3-2 consists of approximately 13 single-family residences along Brightview Drive. NSA 3-1 has a predicted  $L_{eq}$  of 68 dBA, while NSA 3-2 has an  $L_{eq}$  of 66 dBA. A single noise barrier with a total length of 3,375 feet and 13 feet high would provide NSA 3-1 with a 10 dBA reduction and NSA 3-2 with a 12 dBA reduction. Twenty-three (23) of these twenty-seven residences would be impacted would receive a 7 to 12 dBA reduction in noise levels. The total construction cost of this wall is \$723,900 with a cost-per-residence of \$31,500. This wall would, however, eliminate the access points from Flour Mill Drive, Millrace Road, and Kenora Drive to Brightview Drive, as well as totally eliminate access to several residences on Brightview Drive. For this reason, abatement at these NSAs is not considered feasible.

NSA 3-4 (Alternative 3B) - This NSA consists of approximately eight single-family residences on Brightview Drive, with a predicted  $L_{eq}$  of 66 dBA. Seven of these eight residences would be impacted and receive a 5-6 dBA reduction from a barrier

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1,600 feet long and 13 feet high. The total construction cost of this barrier is \$342,550 with a corresponding cost per residence of \$48,400. In addition, this barrier would eliminate access to Brightview Drive to Brightview Court and Sunnyview Drive. Due to the excessive cost-per-residence and access elimination, this barrier is not considered reasonable.

#### Noise Levels for Alternative 4B

Eight of the 14 receptors modeled for this alternative would approach or exceed the noise abatement criteria of 67 dBA. One of the eight would exceed ambient by more than 10 dBA.

This alternative had seven areas which were analyzed for abatement, NSAs 4-3, 4-6, 4-7, 4-8, 4-11, 4-12, and 4-13. NSA 4-14 is a right-of-way point on the B&A Trail. Abatement was not considered because any type of abatement construction would sever the trail.

#### Abatement Considerations for Alternative 4B

NSA 4-3 - This NSA consists of approximately four single-family residences located on Benfield Boulevard with a predicted  $L_{eq}$  of 68 dBA. A barrier 900 feet long and 12 feet high would provide a 11 dBA reduction in noise levels at this

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site and a 7 to 10 dBA reduction at all four of these impacted sites. The total construction cost of this barrier is \$178,200, with a cost-per-residence of \$44,500. In addition to the excessive cost-per-residence, this barrier would eliminate access from the homes in this area from Benfield Boulevard and therefore this barrier is not considered reasonable or feasible.

NSA 4-6 - This NSA consists of approximately nine residences along Lynwood Drive with a predicted  $L_{eq}$  of 68 dBA. A barrier 1,195 feet long and 12 feet high would reduce the levels at this site to 59 dBA. Five of the nine residences would be impacted and would receive a minimum 5 dBA reduction from a barrier. The total construction cost of this barrier is \$236,600 with a cost-per-residence of \$47,320. Due to the excessive cost and the elimination of access to Benfield Boulevard from Lynwood Road, this barrier is not considered reasonable or feasible.

NSA 4-7 - This NSA consists of approximately eight single-family residences located on Windward Drive with a predicted  $L_{eq}$  of 66 dBA. Five of the eight residences would be impacted. A barrier 1,560 feet long and 12 feet high would provide a 5 to 10 dBA reduction in noise levels to these five residences. The total construction cost of

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this barrier is \$308,900 with a cost-per-residence of \$61,780. In addition to the excessive cost-per-residence, the access to Windward Drive and Holly Road from Benfield Boulevard would be eliminated; therefore, this barrier is not considered reasonable or feasible.

NSA 4-8 - This NSA consists of approximately nine single-family residences along Banyon Court with a predicted  $L_{eq}$  of 66 dBA. Seven of the nine residences would be impacted at this NSA. A barrier 1,100 feet long and 12 feet high would benefit the seven impacted residences for a total construction cost of \$218,200. The cost-per-residence of this barrier is \$31,170. This wall would eliminate access from Benfield Boulevard to Kensington Drive and is therefore not considered feasible.

NSA 4-11 - This NSA consists of approximately twenty (20) single-family residences on Benfield Boulevard with a predicted  $L_{eq}$  of 68 dBA. A barrier 1,830 feet long and 12 feet high would reduce the  $L_{eq}$  to 56 dBA for a total cost of \$362,740. Sixteen of the twenty would be impacted and benefit from this barrier, with a cost-per-residence of \$22,700. However, because access from Sycamore Road and Holland Road to Benfield Boulevard would be eliminated, this barrier is not



considered feasible.

NSA 4-12 - This site is a right-of-way point adjacent to the track at Severna Park High School with a predicted  $L_{eq}$  of 69 dBA. To abate the 600 linear feet of track adjacent to this alternate, a barrier 800 feet long and 12 feet high would be required. The total construction cost of this barrier is \$157,000. The equivalent cost per residence would be \$15,700, based on a school equalling ten residences. This barrier will be studied in more detail during the design phase.

NSA 4-13 - This NSA consists of approximately seven single-family residences located on White Oak Drive with a predicted  $L_{eq}$  of 68 dBA. Five of these seven would be impacted by highway noise. A barrier 685 feet long and 12 feet high would provide a 5 to 11 dBA reduction to four of the five impacted residences in this area. The total cost of this barrier is \$135,400 with a cost-per-residence of \$33,850. Although this cost-per-residence is below \$40,000, this barrier is not considered feasible because access to Benfield Boulevard would be eliminated.

### 3. Construction Impacts

An increase in project area noise levels would occur during the construction of the

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proposed improvements. Construction noise differs from that generated by normal traffic. The actual level of noise impact during this period would be a function of the number and types of equipment being used, as well as the overall construction procedure.

Generally, construction activity would occur during normal working hours on weekdays. Therefore, noise impacts experienced by local residents as a result of construction activities should not occur during sleep or outdoor recreation periods.

#### **4. Other Mitigation Measures**

In addition to noise walls, other abatement measures were considered. These include:

##### **Traffic Management Measures**

Traffic management measures which could be used include traffic control devices and signing for prohibition of certain vehicles (heavy trucks), time use restrictions for certain types of vehicles, modified speed limits, and exclusive lane designations.

The projected traffic volumes contain a very low percentage of trucks and prohibiting them would not substantially reduce the predicted noise levels.

### **Alterations of Horizontal and Vertical Alignment**

This may not be feasible due to the close relationship between the existing residences and the proposed alternates. Modifying the vertical or horizontal alignment would require the acquisition of a large number of adjacent residences in the alternative corridors that are along the existing roadways.

### **Acquisition of Real Property or Property Rights to Establish Buffer Zones**

Existing residential development adjacent to the proposed alternates makes it infeasible to acquire substantial amounts of property for buffer areas for any of the proposed alternatives.

## **F. Energy Impacts**

It is anticipated that any of the Build Alternatives would result in an overall reduction of energy expended over the No-Build Alternative. This energy savings would be realized because Alternatives 2 and 3 would provide a more direct connection between Veterans Highway and MD 2, thereby reducing fuel consumption. All of the Build Alternatives would also result in more efficient operating speeds than the No-Build Alternative. Over time the energy savings should more than offset any secondary energy consumption expended during construction.

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**G. Relationships Between Short Term Effects and Long Term Productivity and Enhancement**

The proposed improvements should ease traffic congestion throughout the study area and allow vehicles to increase their speeds, thereby reducing the amount of air pollutants that would be contributed per vehicle. Roadway safety and efficiency would also be improved.

The long term effects of this project would include increased noise levels as well as the loss of wildlife habitat. Short term effects that would occur as a direct result of this project include the dust, erosion and noise associated with roadway construction, as well as any business or residential relocations that may be required.

**H. Irreversible and Irretrievable Commitments of Resources**

The principal irreversible and, for all practical purposes, irretrievable commitment of resources would be the land acquired for roadway right-of-way. This land is consider permanently committed to a transportation corridor. In addition, construction materials and suitable fill material for construction would be irretrievably committed.

V. SECTION 4(f)  
EVALUATION

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**V. SECTION 4(f) EVALUATION**

**A. Introduction**

Section 4(f) of the U.S. Department of Transportation Act of 1966 (49 U.S.C. 303 (c)) requires that the proposed use of any land from a significant publicly owned public park or recreation area, wildlife and waterfowl refuge, or from any significant historic site, be given particular attention. A determination must be made that there are no feasible and prudent alternatives to the use of land from the property and that the action includes all possible planning to minimize harm to the property resulting from such use.

**B. Description of the Proposed Action**

The proposed action involves the construction of a new east-west connection between Veterans Highway (Old MD 3) and MD 2 (Ritchie Highway), south of MD 10. In addition to the No-Build alternative, three alternative corridors, one of which is the Master Plan (Alternative 2) have been evaluated. The other corridors include the reconstruction of existing Brightview Drive/Obrecht Road (Alternative 3) and the restriping of existing Benfield Boulevard (Alternative 4). See Section II - Alternatives Considered of this document for a more detailed discussion of the proposed alternatives.

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This Section 4(f) Evaluation will concentrate only on impacts to Section 4(f) resources associated with the construction of the Master Plan alignment, reconstruction of Brightview Drive/Obrecht Road, and the restriping of Benfield Boulevard.

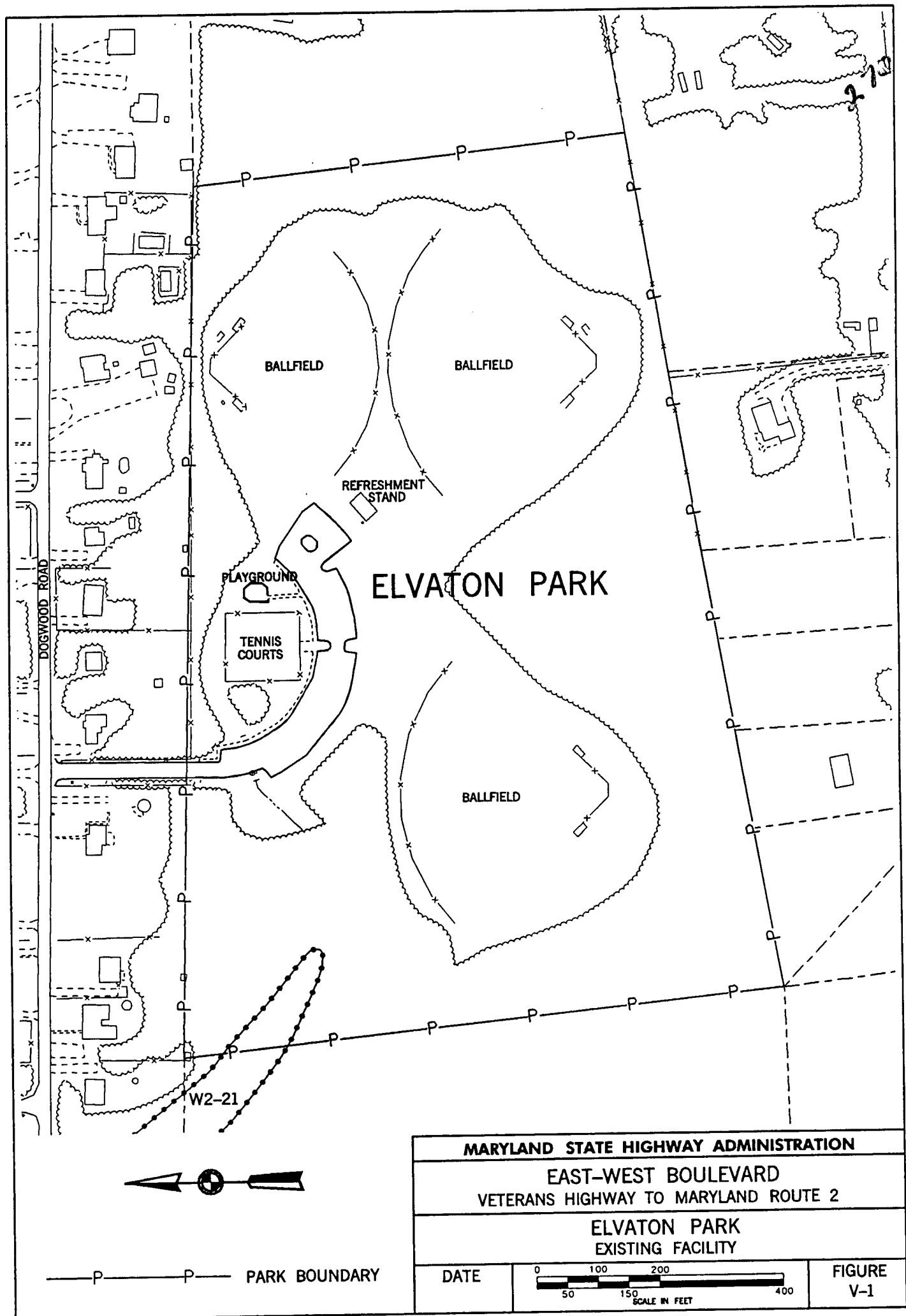
The purpose of this project is to provide additional traffic capacity and improved roadway geometrics for the east-west direction between Veterans Highway (Old MD 3) and MD 2 (Governor Ritchie Highway) in Anne Arundel County, Maryland. The additional capacity is needed to handle traffic volumes associated with planned and ongoing residential development within this study area. A more detailed discussion of the purpose and need for this project is described in **Section I - Need for the Project** of this document.

**C. Description of 4(f) Resources**

Elvaton Park would be affected by Alternative 2 and the Baltimore and Annapolis (B&A) Trail by alternatives 2 and 3.

**1. Elvaton Park**

The total area of Elvaton Park is approximately 26.85 acres (See Figure V-1). It was acquired utilizing Maryland Department of Natural Resources (DNR) Program Open Space (POS) funding, which would require the acquisition of





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replacement parcels. The park is owned and operated by the Anne Arundel County Department of Recreation and Parks. It is located within the center of the Elvaton community. This community is contained mostly within an area bounded by Woodland Road, Obrecht Road, Jumpers Hole Road, and West Pasadena Road.

Elvaton Park is a multi-purpose recreational facility that provides tennis courts, a playground, a refreshment stand, and baseball and softball fields. It is open year-round to the public and is used daily from March to November for organized adult and youth team sports. At the Alternates Public Meeting, which was held in September of 1989, many citizens were concerned about potential impacts to Elvaton Park.

2. B&A Trail

The B&A Trail is a 14 mile long hiker/biker trail that runs from Annapolis to Glen Burnie. The trail is also used by equestrians. It is located within the now abandoned 66 foot wide former right-of-way of the Baltimore and Annapolis Electric Railroad Company. Anne Arundel County purchased the property with POS funds in May of 1981. POS funds were also used to develop this facility which is also owned and operated by the

Anne Arundel County Department of Recreation and Parks.

The right-of-way for the trail is shared by the Baltimore Gas and Electric Company (BG&E) for transmission wires which run the entire length of the property. Continued utility company access is a design requirement for this park.

The B&A Trail is open to the public year-round and used daily by pedestrians, bicyclists, and equestrians. In addition to recreational activities, this trail is used for travel to schools, shopping centers, and libraries.

Rest areas with bike racks, groups of benches, picnic tables, trash receptacles and some drinking fountains are located at regular intervals within heavily used portions of the trail.

Because the trail is paved, emergency vehicles can access this right-of-way as well as adjoining properties. The trail also provides access for normal maintenance operations and to BG&E for service of their equipment within the right-of-way.

There are numerous at-grade crossings of the B&A Trail throughout its length. Within this project study area there are nine at-grade trail

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crossings. There are trail crossings at Elvaton Road and Jumpers Hole Road within the Alternative 3 (2 and 4-lane) corridor. These crossings are approximately 400 feet apart.

Within the Alternative 2 (2 and 4-lane with all Options) corridor there are also two existing trail crossings at West Pasadena Road and Railroad Avenue. These crossings are approximately 1400 feet apart.

The existing Average Daily Traffic (ADT) volumes along Robinson Road at the B&A Trail crossing are 11,700. The projected ADT volumes at the Alternative 2 and Alternative 3 crossings of the trail are 11,000 and 9,000 respectively.

#### **D. Description of Impacts**

##### **1. Elvaton Park**

The No-Build Alternative (Alternative 1) and Alternative 4B (4-lane Benfield Boulevard) would not require the acquisition of right-of-way from Elvaton Park.

Alternatives 2A and 2B, Option 1, follow the Anne Arundel County Master Plan Alignment. Both of these alternatives would directly impact one of the three main ballfields within Elvaton Park (See Figure V-2). The ballfield is used by organized

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adult and youth softball and baseball teams through County Recreation and Parks programs.

Alternative 2A, Option 1 would require the acquisition of 3.76 acres of property from the park. A total of 3.85 acres of right-of-way would be acquired from Elvaton Park for the four lane Alternative 2B, Option 1.

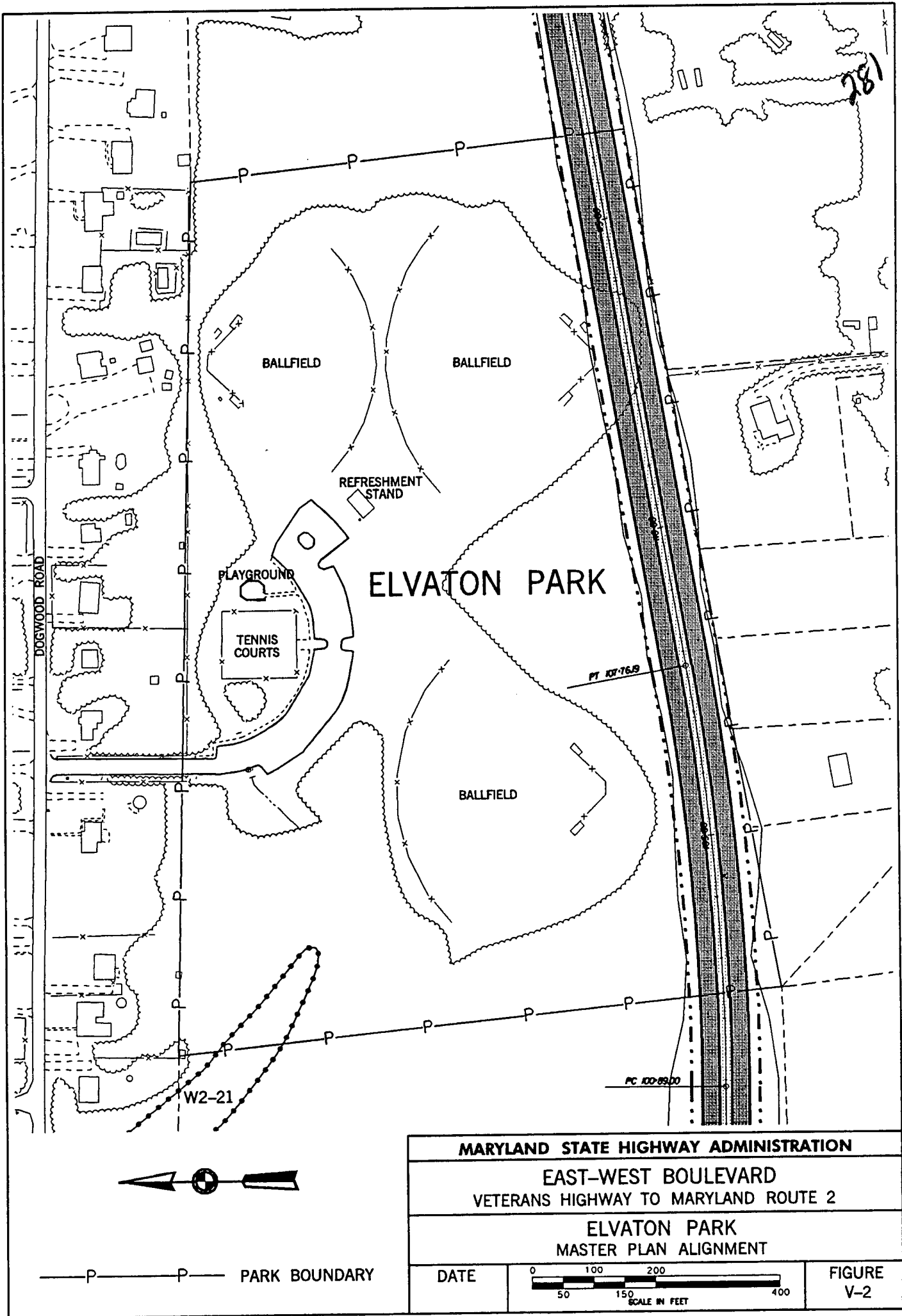
Elvaton Park would not be affected by Alternative 3A or B (2 and 4-lane reconstruction of Brightview Drive/Obrecht Road) or Alternative 4B (restriping Benfield Boulevard).

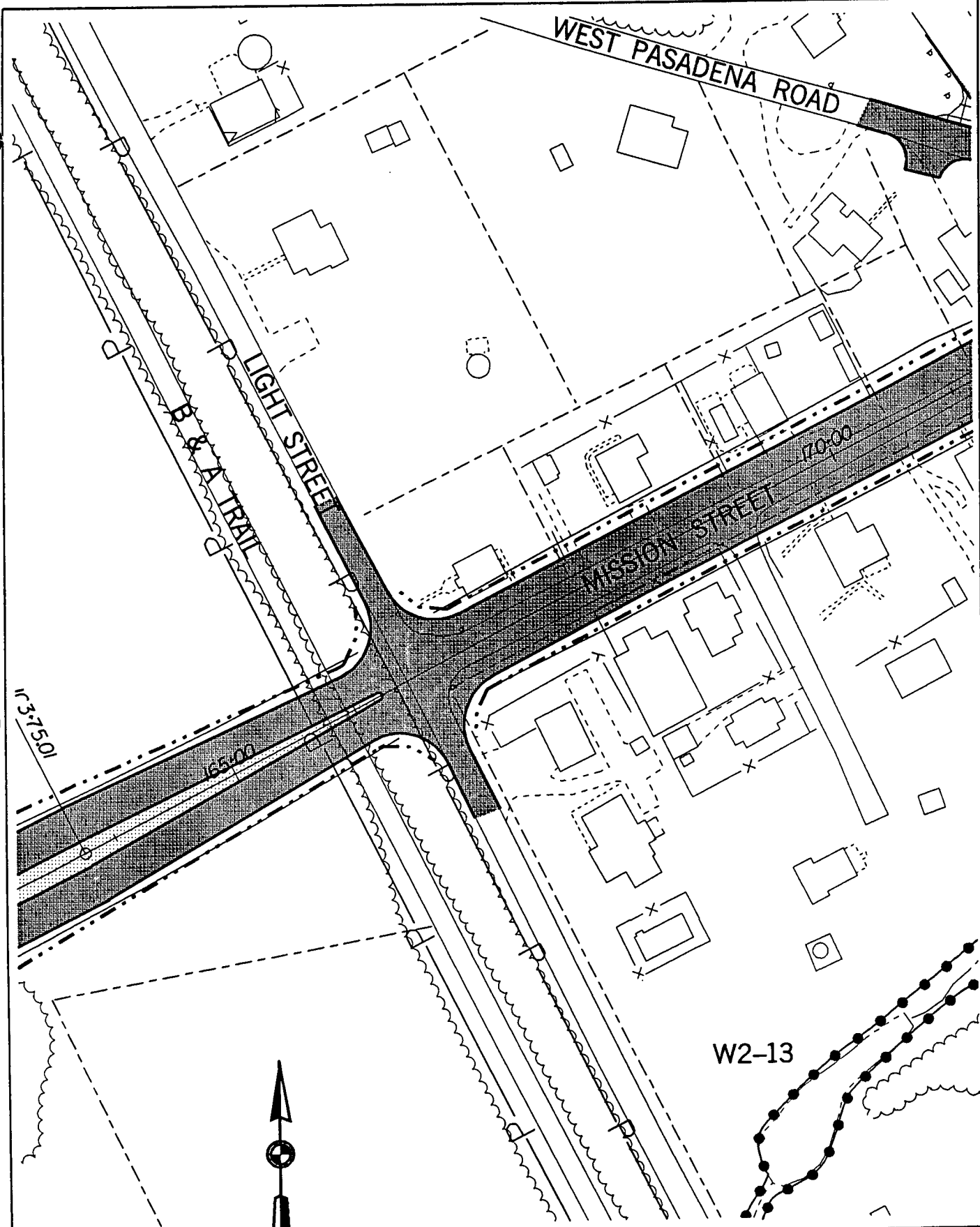
2. B&A Trail

The No-Build Alternative (Alternative 1) and Alternative 4B (4-lane Benfield Boulevard) would not require the acquisition of right-of-way from the B&A Trail.

The B&A Trail would be crossed by Alternatives 2A and 2B (all Options), requiring the acquisition of 0.12 acre of right-of-way (See Figure V-3).

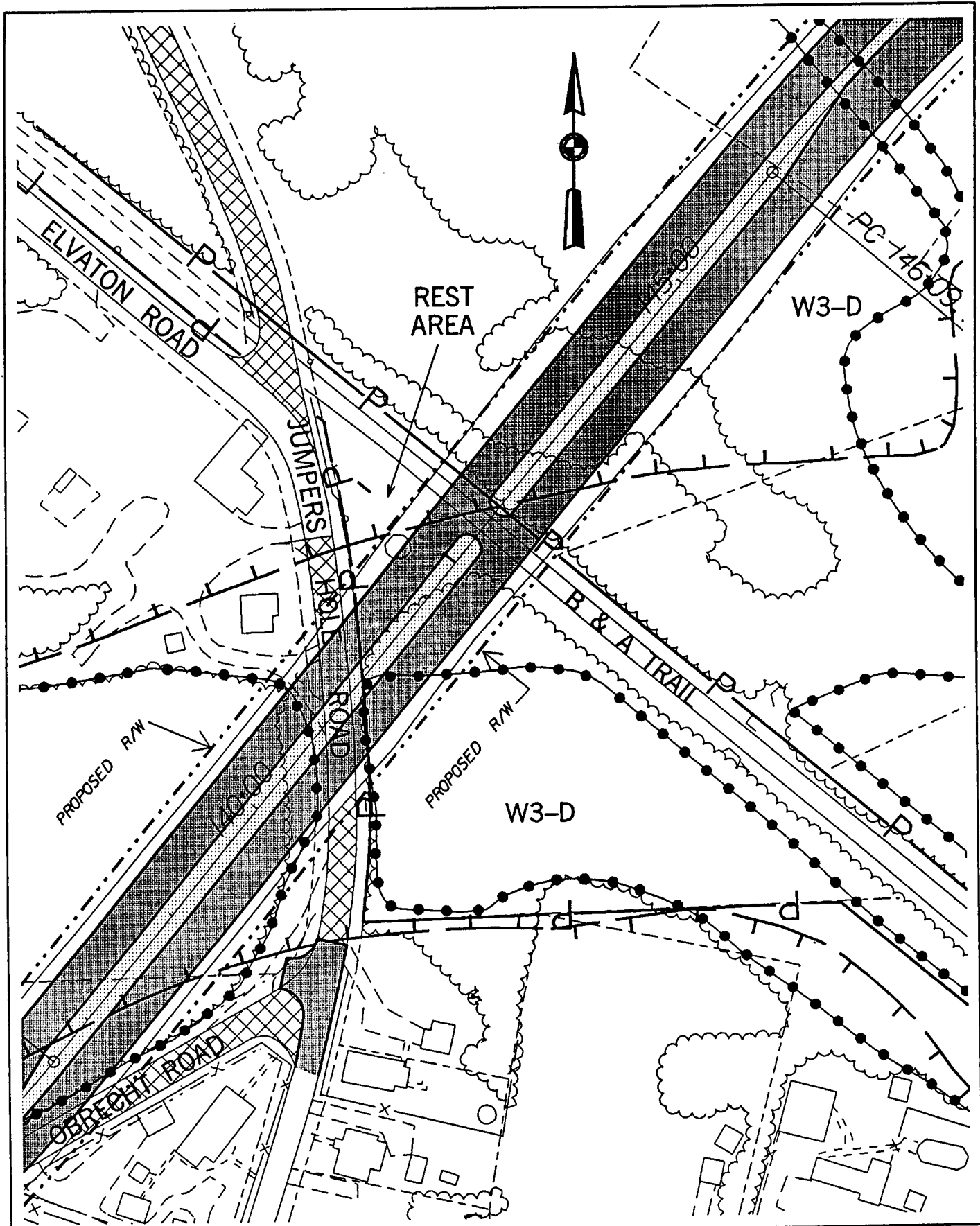
Alternatives 3A and 3B would cross the B&A Trail and impact one of the rest areas (See Figure V-4). This rest area contains a gazebo, benches, and picnic tables. This rest area is the northernmost formal rest area along the trail. The next closest rest area is located





— P — PARK BOUNDARY

|   |  |
|---|--|
| MARYLAND STATE HIGHWAY ADMINISTRATION                       |  |
| EAST-WEST BOULEVARD<br>VETERANS HIGHWAY TO MARYLAND ROUTE 2 |  |
| B & A TRAIL<br>ALTERNATIVE 2 TRAIL CROSSING                 |  |
| DATE  | <div><div>0</div><div>50</div><div>100</div><div>200</div><div>25</div><div>75</div><div>SCALE IN FEET</div></div> |
| FIGURE V-3  |  |



—P— PARK BOUNDARY

|   |                   |               |
|---|-------------------|---------------|
| MARYLAND STATE HIGHWAY ADMINISTRATION                       |                   |               |
| EAST-WEST BOULEVARD<br>VETERANS HIGHWAY TO MARYLAND ROUTE 2 |                   |               |
| B & A TRAIL<br>ALTERNATIVE 3 TRAIL CROSSING                 |                   |               |
| DATE  | <br>SCALE IN FEET | FIGURE<br>V-4 |

approximately two miles south at the B&A Trail Headquarters at Earleigh Heights Station. The property for this rest area was acquired from BG&E by Anne Arundel County and was formerly used as a substation. Alternative 3A and 3B would effect 0.46 acre of trail property.

The B&A Trail would not be affected by Alternative 4B, because the improvements to Benfield Boulevard end at Evergreen Road, west of the existing trail crossing.

The projected traffic volumes along Evergreen Road would increase with Alternative 4B (Benfield Boulevard). The Anne Arundel County Department of Recreation and Parks (AAR&P) has stated that the Evergreen Road crossing, which is located south of the Benfield Boulevard corridor, is currently one of the most dangerous crossings on the trail. AAR&P feels that the additional traffic that may be generated by increasing the capacity along Benfield Boulevard would worsen the existing unsafe crossing at Evergreen Road.



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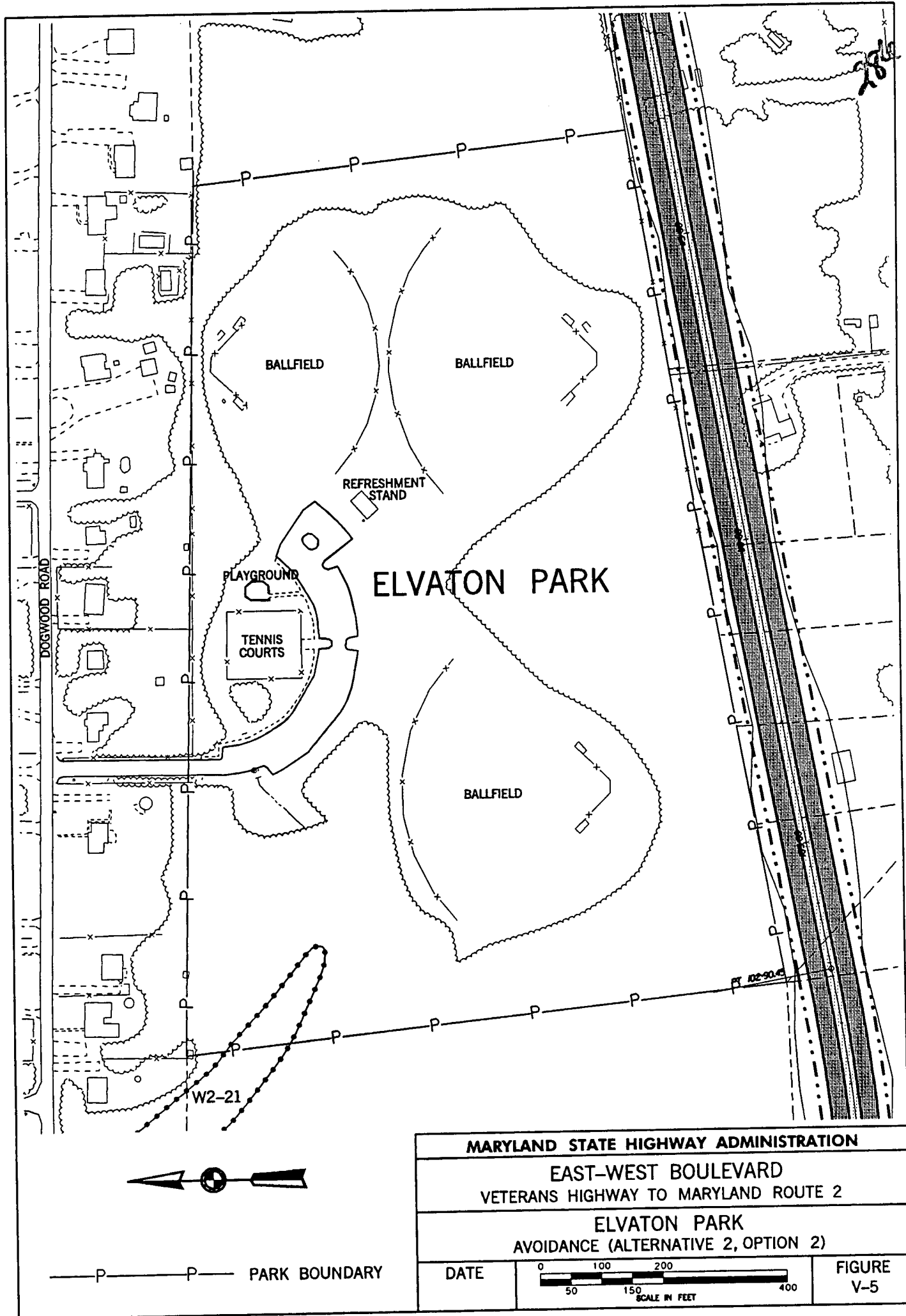
**E. Avoidance and Minimization Alternatives**

**1. Elvaton Park**

**Avoidance**

An option that completely avoids impacts to Elvaton Park has been developed with Alternatives 2A and 2B. This avoidance option has been designated Option 2 and would shift the center line of the roadway approximately 125 feet south of Alternatives 2A and 2B, Option 1 (Master Plan) in the vicinity of the park. On the west side of the park, the avoidance option (Option 2) would tie into the Master Plan alignment just west of the extension of Governor William Stone Parkway that is currently under construction. On the eastern end of the park Option 2 would tie into Option 1 west of Jumpers Hole Road (See Figure V-5). The northern right-of-way and slope lines for Option 2 would be south of the boundary of Elvaton Park. No right-of-way or easements would be required from Elvaton Park with Option 2.

If this avoidance option is selected a total of ten (10) residential displacements and 28.5 acres of additional right-of-way would be required. Option 2 would cost an additional \$1.59 million in right-of-way acquisition and residential relocations.



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Alternatives 3 and 4 both serve as avoidance alternatives for Elvaton Park. The costs and impacts are summarized throughout the document and on the Summary of Alternatives table.

#### **Minimization**

An option to minimize impacts to Elvaton Park has also been developed along with Alternatives 2A and 2B (See Figure V-6). This option is designated as Option 3 and would shift the center line of the roadway approximately 110 feet south of Alternatives 2A and 2B, Option 1 in the vicinity of the park. However, instead of holding the southern boundary of the park as the limit for the northern edge of the right-of-way and slope lines as the avoidance option (Option 2), this option (Option 3) would curve to the north and impact the southwest and southeast corners of the park. On the west side of the park, the minimization option (Option 3) would tie into Alternatives 2A and 2B, Option 1 approximately at the extension of Governor William Stone Parkway. On the eastern end of the park Option 3 would tie into Option 1 just west of Jumpers Hole Road.

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This minimization option (Option 3) would require the acquisition of 0.70 acre of right-of-way from Elvaton Park for Alternative 2A (2-lane) and 0.78 acre of right-of-way for Alternative 2B (4-lane). However, the use of any of the recreational facilities in the park would not be affected by Option 3.

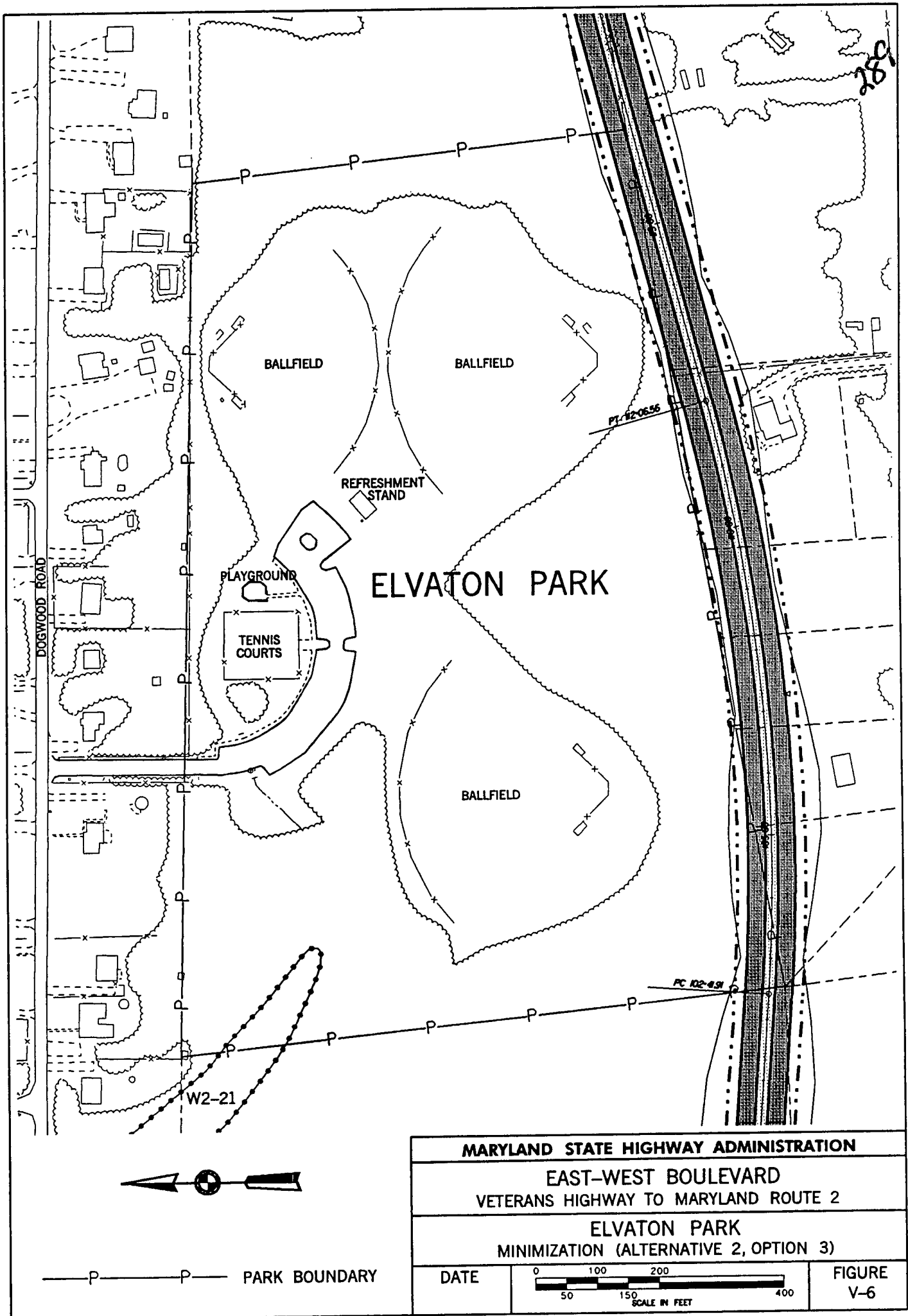
If the minimization option is selected up to 3 residential displacements and 35.3 acres of right-of-way would be required. Option 3 would cost an additional \$866,000 in right-of-way acquisition and residential relocations.

2. B&A Trail

**Avoidance**

Since the B&A Trail is a linear park, running north - south for the entire length of the study area, it is impossible to avoid crossing it with any type of alignment shift. A structure to provide a crossing of the trail for both Alternative 2 and 3 alignments has been evaluated.

The B&A Trail is located approximately 600 feet from MD 2 within the Alternative 2 corridor and approximately 650 feet from MD 2 in the Alternative 3 corridor. In both alternative corridors, due to the proximity of the trail to MD 2, it is not possible to provide a structure to



carry the new roadway over the trail, avoid the impacts and still connect back into the existing ground at Ritchie Highway. In addition, the fill for this structure and new roadway in the Alternative 2 corridor would require the displacement of up to 8 homes along Mission Street.

#### **Minimization**

Minimization options to carry the B&A Trail over the Alternative 2 and 3 alignments have been investigated. The proposed structures, associated fills and retaining walls would impact approximately 1000 linear feet of the trail at each crossing. The structure would carry the 10 foot wide trail approximately 23 feet above the Alternative 2 & 3 alignments on a 10 percent grade. A structure at either crossing would require extensive use of retaining walls and would cost approximately \$700,000 to construct.

The linear impact to the trail can not be reduced without increasing the grade of the proposed structure and therefore the trail. An increase in grade would make it more difficult for handicapped individuals, elderly persons and bicyclists to use the trail in these areas.

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There are a number of roadways that currently intersect the B&A Trail. The addition of another crossing, properly signed and marked, would help to ensure that conflicts between trail users and motorists are minimized. The at grade crossing as currently proposed with Alternative 2 would experience a vehicular volume of approximately 11,000 vehicles per day. The existing at-grade crossing at Robinson Road accommodates a similar volume and does not experience any operational or safety problems. Anne Arundel County does not currently have any plans to construct any grade separations for any of the trail crossings in the project area. Therefore, the introduction of new at-grade crossings of the trail would not substantially impair the use of this resource.

**F. Mitigation Measures**

Acquisition of land from either the B&A Trail or Elvaton Park would require the acquisition of replacement parcels because these areas were funded with POS monies.

**1. Elvaton Park**

The AAR&P and DNR have indicated that they are not opposed to the acquisition of land from Elvaton Park as long as the existing recreational

facilities are avoided. DNR has indicated that the acquisition of replacement land along the western side of Elvaton Park would mitigate impacts to the park. The impacted recreational facility is a ballfield used for youth and adult team sports. The ballfield could be reconstructed on the existing site or replaced on the proposed adjacent mitigation site.

2. B&A Trail

The Alternative 2A and 2B (all Options) crossing of the trail could be signed and marked so that users of the trail would use a traffic signal at Light Street Avenue to cross East-West Boulevard. AAR&P has indicated that the use of a traffic light at Light Street Avenue to provide a safe crossing of the trail would be acceptable.

The Alternative 3A and 3B (2 and 4-lane) crossing of the B&A Trail could be signed and marked and would function similar to the existing trail crossing at Robinson Road. The rest area along the trail that would be impacted by Alternative 3 could be relocated either north or south of the new crossing associated with this alignment.



## VI. COMMENTS AND COORDINATION

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THE WILSON T. BALLARD COMPANY  
17 GWYNNS MILL COURT  
OWINGS MILLS, MARYLAND 21117

OFFICE MEMORANDUM

DATE TYPED: August 28, 1992

PROJECT: East/West Boulevard Corridor Study  
Contract No. AA 484-101-571

FILE: 100-186.59

SUBJECT: Wetland Field Review held on August 27, 1992

|          |                    |                                 |
|----------|--------------------|---------------------------------|
| PRESENT: | Paul R. Wettlaufer | U.S. Army Corps of Engineers    |
|          | Sean Smith         | Department of Natural Resources |
|          | Jerry Barkdoll     | Federal Highway Administration  |
|          | Dennis Atkins      | SHA Project Planning            |
|          | Alan Straus        | SHA Project Planning            |
|          | Mark Crampton      | SHA Highway Design              |
|          | Mike Jaeger        | SHA Highway Design              |
|          | Roy Pool           | The Wilson T. Ballard Company   |
|          | Howard Erickson    | The Wilson T. Ballard Company   |

The above met at the Park and Ride Lot on Veterans Highway at 9:30 a.m. After a brief review of the alternatives, the group proceeded to Wetland 4-7 since that wetland is the only one to be impacted by Alternate 4B. The delineation of Wetland 4-7 was confirmed as flagged and there were no questions or comments regarding this site.

The group proceeded to wetlands 2-7 and 2-8. All delineations within the sand and gravel pits (2-1 thru 2-10) were accepted as flagged. The consensus was that these wetlands are of low value and could be easily duplicated during mitigation. Mr. Wettlaufer suggested that the entire sand and gravel pits area would make an excellent mitigation bank site if it could be acquired in its entirety. Mitigation for this project could be most effective if wetlands 2-9, 2-10, and 2-14 could be hydrologically connected. Some discussion ensued over whether the isolated wetlands 2-3 to 2-10 were within Corps jurisdiction. It was decided that the Corps will take jurisdiction since there was evidence of the wetlands' use by waterfowl.

Mr. Smith and Mr. Wettlaufer agreed that the Master Plan alignment (Alt. 2) was better than Alt. 3, if wetland impacts only were considered.

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The Wilson T. Ballard Company  
Office Memorandum  
August 28, 1992  
Page 2

Mr. Wettlaufer asked that a shift in the Alternate 2 alignment north of Mission Street immediately west of MD 2 be considered. Mr. Straus stated that this will be considered.

The group then inspected wetlands 3-C and 3-D. The delineations were accepted as flagged. Mr. Wettlaufer requested consideration of another alternate from Sunnyview Drive east, north of Obrecht Road, connecting to Jumpers Hole Road. Forest impacts as well as wetland impacts should be studied along this route. Mr. Straus stated that this will be considered.

Mr. Smith stated that cumulative impacts of the proposed Jumpers Hole Road improvements (by Anne Arundel County) and the Alternate 3 alignment should be addressed and quantified.

  
BY

LP:ln  
cc: Mr. Dennis Atkins

Minutes of the  
Maryland State Highway Administration  
Quarterly Interagency Review Meeting

July 19, 1989

The Maryland State Highway Administration's Quarterly Interagency Review Meeting was held on Wednesday, July 19, 1989, in Training Room 1, 211 East Madison Street, in Baltimore. The following SHA personnel, agency representatives, and consultants attended the meeting:

| <u>Name</u>           | <u>Affiliation</u>   |
|-----------------------|--|
| Cynthia Simpson       | SHA, Environmental Evaluation                                      |
| Mark Duvall           | SHA, Environmental Evaluation                                      |
| Barbara Allera-Bohlen | SHA, Environmental Evaluation                                      |
| Dennis Atkins         | SHA, Environmental Evaluation                                      |
| Wes Glass             | SHA, Environmental Evaluation                                      |
| Lou Ege               | SHA, Project Development   |
| Chuck Buellis         | SHA, Project Development   |
| Barbara Clouse        | SHA, Office of the Chief Engineer                                  |
| Martin Cohn           | SHA, Highway Design  |
| Fred Doerfler         | SHA, Highway Design  |
| Roger B. Carriker     | SHA, Highway Design  |
| Linda Kelbaugh        | SHA, Highway Design  |
| Ronald L. Buchman     | SHA, Highway Design  |
| C. William Clark      | SHA, Highway Design  |
| Tom Case              | SHA, Highway Design  |
| Dave Pelton           | SHA, Highway Design/Hydraulics                                     |
| John G. Schultz       | SHA, Bridge Hydraulics   |
| Steve Goad            | SHA, Bridge Hydraulics   |
| Leonard N. Podell     | SHA, Bridge Hydraulics   |
| Abi Rome              | Critical Area Commission   |
| Bill Schultz          | U.S. Fish & Wildlife Service                                       |
| John Nichols          | National Marine Fisheries Service                                  |
| Herman Rodrigo        | Federal Highway Administration                                     |
| Andrew T. Der         | Maryland Department of Environment                                 |
| Peter Stokely         | U.S. Environmental Protection Agency                               |
| Denise Rigney         | U.S. Environmental Protection Agency                               |
| Bob Harney            | National Park Service, National Capital Region                     |
| Paul Wettlaufer       | U.S. Army Corps of Engineers                                       |
| Steve Harmon          | U.S. Army Corps of Engineers                                       |
| Woody Francis         | U.S. Army Corps of Engineers                                       |
| Mike Slattery         | Maryland Department of Natural Resources, Tidewater Administration |
| Angela Judice         | Greenhorne & O'Mara, Inc.  |
| Julie Liptak          | Greenhorne & O'Mara, Inc.  |
| Pete Stefaniak        | RK&K   |

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Response: Barbara Clouse, SHA

Confirmed that the agencies would only be reviewing mitigation sites at that time, and not delineating wetland boundaries.

Comment/Question: Denise Rigney, EPA

Stated that she will handle NEPA compliance for this project.

Comment/Question: Andrew Der, MDE

No comments.

East/West Boulevard from Maryland Route 3 (Interstate Route 97) to Maryland Route 2 (Anne Arundel County)

Contract No. AW 971-108

Status: Pre-draft environmental document

Project Manager: Frank DeSantis

Environmental Manager: Dennis Atkins

Chuck Buellis, SHA

Stated that this was originally a county project and is now being studied by SHA through the project planning process only. Upon location design approval, the project will be returned to Anne Arundel County for final design and construction. The project is located in the Pasadena area. The East/West Boulevard project is proposed to connect Maryland Route 3 (I-97) to Maryland Route 2 (Ritchie Highway) to alleviate traffic conditions along Benfield Road to the south. Interchanges were considered at Maryland Route 3 and Maryland Route 2; however, these concepts have been dropped. SHA will be studying at-grade intersections at both ends.

A portion of East/West Boulevard has been constructed by the developer of Shipley's Choice. Another segment is also proposed for construction by the developer. Shipley's Choice is located near the western end of the project corridor.

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Because this is a new project, no alignments have been defined. There is a County alignment which will be looked at and refined.

Dennis Atkins, SHA

Stated that the interchanges at Maryland Route 3 and Maryland Route 2 were dropped. Therefore, there will be no impact to the Severn Run Natural Environmental Area. Parks in the project area include Elvaton Park and Kinder Park. The Baltimore-Annapolis Trail (an old railroad), a hiker-biker trail, is also located in the project area. This trail traverses the project area, so there is no way to avoid crossing it.

There are wetlands associated with a tributary of Severn Run (a Class IV water), and a tributary of the Magothy River, which is Class I in this area.

Comment/Question: Bob Harney, NPS

Asked if the Baltimore-Annapolis Trail is to be paved.

Response: Dennis Atkins, SHA

Answered that it is to be paved and that parts of the trail to the south have already been constructed. The old railroad in the vicinity of this project has only recently been cleared.

Comment/Question: Bob Harney, NPS

Asked if the parks will be impacted.

Response: Dennis Atkins, SHA

Stated that alternates have not yet been developed and the only alignment to-date is the County alignment. SHA will try to avoid impacting the parks.

Cynthia Simpson, SHA

Stated that SHA will develop alternates and that, if those alternates impact the parks, SHA will conduct the appropriate agency coordination.

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Comment/Question: Steve Harmon, COE

Asked if consideration had been given to widening or improving Benfield Road or Maryland Route 100.

Response: Chuck Buellis, SHA

Replied that SHA had been waiting for the results of the traffic counts. These traffic counts have just been completed and the results are being analyzed now to determine whether a new connection would be warranted. He added that restriping or widening Benfield Road is one of the options SHA is considering. At this time, it is not known what the typical sections will be. SHA is waiting for County coordination on the Benfield Road issue.

Comment/Question: Abi Rome, Critical Area Commission

Stated that she had no comments on this project other than that she would support avoidance of the Severn Run National Environmental Area.

Comment/Question: Andrew Der, MDE

Asked if this project will actually impact Class IV waters.

Response: Dennis Atkins, SHA

Stated that there could be an impact to a tributary of the Severn Run, a Class IV water.

✓ Comment/Question: Andrew Der, MDE

Recommended that impacts to the Severn River be avoided in the initial planning stages.

Response: Dennis Atkins, SHA

Stated that SHA would avoid impacting the Severn River if possible.

✓ Comment/Question: Denise Rigney, EPA

Stated that, once alternates have been developed, the environmental document should include discussions of why certain alignments are not

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being considered. Also, the environmental document should address the future development that may occur as a result of the new alignment chosen.

Comment/Question: Peter Stokely, EPA

Asked if there will be an at-grade intersection with I-97.

Response: Dennis Atkins, SHA

Stated that East/West Boulevard will intersect with Maryland Route 3 and a service road will connect to I-97. There will be an interchange at Benfield Road.

Cynthia Simpson, SHA

Stated that the service road will tie into the interchange.

Comment/Question: Peter Stokely, EPA

Stated that he would prefer an alternate that avoids and minimizes wetland impacts, and that justification for the project will be necessary, because of Maryland Route 100 to the north.

Response: Chuck Buellis, SHA

Stated that Maryland Route 10 will be tying into the north of this project.

Comment/Question: John Nichols, NMFS

Stated that he had the same comments as EPA and the COE. At this early stage, permit analysis, project justification, and document review will be important. He stated that he would prefer consideration of upgrading existing roadways. He asked if the wetlands on the Severn Run tributary are the same as the wetland associated with Severn Run Environmental Area.

Response: Cynthia Simpson, SHA

Stated that SHA has not identified the wetlands yet.

Comment/Question: Bob Harney, NPS

Asked if there is any 6(f) funding associated with the parks.



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Response: Dennis Atkins, SHA

Stated that Program Open Space funds are associated with both parks, as well as the Severn Run Natural Environmental Area. No federal funds are involved in either of the parks.

Comment/Question: Bill Schultz, FWS

Stated that he would be interested in looking at the alternatives analysis, especially for the Benfield Road option.

Interstate Route 68 Interchange at University of Maryland Science and Technology Center (Prince George's County)

Contract No. AW 971-108

Status: Pre-draft environmental document

Project Manager: Frank DeSantis

Environmental Manager: Don Sparklin

Mark Duvall, SHA

Stated that the Alternates Meeting for this project was held in June of 1988, and a Public Hearing will be held in the spring of 1990.

Pete Stefaniak, RK&K

The I-68 project planning study is being conducted to evaluate alternatives to provide access to the University of Maryland's Science and Technology Center. The existing U.S. Route 50/301 is the future I-68. The project is located in Prince George's County and is approximately at the mid-point on U.S. Route 50 between the existing U.S. Route 50/301 interchange and the Patuxent River.

The Alternates Meeting was held on June 15, 1988. At that time, seven alternates were being investigated - one no-build and six build alternates. As a result of that meeting, three of the alternates were eliminated. There are now three alternates, each of which would provide direct access to the University of Maryland's Science and Technology Center.



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

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OCT 09 1992

PROJECT  
DEVELOPMENT  
DIVISION  
OCT 15 11 46 AM '92

Mr. Louis H. Ege, Jr.,  
Deputy Director  
Office of Planning and Preliminary Engineering  
Maryland State Highway Administration  
707 North Calvert Street  
Baltimore, Maryland 21203-0717

RE: Purpose and Need and Alternatives for Detailed Study  
sections of the East-West Boulevard Corridor Study  
preliminary Draft Environmental Impact Statement (DEIS)/  
4(f) Evaluation

Dear Mr. Ege:

In accordance with the National Environmental Policy Act (NEPA), as amended, section 309 of the Clean Air Act, and section 404 of the Clean Water Act, EPA is responding to your request for comments on the above referenced project components.

Purpose and Need

Although the need for additional east-west capacity is stated, none of the alternatives fully address the specific needs that were identified in the document. The specific needs that were identified are: improving roadway geometrics in the Brightview Drive/Obrecht Road corridor and improving capacity at the MD2/ West Pasadena Road, Old Mill Road/Veterans Highway, and Benfield Boulevard/Veterans Highway intersections (which would have an LOS of "E" or "F" under the No Build alternative in the year 2015 (Table I-1)). None of the alternatives will significantly improve the future capacity at all three of these intersections, and only Alternative 3 addresses the need to improve Brightview Drive and Obrecht Road geometrics.

The study area, although shown on Figure S1, needs to be narratively described so that its specific bounds can be determined. This is needed to determine if the projected traffic demand comes mostly from within or outside the study area.

The project purpose needs to be more explicit on the origin of the projected traffic levels. How much of the projected traffic will come from within the defined study area and how much from outside the study area? Is this highway a local or regional solution?

In addition, since "access to growth areas" between MD 2 and Veterans Highway is part of the project purpose, future development impacts from new alignment alternatives should be addressed in the DEIS. If these growth areas are outside the study area then the study area needs to be enlarged.

EPA cannot concur with the purpose and need for this project until either the project need is clarified or the alternatives are amended to address the specific needs identified in the study area.

#### Alternatives Considered

The information provided is not sufficient for EPA to concur that the full range of alternatives, which meet the project need and minimize adverse environmental impacts, have been studied. To concur, EPA needs to review available information on the affected environment and on any known environmental consequences. Therefore, we request that you provide us with two copies of the entire preliminary DEIS for our future review as part of the combined NEPA/404 process.

The maps provided for Alternative 3 do not show jurisdictional wetlands as is required for the merger of NEPA and 404. EPA has learned from documentation other than that provided by SHA that Alternative 3 has significant wetland impacts. With out this information in the document EPA can not concur that Alternative 3 should be carried forward for detailed study.

The alternatives should also be presented in tabular format to facilitate review and comparison. The table should include available information on both beneficial and adverse environmental and socioeconomic impacts.

Additional information on the range of alternatives should include data on present and future roadway levels of service (LOS) and a map of the County's and developer's proposed road improvements. LOS data will clarify whether or not future traffic volumes will exceed roadway capacity and help to clarify the need for additional capacity. Also, data should be provided on the location and quality of wetlands impacted from the proposed northern shift alignment at the eastern terminus of Alternative 2.

Based on this preliminary review of the three alternative alignments (Alts. 2, 3, and 4) and project need, a new alignment alternative is not environmentally preferable. Alternative 4 appears to be the environmentally preferable alternative because it would avoid the terrestrial and wetland impacts associated with Alternatives 2 and 3.

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Thank you for providing us with this information for our review. We expect to be able to concur on the project need and alternatives for detailed study once we have reviewed additional information and have discussed this project with you further. If you have any questions on EPA's comments, please contact Pete Stokely, of my staff, at 215-597-9922, or Peter Claggett, at 215-597-0765.

Sincerely,

A handwritten signature in dark ink, appearing to read "Diana" followed by a stylized surname and a flourish.

Richard V. Pepino, Chief  
Environmental Assessment Branch

cc: P. Wettlaufer, U.S. Army Corps of Engineers, Baltimore  
District



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

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REPLY TO  
ATTENTION OF

SEP 18 1992

Operations Division

Subject: CENAB-OP-RX(MD SHA/East-West Boulevard)92-00897-1

Mr. Neil Pedersen  
Maryland State Highway Administration  
707 North Calvert Street  
Baltimore, Maryland 21203-0717

Dear Mr. Pedersen:

In response to your request dated September 1, 1992, we agree to be a cooperating agency in the development of the subject project. In accordance with the new procedure for merging NEPA and Section 404, the Corps has reviewed the preliminary Draft Environmental Impact Statement (DEIS) for East-West Boulevard. We offer the following comments for your consideration:

1) Page IV-30 discusses the impacts of Alternate 3 on the tributary to the Magothy River. The text characterizes the 50-foot relocation of this stream as a minor impact. We strongly disagree with this statement as discussed below. Similarly, we disagree with the statement on page IV-37 which indicates that no significant floodplain impacts are expected to occur under any build alternative.

The tributary to the Magothy River is part of a high quality wetland supporting a wide diversity of vegetation and wildlife. In addition, Wetland 3-C is a valuable nutrient sink and sediment trap, which is sustained by the existence of an undersized culvert under Jumpers Hole Road. The proposed Alternate 3 would displace at least 2.7 acres of this high quality wetland. (We anticipate that an even greater impact would occur if one considers the full lateral encroachment of fill slopes outside the typical right-of-way width.) The proposed Alternate 3, in conjunction with the County's proposed relocation of Jumpers Hole Road, would obliterate a large and valuable portion of the wetland. Given that page IV-55 indicates that a bridge would not be practicable here, we are concerned with the implications of constructing a new culvert. Disruption of the existing culvert under Jumpers Hole Road could alter the functions of the remaining wetland unless the new culvert is designed to duplicate the existing culvert's low capacity for passing base flows.

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Similarly, flow patterns could be significantly affected, as could the duration of saturation and inundation, thereby altering the vegetative community. We consider these potential impacts to constitute a potential for adverse impact on the natural and beneficial floodplain values (an FHWA parameter [page IV-37] for assessing significance of a floodplain encroachment). This is of particular concern since page IV-55 concludes that there are no alternatives or possibilities for minimization within this corridor.

The Corps suggested a modification of Alternate 3 at the August 27, 1992 initial field site visit in the hopes of minimizing these significant impacts. We suggested that Alternate 3 depart Obrecht Road (we now propose that departure occur approximately 500 feet east of Zeman Drive) and traverse the woodlands north of Obrecht Road on new location to a tie-in to Jumpers Hole Road (see enclosure #1). While this alternative would cross Wetland 3-C, creating an impact which you variously describe as 1.0 acre (page II-4) to 2.1 acres (page IV-56), it also makes possible the avoidance of 2.81 acres of wetland impact under the proposed Alternate 3; a point which the document overlooks in discussing why this alignment was discarded. In addition, we believe it would eliminate the need for the County's proposed relocation of Jumpers Hole Road, thereby reducing the cumulative impacts to Wetland 3-C. This modification also has the benefit that it avoids six residential relocations (making Alternate 3 comparable to Alternate 2 in this impact category). The text on page II-4 cites the fact that right-of-way has already been purchased for the County's proposed relocation of Jumpers Hole Road as a reason for not considering the Corps' alignment. This fact has no bearing on the feasibility of the Corps' recommendation, and should be viewed as a benefit, not detriment, of the Corps proposal in that it reduces the potential for cumulative impacts. Page II-4 also suggests that the Corps' proposed modification would not address the need for a new or improved roadway to handle increasing development. Because the modification is in proximity to Alternate 3, it should satisfy the need for additional capacity equally as well as Alternate 3. (With the proposed County extension of Governor Stone Parkway to Oakwood Road, Alternate 3 would provide access to all portions of the study area.) The text in Chapter I presents no evidence that Alternate 3 fails to satisfy the basic purpose of the project. In recent conversations with your Project Development staff, we learned that one of the basic objections to our proposal would be that, by tying-in to Jumpers Hole Road, the alignment would attract regional traffic into the study area. If this is objectionable, the purpose and need discussion should be revised to reflect this.

In conclusion, Alternate 3 would significantly impact wetlands and streams in a sub-basin which is already stressed by high bacterial and nutrient levels. The Corps has proposed a reasonable alternative in the same corridor which has potential to reduce these significant impacts. If this alternative is to be dismissed without additional study, the reasons for dropping it need to be more clearly presented. The Corps would not be able to concur if Alternate 3A or 3B should be selected, since both Alternate 2 and Alternate 4 apparently serve the project need with less wetland impact.

2. The purpose and need discussion does not make a convincing argument for the need for a new arterial in the middle of the study area. Therefore, without additional information to document that Alternate 4 fails to satisfy the purpose and need, Alternate 4 appears to warrant selection since it minimizes both wetland and 4(f) impacts. It is conceivable that Alternate 4 may less fully satisfy the purpose and need than Alternate 2. To clarify the extent to which Alternate 4 satisfies the purpose and need, we suggest that the document describe the projected design year LOS on Brightview/Obrecht if Alternate 4 were selected. (While the traffic volumes have been presented, there is no indication whether these volumes exceed capacity.)

3. The document makes the point that Brightview/Obrecht has high accident counts. Are these accidents attributable to poor geometry, inadequate delineation, alcohol, excessive speed, or some other cause? (Page I-10 indicates it is not a congestion-related problem.) If poor geometry is the cause, the selection of Alternate 2 would leave these deficiencies uncorrected and, therefore, the portion of study area traffic utilizing the Brightview/Obrecht corridor would continue to experience high accident rates.

We recommend that, for each alternative under consideration, a composite accident rate be calculated for the major corridors within the study area. (This would be similar to the accident rate comparisons normally conducted for bypass projects.) This would help identify the alternative which best addresses the total study area accident problem.

4. At the August 27, 1992 site visit, the Corps also proposed a northern shift of the eastern terminus of Alternate 2, away from Mission Street. We do not endorse routing 11,000 vehicles per day down an existing residential street which currently experiences less than 100 vehicles per day. (For this reason, we were willing to support Alternate 6A Modified for the UMES Access Road over Alternate 4 even though Alternate 6A Modified had greater impact.) We have enclosed a sketch of this alignment shift (see enclosure #2). Contrary to the statement on page IV-45, this shift would not result in a skewed crossing of

the B & A trail. As with your proposed Alternate 2, a traffic signal could be installed to facilitate bike and pedestrian crossings. This shift would also eliminate the skewed crossing of the trail at the West Pasadena Road which currently exists. If this alternate would result in operational problems due to its proximity to the MD Route 10 intersection, this needs to be discussed in the document.

The following minor comments are provided to make you aware of inconsistencies or omissions in the text:

5. The Summary Table S-1 on page S-13, Table IV-1, and the mapping all have conflicting information on the number of residential relocations.

6. Page I-8 says the Benfield-Jumpers Hole Road intersection operates at LOS B today. This seems to contradict page I-1 which says queues of several miles occur at this intersection during rush hour. If page I-1 is a typo and was intended to say the Brightview/Obrecht-Jumpers Hole Road intersection has the long queues, it would contradict page I-10 which says intersections along Brightview/Obrecht are not currently experiencing capacity or operational problems.

7. On Figure I-4, it would be helpful to know the design year ADT on Jumpers Hole Road immediately north of, and immediately south of Alternate 3A/3B.

8. Figure I-3 should be corrected so that it does not show Alternate 2 intersecting with I-97.

9. It would be helpful to indicate the locations of Brittingham Farms and Lakeland subdivisions on Figure I-6. Also, the County's proposed road improvements were not shown in our copy.

10. The cross section for Alternates 2 and 3, depicted at the bottom of Figure II-3, shows several dimensions which do not add up to 110 feet as suggested.

11. The mapping for Alternate 3 did not include wetland boundaries.

12. The discussion of affected wetlands, beginning on page III-28, should indicate that wetlands 2-1 through 2-10 provide valuable habitat for salamanders and resting places for migrating waterfowl.



13. On page IV-34, please add the following item to the list of long-term stream impacts: "d. Possible changes in wetland vegetative communities as a result of altered hydrology."

14. In discussing the minimization techniques that are feasible for reducing wetland impacts, page IV-43 says that it is not possible to compromise the proposed typical cross-sections. This statement seems to be contradicted by the fact that Alternate 2 includes a 1,300-foot length of reduced cross-sectional width through the Shipleys Choice Subdivision.

15. Page IV-44 should indicate that wetland 2-8 is valuable also for its wildlife habitat function.

16. In reference to the statement on page IV-48, the Corps has already issued the permit for the County's extension of the 2-lane, East-West Boulevard to the west.

17. Page IV-49 says selection of the 2-lane option would not reduce impacts, as compared to the 4-lane option, because both options are contained within the same 110-foot right-of-way width. However, the previous page led us to understand that the 2-lane option has less footprint of fill.

18. The statement on page V-11 that the Evergreen Road crossing of the B & A trail has no existing safety problems directly contradicts the statement on page V-7 which indicates it is one of the most dangerous crossings of the entire trail.

19. Alternates 3 and 4 should be included in the discussion of alternatives for avoiding impacts to Elevaton Park (beginning on page V-7).

20. In the discussion of impacts to the B & A trail (beginning on page V-6), it would be helpful to present, for each build alternative, the design year traffic levels at each of the crossings of the trail contained within the study area. Such a comparison would demonstrate that Alternate 2 results in the best dispersion of traffic among the study area arterials which cross the B & A trail, thereby resulting in the least safety problem for trail users.

21. We suggest that your location hearing public notice include information specific to wetland issues, in order to flush out public concern for aquatic impacts. We offer the following text as a suggestion:

"The State Highway Administration, in cooperation with the U.S. Army Corps of Engineers, has identified jurisdictional wetlands and/or other Waters of the United States which are regulated by Section 404 of the Clean Water Act and/or Section

10 of the River and Harbors Act of 1899. This hearing provides the opportunity to present views, opinions, and information which will be considered by the Corps in evaluating a Department of the Army permit."

In addition, we suggest the following statement at the end of the paragraph which gives the date for submission of comments:

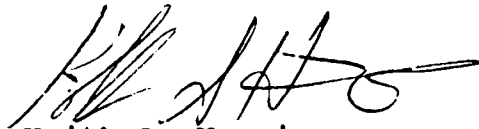
"Copies of any written statements expressing concern for aquatic resources may be submitted to Mr. Paul Wettlaufer, Corps of Engineers, CENAB-OP-RX, P.O. Box 1715, Baltimore, MD 21203-1715."

Please provide a copy of your first Public Notice (PN) when it is issued so that we will have the information we need to complete our PN and to time our PN issuance with the circulation of your DEIS.

22. Please provide a listing of names and addresses of any property owners who live adjacent to both an affected wetland and a project build alternative. This information is requested in accordance with the procedure for merging NEPA and Section 404. We will send a copy of our PN to these adjacent property owners. Also, please add the Severn River Commission to your mailing list.

If you have any questions, please contact Mr. Paul Wettlaufer of this office at (410) 962-1843.

Sincerely,



Keith A. Harris  
Acting Chief, Special Projects  
Permit Section

Enclosures

cc: Alan Strauss



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

REPLY TO  
ATTENTION OF

SEP 01 1992

SEP 1 12 23 PM '92

311

Operations Division

Subject: CENAB-OP-RX(MD SHA/EAST-WEST BOULEVARD)92-00897-1

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

Dear Ms. Simpson:

I am replying to your request dated August 6, 1992, for a jurisdiction determination and verification of the delineation of Waters of the United States, including jurisdictional wetlands, on the three alignments under consideration for the subject project in Anne Arundel County, Maryland.

A field inspection was conducted on August 27, 1992. A copy of our report is enclosed (Enclosure 1). This verification is valid for two years from the date of this letter.

At the site visit, we offered the following comments pertaining to the jurisdiction and to the alignments under consideration:

a. The gravel pit wetlands at the east end of the Master Plan alignment are isolated hydrologically. However, because there have been documented sightings of mallards in the ponds, this provides an interstate commerce nexus which is sufficient to bring these abandoned, man-made ponds under our jurisdiction.

b. These ponds have low value for water quality, but high wildlife value for waterfowl and amphibians. Another opportunity should be provided for the FWS representative to visit this area prior to the conclusion of the Public Notice comment period, since FWS was not represented at this site visit and the area is important for wildlife habitat. The ponds would be easy to duplicate elsewhere on this tract if it should be necessary to mitigate in-kind. For in-kind mitigation, our preference would be to create the mitigation in the vicinity of the more valuable wetlands located south of the Master Plan alignment, and to try to create a hydrologic connection linking the two existing isolated ponds (W2-9 and W2-10) and the created ponds to the stream channel.

c. The Corps would be amenable to consideration of a northern alignment shift at the east end of the Master Plan alignment in order to avoid the community impact on Mission Street. Mr. Alan Strauss, SHA, indicated that the alignment

could possibly be rerouted northward with little, or no, increase in wetland impact acreage. It appears that the alignment could be positioned between wetlands W2-3 and W2-2. Another trade-off to be considered with any alignment shift is the amount of forested habitat which would be lost.

d. We recommend consideration of a northward alignment shift of Alternate 3A/3B that would depart Brightview Drive just east of Sunnyview Drive, and traverse the undeveloped woodlands located north of Obrecht Road. The approximate location of the eastern terminus of this alignment is shown on Enclosure #2. It could tie-in to either Jumpers Hole Road or MD Route 2. It would appear to be a reasonable alternative, which would have comparable traffic service to Alternate 3A/3B, fewer residential relocations, and possibly less wetland impact. We favor a direct tie-in to Jumpers Hole Road, since such an alignment would have the greatest potential to eliminate the need for the County's proposed relocation of Jumpers Hole Road through the wetland.

We appreciate the opportunity, provided by the new procedure for merging NEPA and 404, to recommend alternatives to be considered in the environmental document. We regret any delays to project scheduling which our input may cause. Normally, our input would take place much earlier in the project development process, however, this project was already in the pipeline when our involvement was requested. This project emphasizes the need to bring the agencies up to speed on any projects which have already proceeded beyond the alternatives public meeting.

The jurisdiction determination (JD) went well. The wetland limits were flagged as we had requested, and the consultant's report was provided to us in advance of the site visit. We also request for future JD's that the mapping be provided in advance of the meeting.

We look forward to the receipt of the preliminary Draft Environmental Impact Statement for our review. If you have any questions, please contact Mr. Paul Wettlaufer of this office at (410) 962-1843.

Sincerely,

*Paul R. Wettlaufer*

for Abigail A. Hopkins  
Acting Chief, Special Projects  
Permit Section

Enclosures

JURISDICTION DETERMINATION FIELD INSPECTION REPORT (continued)  
RIVER BASIN PERMITS SECTION

Requested by: SHA Date: 27 Aug 1992  
Location: East end of Alt 3, near Jumpers Hole Rd  
Type(s) of Waters of the United States Present: pfo wetlands

Verification of Delineation on Attached Map <sup>(Fig. 1A)</sup> by Grid Location:

|   | A        | B        | C        | D        | E        | F        | G        |
|---|----------|----------|----------|----------|----------|----------|----------|
| 1 | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> |
| 2 | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> |
| 3 | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>A</u> | <u>N</u> | <u>N</u> |
| 4 | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>A</u> | <u>N</u> | <u>N</u> |
| 5 | <u>N</u> | <u>N</u> | <u>P</u> | <u>N</u> | <u>N</u> | <u>A</u> | <u>N</u> |
| 6 | <u>N</u> | <u>P</u> | <u>P</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> |
| 7 | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> |
| 8 | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> |
| 9 | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> |

A = Accurate  
M = Modified  
N = Not Verified  
U = All Uplands  
W = All Waters of the United States  
I = Incorrect, must be re-delineated  
P = Previously Verified

Comments:

Green alignment represents two alternative tie-ins  
for a modification of Alt. 3A/3B proposed by the Corps.  
The narrow wetland channel on grid E-4 is spring fed  
and is fed by stormwater runoff from the commercial  
development.

(Continued on attached sheet)

MARYLAND ROUTE 2  
GOVERNOR RITCHIE HIGHWAY

MARYLAND

DATE

(B)

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

WS-D

PT 37-6-28

PT 37-6-28

WATERLOO ROAD

JUNIPER HOLE ROAD

WATERLOO ROAD

Fig. 1A

3/4

JURISDICTION DETERMINATION FIELD INSPECTION REPORT (continued)  
RIVER BASIN PERMITS SECTION

315

Requested by: SHA

Date: 27 Aug 1992

Location: East end of Alt. 2A/2B

Type(s) of Waters of the United States Present: perm wetlands

Verification of Delineation on Attached Map, <sup>(Fig. 2A)</sup> by Grid Location:

|   | A        | B        | C        | D        | E        | F        | G        |
|---|----------|----------|----------|----------|----------|----------|----------|
| 1 | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> |
| 2 | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> |
| 3 | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> |
| 4 | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> |
| 5 | <u>A</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> |
| 6 | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> |
| 7 | <u>A</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> |
| 8 | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> |
| 9 | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> |

A = Accurate

M = Modified

N = Not Verified

U = All Uplands

W = All Waters of the United States

I = Incorrect, must be re-delineated

Comments: Corps verified wetlands W2-7 and W2-8 only.

Corps was advised that higher quality wetlands are located south of the alignment. W2-7 and W2-8 have value for salamander habitat (they pond water in the spring), and as a stop over for migrating waterfowl).

(Continued on attached sheet)

3/16

# JURISDICTION DETERMINATION FIELD INSPECTION REPORT

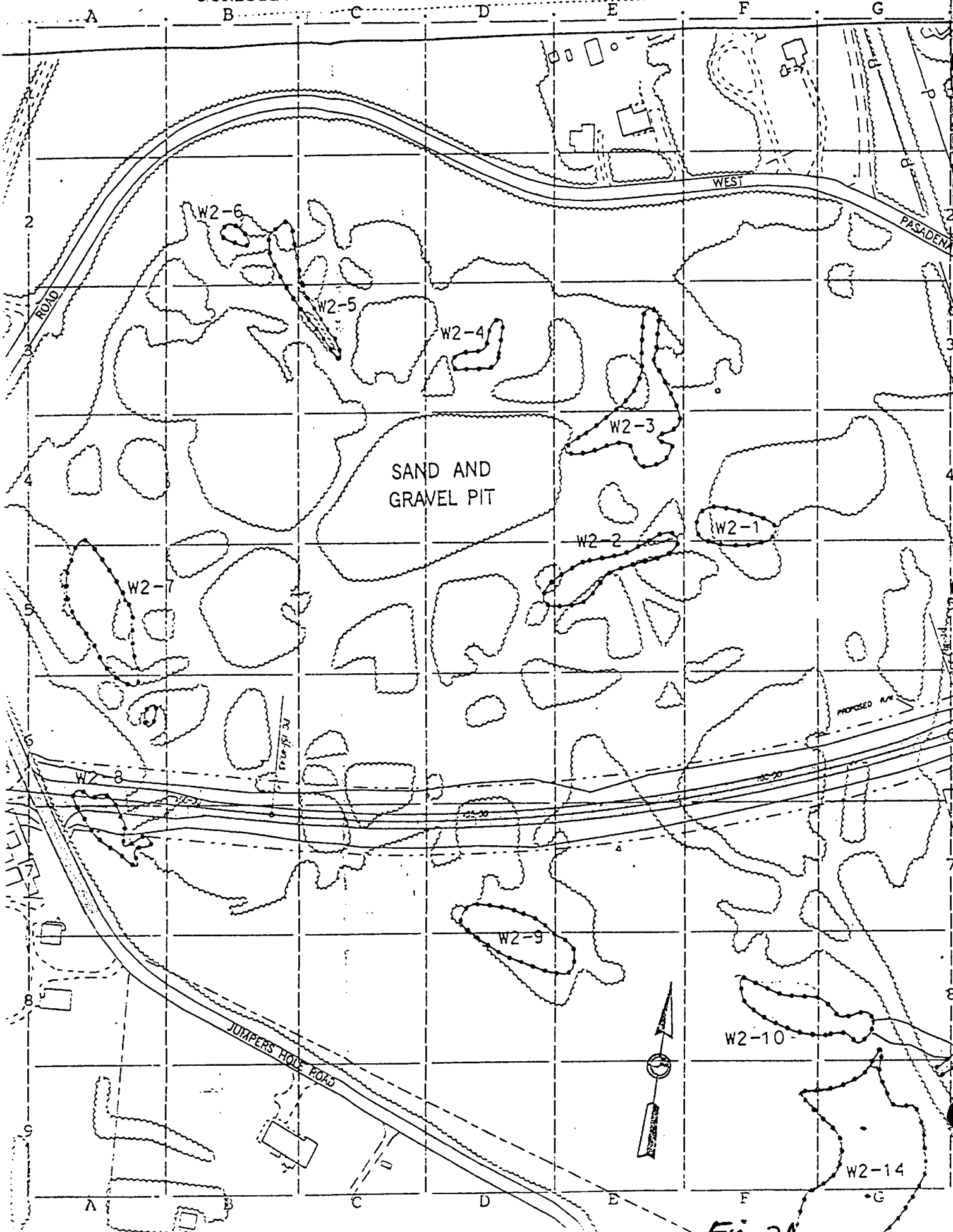


Fig. 2A



JURISDICTION DETERMINATION FIELD INSPECTION REPORT (continued)  
RIVER BASIN PERMITS SECTION

317

Requested by: SHA Date: 27 Aug 1992  
Location: Alt. 4B near Songwood Court adjacent to Benfield Blvd  
Type(s) of Waters of the United States Present: pfo wetlands and stream

Verification of Delineation on Attached Map <sup>(Fig. 3A)</sup> by Grid Location:

|   | A        | B        | C        | D        | E        | F        | G        |
|---|----------|----------|----------|----------|----------|----------|----------|
| 1 | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> |
| 2 | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> |
| 3 | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> |
| 4 | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> |
| 5 | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> |
| 6 | <u>N</u> | <u>N</u> | <u>A</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> |
| 7 | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> |
| 8 | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> |
| 9 | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> | <u>N</u> |

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M = Modified  
N = Not Verified  
U = All Uplands  
W = All Waters of the United States  
I = Incorrect, must be re-delineated

Comments:

Culvert had a wood bulkhead constructed across the lower half of the pipe, on the upstream end. The bulkhead was acting as a sediment trap, as the stream had completely filled-in with sand up to the level of the bulkhead. Widening Benfield Blvd would impact a sliver of this wetland.

(Continued on attached sheet)

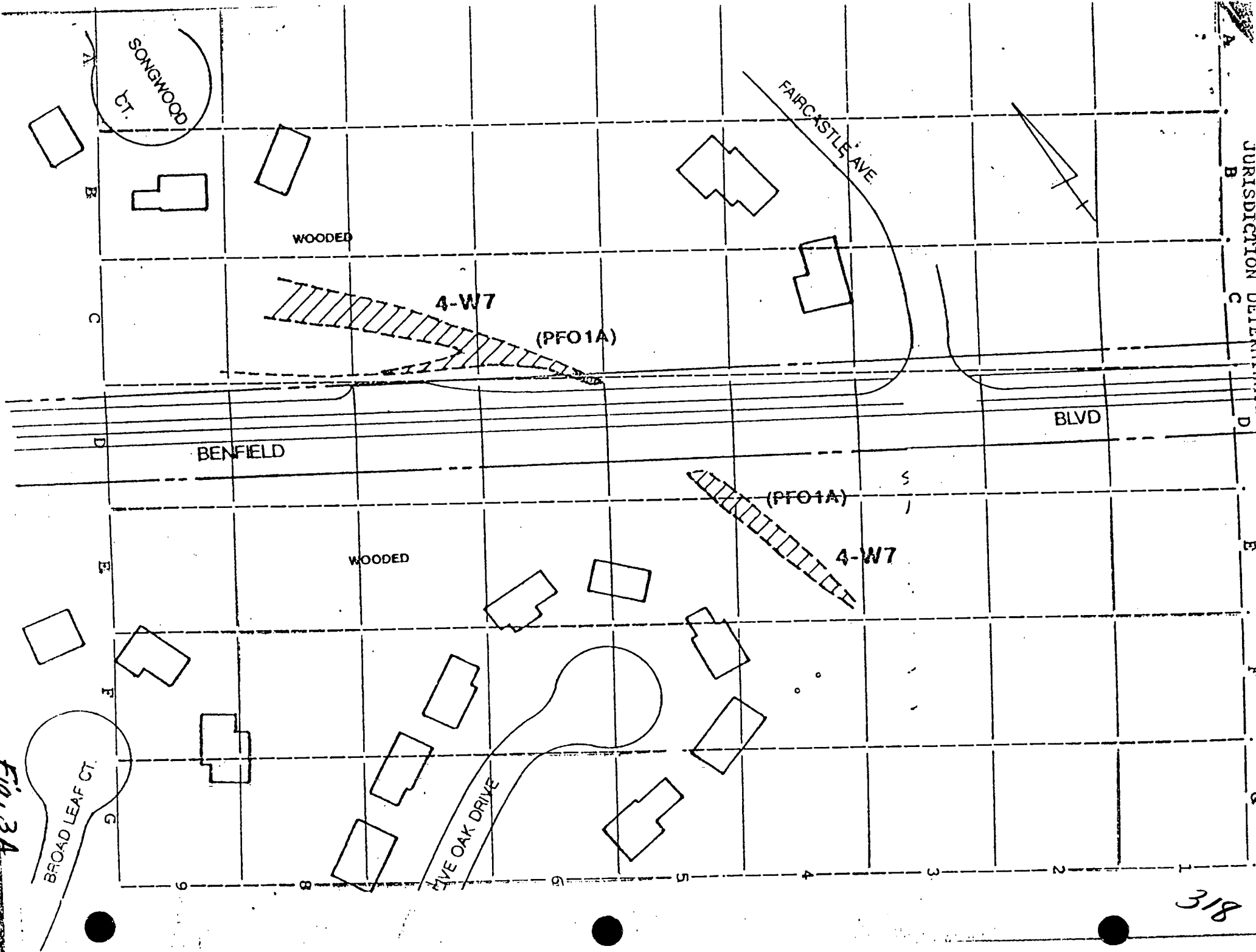
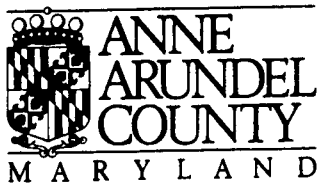


Fig. 34



PROJECT  
DEVELOPMENT  
DIVISION

SEP 10 9 15 AM '92

Dennis

3A

P.O. BOX 2700  
ANNAPOLIS, MARYLAND 21404  
(301) 222 - 3600  
DEPARTMENT OF RECREATION AND PARKS

September 1, 1992

Mr. Dennis Atkins  
Maryland State Highway Administration  
707 North Calvert Street  
Baltimore, MD 21203-0717

RE: Contract No. AA 484-101-570  
East-West Boulevard  
Maryland Route 3 to Maryland Route 2

Dear Mr. Atkins:

Following is a summary assessment of the impacts on the B&A Trail of each of the proposed options for East-West Boulevard:

Brightwood/Obrecht Option: This route would impact the B&A Trail at a location just south of Jumpers Hole Road. With Anne Arundel County's construction of Relocated Jumpers Hole Road, an agreement has been reached to permanently close the one-way segment of Jumpers Hole Road which crosses the B&A Trail. This option would thus add a new, higher-volume two-way crossing to this area of the trail replacing the abandoned one-way crossing. No signalization is proposed because of the low volume of traffic on Elvaton Road adjacent to the trail crossing.

This option would also eliminate or force the relocation of the northernmost rest area on the Trail, destroy at least a portion of the rest area's preserved freight platform foundations, and have a major impact on the wetlands located immediately south of the rest area. Mitigation of these impacts because of site constraints would be a major challenge.

Master Plan Alignment: This proposal would upgrade Mission Street from Route 2 to Light Street Avenue and would cross the B&A Trail just south of Pasadena Road. This option proposes a signal with pedestrian cycles at the intersection of East West Boulevard with Light Street Avenue and the Trail. This signal would provide a safe crossing for trail users, since an overpass at this location would result in unacceptable grades on the trail approaches.

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The Master Plan alignment also has the potential to seriously impact Elvaton Park, including both active and passive areas, depending on the final alignment selected.

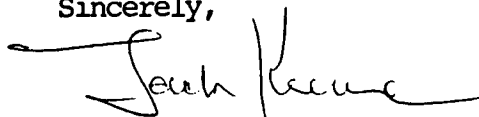
Benfield Boulevard Upgrade: This proposal would likely increase traffic volumes at the Robinson Road, Riggs Road and Evergreen Road trail crossings in Severna Park with attendant safety concerns for trail users. Of the three crossings, the most severe impact would be at Evergreen Road, where traffic moving south to the Arnold area would likely cross the Trail. This Trail intersection, adjacent to an unsignalized oblique intersection with Maryland 648 (Baltimore-Annapolis Boulevard) is already the most dangerous on the Trail. Strong left turning movements from northbound 648 and eastbound stacking on Evergreen Road, combined with a lack of a bypass lane for left turns from southbound 648 to Cypress Creek Road, which blocks the Evergreen Road intersection, make this an exceptionally difficult crossing for Trail users.

Any proposal to upgrade Benfield Boulevard to handle increased traffic will need to address the traffic impacts to Trail users at these three crossings, with special emphasis on the mitigation of existing problems at Evergreen Road and Maryland 648.

The B&A Trail is currently one of Anne Arundel County's most heavily used park facilities, attracting approximately 500,000 walkers, runners, bicyclists, in-line skaters, equestrians and other users per year. The users are more or less evenly divided between bicyclists and other users.

Both the B&A Trail and Elvaton Park are POS projects, imposing conversion requirements from any roadway impacts on these projects. Please contact me if you have any questions on these comments.

Sincerely,



John T. Keene, Chief  
Planning and Construction

JTK:ew

cc: W. A. Rinehart  
T. Donlin  
D. Dionne  
T. Brower, POS

321



**Maryland Department of Transportation  
State Highway Administration**

**Richard H. Trainor**  
Secretary  
**Hal Kassoff**  
Administrator

December 13, 1989

Mr. Joseph J. McCann  
Anne Arundel County  
Department of Recreation and Parks  
Post Office Box 1831  
Annapolis, Maryland 21404

Dear Mr. McCann:

Thank you for your November 15th letter expressing your position regarding impacts of the proposed East-West Boulevard to Elvaton Park and the B&A Trail.

During the course of this study, we will be evaluating options that will address your concerns. This will include investigating the feasibility of providing a structure over the B&A Trail. However, we will have to seriously consider the cost of providing a structure versus the benefits gained. We will also be investigating other ways to provide a safe crossing of the trail. Further, we will be evaluating options that will minimize impacts to Elvaton Park, while maintaining the integrity of existing park recreational facilities. These studies will be coordinated with the appropriate state, county, and federal agencies.

We do appreciate your spirit of cooperation and will keep you advised of significant developments affecting parkland.

Thank you for your support. We appreciate your interest in this project.

Very truly yours,

*Neil J. Pedersen*

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

NJP:as  
cc: Mr. Louis H. Ege, Jr.  
Mr. Dennis Atkins  
Mr. James Cannelli  
Mr. Roland Davis  
Mr. Edward H. Meehan

My telephone number is (301) 333-1110



**Maryland Department of Transportation  
State Highway Administration**

Richard H. Trainor  
Secretary  
Hal Kassoff  
Administrator

322

November 8, 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. AA 484-101-570  
East-West Boulevard  
MD 2 to MD 3  
Anne Arundel County, Maryland

On November 3, 1989, a meeting was held at State Highway Administration headquarters in Baltimore to discuss possible parkland impacts associated with the proposed East-West Boulevard from MD 2 to MD 3 in Anne Arundel County.

The meeting convened at 10:00 a.m. with the following people in attendance:

|                       |   |
|-----------------------|---|
| Ms. Cynthia Simpson   | SHA-Assistant Division Chief, PPD       |
| Mr. John Contestabile | " "                                     |
| Mr. Frank DeSantis    | SHA-Project Manager                     |
| Mr. Dennis Atkins     | SHA-Environmental Manager               |
| Mr. Herman Rodrigo    | FHWA-Division Office                    |
| Ms. Kay Batey         | " "                                     |
| Mr. George Forlifer   | DNR-Program Open Space                  |
| Mr. Roland Davis      | AA Co.-Office of Planning and Zoning    |
| Mr. Jim Cannelli      | " "                                     |
| Mr. Jack Keene        | AA Co.-Department of Recreation & Parks |

After Mr. Frank DeSantis gave a brief description of the proposed project, the following issues were discussed at the meeting:

- Anne Arundel County should coordinate review of construction plans, the construction schedule etc., for the initial section of roadway between MD 3 and Shipleys Choice, with SHA. Further, in accordance with the Alternatives analysis under NEPA, the rationale for the project termini must be indicated.

My telephone number is (301) 333-1177

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Mr. Louis H. Ege, Jr.  
November 8, 1989  
Page 2

These plans should be developed to be compatible with future SHA proposals for the ultimate four lane roadway.

- The engineering plans should be developed in accordance with state and federal environmental regulations. (Wetland avoidance options must be studied.)
- DNR requested that a reduced median option be studied and stated that every effort should be made to avoid Elvaton Park. SHA was strongly encouraged to study an overpass for the B&A Trail to pass over East-West Boulevard.
- Anne Arundel County Department of Recreation and Parks strongly opposes any additional at-grade crossings of the B&A Trail. They would not oppose the taking of land from Elvaton Park as long as existing recreational facilities were not impacted.
- Elvaton Park and the B&A Trail were purchased with Program Open Space funds. Any use of land from these properties would require the acquisition of replacement parcels.
- DNR stated that the acquisition of land along the western side of Elvaton Park would mitigate impacts to the park.
- According to FHWA, the rationale for not studying the Benfield Road and Brightview Road corridors must be discussed in the environmental document for this project. Both of these corridors avoid impacts to Elvaton Park and the B&A Trail.

Traffic data supporting the need for the new connection between MD 2 and MD 3 in the proposed East-West Boulevard location and not Benfield Boulevard or Brightview Drive must be included.

If SHA anticipates federal funding for this improvement, the requirements of the NEPA process must be followed.

- FHWA sees East-West Boulevard serving two purposes:
  1. To provide an east-west connection between MD 2 and MD 3.
  2. To alleviate existing traffic congestion and to provide for future traffic generated by planned development in the project corridor.

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Mr. Louis H. Ege, Jr.  
November 8, 1989  
Page 3

- SHA will look at measures to avoid Elvaton Park. If this is not possible SHA will also look at ways to minimize impacts to existing recreational facilities in the park.
- SHA will attempt to minimize impacts to the B&A Trail. The construction of a pedestrian/biker overpass over East-West Boulevard will be studied as a possible mitigation measure.

The above is the writer's interpretation of the issues presented and discussed at the meeting. Should you have any questions or comments please feel free to contact Mr. Dennis M. Atkins at 333-6748.

CDS:DA:cd  
cc: Attendees  
Mr. Neil J. Pedersen  
Mr. Kurt Oelman





**ANNE ARUNDEL COUNTY**  
ANNAPOLIS, MARYLAND 21401

DEPARTMENT OF RECREATION AND PARKS

P.O. BOX 1831  
ANNAPOLIS, MD 21404  
(301) 987-9600

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

ATTN: Ms. Cynthia D. Simpson

RE: Contract No. AW 971-108  
East-West Boulevard  
Anne Arundel County

Dear Mr. Ege:

This letter is in response to your inquiry concerning the impact of the construction of East-West Boulevard on three county parks, as follows:

I. Kinder Park

- A. Official with jurisdiction:  
William Rinehart, Parks Administrator
- B. Mapping: enclosed
- C. Funding Sources:  
Acquisition: POS  
Development: future POS
- D. Use (current): youth sports, playground, garden plots  
Use (planned): day use family park, picnicking, trails,  
fishing, historic farm complex

E. Frequency of use: daily, March-November

F. Master plan: enclosed

II Elvaton Park

A. Official with jurisdiction:  
William Rinehart, Parks Administrator

B. Mapping: enclosed

C. Funding Sources:

Acquisition: POS  
Development:

D. Use: youth and adult team sports, tennis, playground

E. Frequency of use: daily March-November

F. Master plan: none

III B&A Trail

A. Official with jurisdiction:  
William Rinehart, Parks Administrator

B. Mapping enclosed

C. Funding Sources:  
Acquisition: POS  
Development: POS

D. Use: pedestrian, bicycle and equestrian trail

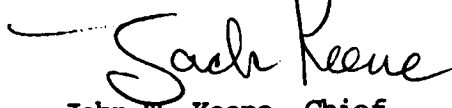
E. Frequency of use: daily

F. Master Plan: enclosed

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In general, we feel the impact of East-West Boulevard on Kinder and Elvaton park will be manageable, but we are most concerned about the safety of an at-grade crossing of this major artery with the B&A Trail. We suggest that an overhead crossing be given serious consideration.

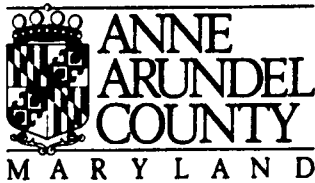
Sincerely yours,

A handwritten signature in cursive script that reads "John T. Keene". The signature is written in dark ink and is positioned above the typed name.

John T. Keene, Chief  
Planning and Construction

JTK:ew

cc: W. A. Rinehart



PROJECT  
DEVELOPMENT  
DIVISION

AUG 14 10 35 AM '92

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FIRE DEPARTMENT HEADQUARTERS  
P.O. BOX 276  
MILLERSVILLE, MARYLAND 21108  
(301) 987-4010

August 10, 1992

Mr. Louis H. Ege, Jr.  
Deputy Director  
Office of Planning & Preliminary Engineering  
Maryland Department of Transportation  
State Highway Administration  
707 North Calvert Street  
Baltimore, Maryland 21203-0717

RE: Contract No. AA 484-101-570  
East-West Boulevard  
MD 3 to MD 2 in Anne Arundel Co., MD

Dear Mr. Ege:

A study has been conducted in regard to the possible effects upon an emergency response that would occur as a result of the alternatives being considered as part of the subject "Project Planning Study."

The Master Plan Alignment, Brightview/Obrecht Road and Benfield Boulevard corridors, would all enhance emergency equipment response times. There is no need for the Fire Department to alter responses for any of the three (3) options.

The Master Plan Alignment would have the least impact on Fire Department response times during construction. If the Brightview/Obrecht Road and Benfield Boulevard options are used, response times would be hindered during construction, but would be enhanced after completion.

There is concern with a median when using the four-lane alternative. This is not an immediate problem with the present access points, but may be a concern due to the future growth of the area and streets that may intersect these options, mainly the Master Plan Alignment, four-lane option. If future streets intersect the Master Plan Alignment, it would be essential that crossovers are provided for access from East or West bound lanes.

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Mr. Louis H. Ege, Jr.  
August 10, 1992  
Page -2-

Thank you for the opportunity to comment on the proposed road changes. Please call me at (410)987-4010, ext. 342 if you have any questions.

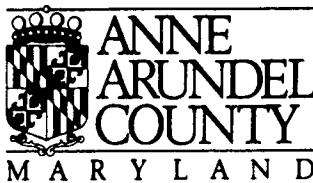
Sincerely,



C. Gary Rogers, Deputy Chief  
Fire Operations

CGR/cb

cc: Chief Paul C. Haigley, Fire Administrator  
Deputy Chief Roger C. Simonds, EMS & Special OPS  
Deputy Chief Mark Pfister, Jr., Services  
Act/Division Chief David A. Hoy, Communications  
Diary



PROJECT  
DEVELOPMENT  
DIVISION

AUG 7 9 30 AM '92

POLICE DEPARTMENT  
8495 VETERANS HIGHWAY  
MILLERSVILLE, MARYLAND 21108  
(301) 222 - 8050

August 3, 1992

ROBERT P. RUSSELL  
Chief of Police

Cynthia D. Simpson  
Deputy Division Chief  
707 North Calvert Street  
Baltimore, Md. 21203-0717

Dear Ms. Simpson:

On behalf of Chief Robert Russell, I am responding to your letter of July 24, 1992. In this letter you request comments concerning the possible effects of emergency response times on the East-West Boulevard Project.

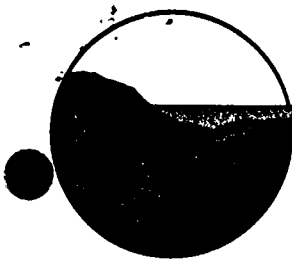
Traffic is quite heavy at times along Benfield Road making emergency response times longer and more difficult for responding unit(s). Brightview road with its existing horizontal and vertical curves create driving hazards in itself. Although the present response times are satisfactory and meet our standards, any road improvements or construction of new road corridors in the area of study would be beneficial.

If you have any questions or if I can assist you in any way please contact me at the Crime Prevention Section. My telephone number is 410-222-8565.

Sincerely,

A handwritten signature in dark ink, appearing to read "T. M. Wagner", with a long horizontal flourish extending to the right.

Acting Sergeant Thomas M. Wagner  
Crime Prevention Through  
Environmental Design



**Maryland Department of Natural Resources**

**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  
*Director*

May 3, 1989

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

Re: East-West Boulevard,  
MD 2 - MD 3, A.A.

Dear Ms. Simpson:

This is in response to your request for information on the above referenced project for which you provided maps.

Lygodium palmatum (Climbing Fern), a State Threatened rare plant species, is known to occur within the study area. Our Natural Heritage Program has several recent site records for this species within the Severn River Natural Environmental Area. Lygodium palmatum typically inhabits wet thickets and borders of low woods.

However, within the study area there are forested tracts that are potential habitat for Forest Interior Dwelling Birds and as such must be protected under the Critical Area Law. Forested areas outside the Critical Area are also valuable and minimizing fragmentation of these areas will greatly enhance the site for Forest Interior Dwelling Birds.

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Ms. Cynthia D. Simpson  
May 4, 1989  
Page 12  
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We recommend that a route be selected to avoid adverse impacts on this species and on the Severn Run Natural Environmental Area.

If you have any questions regarding this matter, please feel free to call Ms. Judy Harding at (301) 974-2870 or Mr. Peter Bendel at (301) 827-8612.

Sincerely,



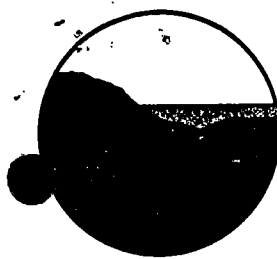
James Burtis, Jr.  
Director

JB/dec

cc: Janet McKegg  
Robert Miller  
Jeff Horan  
ER # 89-03-142



333



# Maryland Department of Natural Resources

## Tidewater Administration

Tawes State Office Building  
580 Taylor Avenue  
Annapolis, Maryland 21401

William Donald Schaefer  
Governor

Torrey C. Brown, M.D.  
Secretary

April 25, 1989

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

PROJECT  
DEVELOPMENT  
DIVISION  
APR 26 1 47 PM '89

Dear Mr. Ege:

You have requested information regarding finfishes present in the study area for the proposed East - West Boulevard, MD 2 - MD 3 in Anne Arundel County. Attached please find a list of fish species which can most likely be found in the Severn River and Magothy River watersheds.

You also requested information concerning anadromous finfish. There is documentation of white perch for Severn Run and herring for upper Severn River. All of these fish species spawn between mid-February through mid-June.

If you have any questions, please call Ms. Mary Ellen Dore at (301) 974-2788.

Sincerely,

Elder A. Ghigiarelli, Jr.  
Chief, Project Evaluation  
Power Plant and Environmental  
Review Division

EAG:MED:swp

Attachment

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Table VII-2. Fish Species Collected in the West Chesapeake River Basin.  
1977-1984.

|                     |  |
|---------------------|--|
| Cyprinidae          | <u>Rhinichthys</u> <u>atratulus</u> (Hermann)    |
| Blacknose dace      | <u>Notemigonus</u> <u>crysoleucas</u> (Mitchill) |
| Golden shiner       |  |
| Catostomidae        | <u>Catostomus</u> <u>commersoni</u> (Lacepede)   |
| White sucker        |  |
| Ictaluridae         | <u>Ictalurus</u> <u>nebulosus</u> (Lesueur)      |
| Brown bullhead      |  |
| Centrarchidae       | <u>Lepomis</u> <u>gibbosus</u> (Linnaeus)        |
| Pumpkinseed sunfish | <u>Lepomis</u> <u>auritus</u> (Linnaeus)         |
| Redbreast sunfish   |  |
| Percidae            | <u>Etheostoma</u> <u>olmstedii</u> Storer        |
| Tessellated darter  | <u>Perca</u> <u>flavescens</u> (Mitchill)        |
| Yellow perch        |  |
| Anguillidae         | <u>Anguilla</u> <u>rostrata</u> (Lesueur)        |
| American eel        |  |
| Esocidae            | <u>Esox</u> <u>niger</u> Lesueur                 |
| Chain pickerel      |  |
| Umbridae            | <u>Umbra</u> <u>pygmaea</u> (DeKay)              |
| Eastern mudminnow   |  |

FROM: Stinefelt, H.H. S.E. Rivers, C.R. Gougeon, and D.E. Wornecki 1985. Survey, Inventory, and Managment of Maryland Cold Water Fishery Resources. Fed. Aid Proj. F-37-R, of Natural Resources, Tidewater Administration.



United States Department of the Interior

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

PROJECT DEVELOPMENT  
APR 17 10 13 AM '89

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April 12, 1989

Ms. Cynthia D. Simpson  
Maryland Dept. of Transportation  
707 N. Calvert Street  
Baltimore, Maryland 21203-0717

Dear Ms. Simpson:

This responds to your recent requests for information on the presence of species which are Federally listed or proposed for listing as endangered or threatened within the following project areas:

AW 971-108 - East-West Blvd. (Expanded) Anne Arundel  
AW 971-103 - MD 413 Dualization Somerset

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.).

The swamp pink (Helonias bullata), a threatened species, is known to occur in Anne Arundel County within three miles of project AW-971-108 and could be present in the project impact area if appropriate habitat exists. This plant, a member of the lily family, grows only in wetlands with perennially saturated soils, such as swamps, groundwater seeps or stream margins, and is generally found in wooded areas. If habitat fitting this description occurs in the area to be impacted by this project, surveys should be conducted to determine whether H. bullata is present. For further information on this plant, you may wish to contact the Maryland Heritage Program, telephone 974-2870. As you are aware, any wetlands impacts may also require Corps of Engineers permitting, under the Clean Water Act.

A nest of the endangered bald eagle (Haliaeetus leucocephalus) occurs within the proposed right-of-way of the MD 413 project, south of the intersection with Lovers Lane. The endangered Delmarva fox squirrel (Sciurus niger cinereus) may also occur in the project vicinity and could be impacted by habitat alterations associated with this project.

If you determine a project to be a major Federal action significantly affecting the quality of the human environment (i.e., one requiring an environmental impact statement), Section 7(c) of the Endangered Species Act, as amended, requires that you prepare a biological assessment to determine the effects on the project on listed and proposed species. When conducting a biological assessment, you shall, at a minimum:

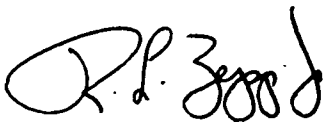
- 336
1. Conduct a scientifically sound on-site inspection of the area affected by the action, which must in most cases include a detailed survey of the area to determine if listed or proposed species are present or occur seasonally and whether suitable habitat exists within the area for either expanding the existing population or potential reintroduction of populations;
  2. Interview recognized experts on the species at issue, including those within the Fish & Wildlife Service, the National Marine Fisheries Service, state conservation agencies, universities, and others who may have data not yet found in scientific literature;
  3. Review literature and other scientific data to determine the species distribution, habitat needs, and other biological requirements;
  4. Analyze the effects of the action on individuals and populations of each species and its habitat, including indirect and cumulative effects of the action;
  5. Analyze alternative actions that may provide conservation measures;
  6. Conduct any studies necessary to fulfill the requirements of (1) through (5) above;
  7. Review any other relevant information.

If you determine this action not to be the one requiring an environmental impact statement, a biological assessment is not required; however, you still have an obligation to review the activity to determine if it may affect listed species or Critical Habitat and to initiate formal consultation if you find that such an effect may occur.

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,

  
for John P. Wolfelin  
Supervisor  
Annapolis Field Office



**Maryland Department of Transportation  
State Highway Administration**

O. James Lighthizer  
Secretary  
Hal Kassoff  
Administrator

331

June 1, 1992

RE: Contract No. AA 484-101-571  
East - West Boulevard from  
MD 3 to MD 2 in  
Anne Arundel County, Maryland

Judge John North, Chairman  
Chesapeake Bay Critical Area Commission  
45 Calvert Street, 2nd Floor  
Annapolis MD 21401

ATTN: Mr. Ren Serey

Dear Judge North:

On August 25, 1989 we wrote to your office concerning the subject project. At that time, improvements to Benfield Road, which passes through the Critical Area Boundaries, were not under consideration. We are now studying improvements to Benfield Road which would include widening the existing two lane roadway to four lanes within the existing 80 foot right-of-way, and some possible intersection improvements at Governor Stone Parkway, Lynwood Drive, Jumpers Hole Road, and Truck House Road.

At this time we do not have any detailed plans available for these proposed improvements. As we develop plans we will coordinate further with your office. We have enclosed a location map which indicates all of the corridors that are currently under study. If you have any additional questions or comments please feel free to contact Mr. Dennis M. Atkins or myself. Dennis can be reached at 333-6748.

Very truly yours,

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

by: Cynthia D. Simpson  
Cynthia D. Simpson  
Deputy Division Chief  
Project Planning Division

LHE:DMA:cd  
Enclosure

cc: Mr. Frank DeSantis

My telephone number is (410) 333-1177

PROJECT  
DEVELOPMENT  
DIVISION



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SEP 21 11 02 AM '89

JOHN C. NORTH, II  
CHAIRMAN

STATE OF MARYLAND  
**CHESAPEAKE BAY CRITICAL AREAS COMMISSION**  
WEST GARRETT PLACE, SUITE 320  
275 WEST STREET  
ANNAPOLIS, MARYLAND 21401  
974-2418 or 974-2426

SARAH J. TAYLOR, PH  
EXECUTIVE DIRECTOR

COMMISSIONERS

September 15, 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.

Kathryn D. Langner  
Cecil Co.

Samuel Y. Bowling  
Charles Co.

G. Steele Phillips  
Dorchester Co.

Victor K. Butanis  
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Wallace D. Miller  
Kent Co.

Parris Glendening  
Prince George's Co.

Robert R. Price, Jr.  
Queen Anne's Co.

J. Frank Raley, Jr.  
St. Mary's Co.

Ronald D. Adkins  
Somerset Co.

Shepard Krech, Jr.  
Talbot Co.

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  
Maryland Department of Transportation  
State Highway Administration  
707 North Calvert Street  
Baltimore, Maryland 21203-0717

Dear Mr. Ege:

We concur with your determination that the following  
two projects are not now planned to be in the Critical  
Area. These projects are:

Contract No. B 635-151-472: I-695 from MD 140 to MD  
702 (Baltimore County)

Contract No. AW 141-108-070: East West Boulevard from  
MD 3 to MD 2 (Anne Arundel Co.)

If other options for routing in the Critical Area are  
considered, we will be happy to review them.

Sincerely,

*Abi Rome*

Abi Rome  
Natural Resources Planner

AR/jjd

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.  
Natural Resources

Ronald Kreitner  
Planning

cc: Ms. Cynthia Simpson  
Mr. David Flowers  
Mr. Joseph Elbrich  
Mr. William Mangels

MARYLAND  
HISTORICAL



TRUST

PROJECT  
DEVELOPMENT  
DIVISION

OCT 22 1 53 PM '92

William Donald Schaefer  
Governor

Jacqueline H. Rogers  
Secretary, DHCD

October 19, 1992

Office of Preservation Services

Ms. Cynthia D. Simpson  
Deputy Division Chief  
Project Planning Division  
State Highway Administration  
707 North Calvert Street  
Baltimore, Maryland 21203-0717

RE: Contract No. AA 484-101-571  
East/West Boulevard  
from Veterans Hwy. to MD 2  
Anne Arundel County, Maryland

Dear Ms. Simpson:

Thank you for your letter, dated 23 September 1992 and received by the Trust on 1 October 1992, requesting our comments on the above-referenced project.

Regarding historic standing structures, we concur that the proposed alternates will have no effect on properties eligible for or listed on the National Register of Historic Places.

Regarding archeology, we have reviewed the following draft report prepared by GAI Consultants: "Phase IB Intensive Archaeological Survey of East-West Boulevard, Anne Arundel County, Maryland." The report presents a detailed discussion of the survey's goals, methodology and results. We agree that the document is consistent with the standards of the "Guidelines for Archeological Investigations in Maryland." The survey did not identify any archeological sites within those portions of the study area available for testing. However, several parcels remain untested due to problems securing access. Further Phase I survey may be warranted within the selected alignment, in order to complete the identification and evaluation of archeological resources. Below we have outlined our specific comments on the draft report itself, and ask SHA to have its consultant address these issues in the final document.

- 1) Paragraph 2 of the Abstract should add an "X" to the reference to 18An106, the recovered Brewerton point.

*Maryland*

Division of Historical and Cultural Programs  
Department of Housing and Community Development  
100 Community Place, Crownsville, Maryland 21032-2023 (410) 514-7600

- 340
- 2) Page 22 notes that the Earleigh Heights Station and Store (AA-1057) is "potentially" eligible for the National Register. The word potentially should be deleted from this sentence, since the Trust previously stated that this historic property is eligible (prior correspondence dated 17 October 17, 1990).
  - 3) The survey results for the Brightview-Obrecht Alignment note the discovery of a small cemetery (10 by 15 feet) located between STPs N3 and N4, but the report does not subsequently discuss the cemetery. The report should describe the cemetery in more detail, evaluate the project's impacts on the cemetery, illustrate its location on Figure 10a, and identify what measures, if any, are warranted to appropriately consider and treat the cemetery.
  - 4) The report should include a brief section on laboratory methodology and discuss what materials were retained for permanent curation. In addition, the report should note the repository that will curate the project's resulting artifacts and documentation.
  - 5) The report should present solid justification to support its recommendations for additional survey of the specific parcels listed in Table 3. Given the negative survey results in the remainder of the areas tested, the report should identify the particular characteristics that support each parcel's potential for containing archeological resources. In addition, the figures should clearly illustrate and label those parcels recommended for survey. The text and Table 3 should be keyed to those appropriate figures. It is not possible to determine where specific numbered parcels are located on the current figures.

We look forward to receiving the final report and completed NADB form, when available. Further consultation with our office will be necessary to complete the project's Section 106 review. If you have questions or require additional information, please call Ms. Elizabeth Hannold (for structures) or me (for archeology) at (410) 514-7631.

Thank you for your cooperation and assistance.

Sincerely,



Elizabeth J. Cole  
Administrator, Archeological Services

EJC/EAH  
9202950

cc: Mr. Richard Ervin  
Ms. Donna Ware  
Ms. Newell H. Cannon

Ms. Rita Suffness  
Mr. Harrison B. Wetherill, Jr.



MARYLAND  
HISTORICAL



TRUST

PROJECT  
DEVELOPMENT  
DIVISION

DEC 7 1 47 PM '90

William Donald Schaefer  
Governor

Jacqueline H. Rogers  
Secretary, DHCD

341

December 4, 1990

Ms. Cynthia D. Simpson  
Assistant Division Chief  
Project Planning Division  
State Highway Administration  
707 North Calvert Street  
Baltimore, Maryland 21203-0717

Re: East - West Boulevard  
MD 3 to MD 2  
Anne Arundel County

Dear Ms. Simpson:

Thank you for your letter of November 8, 1990 concerning the above-referenced project. Based on conversations between Ms. Donna Ware and Ms. Beth Hannold and information and photographs supplied by Ms. Rita Suffness, we concur that Elvaton House (AA 1055) is not eligible for the National Register of Historic Places. In addition, we agree that the study area, as modified by the November 8th letter, no longer includes the Ellis Farm (AA 958).

If we can be of any further assistance, please contact Elizabeth Hannold at (301) 974-5007.

Sincerely,

Jo Ellen Freese  
Project Review and  
Compliance Administrator  
Office of Preservation Services

JEF/EH/meh

cc: Ms. Rita Suffness  
Ms. Donna Ware  
Mr. Harrison B. Wetherill, Jr.

Division of Historical and Cultural Programs  
Department of Housing and Community Development  
Shaw House, 21 State Circle, Annapolis, Maryland 21401 (301) 974-5007



D.H.  
PROJECT  
DEVELOPMENT  
DIVISION

OCT 25 1 45 PM '90

342  
William Donald Schaefer  
Governor

Jacqueline H. Rogers  
Secretary, DHCD

October 17, 1990

Ms. Cynthia D. Simpson  
Assistant Division Chief  
Project Planning Division  
State Highway Administration  
707 North Calvert Street  
Baltimore, Maryland 21203-0717

Re: Contract #AW 141-108 N  
East-West Boulevard  
MD 3 to MD 2  
PDMS No. 022188  
Anne Arundel County

Dear Ms. Simpson:

Thank you for your letter dated August 29, 1989, concerning the above referenced project. We concur with the levels of significance for the six additional properties identified in the expanded study area. Please note that the Maryland Historical Trust holds an easement on the Earleigh Heights Store, Post Office and Station (AA 1057), which is also National Register eligible.

Our records indicate that there are two additional properties which are within or immediately adjacent to the study area which were not noted in your August 29, 1989 letter:

AA 1055 - Elvation House, West side of Jumpers Hole Road at intersection of Elvation Road, Elvation.

AA 958 - Ellis Farm, West side of Route 3, Benfield vicinity.

Please provide thorough documentation and photographs for these properties in addition to an assessment of their level of significance.

For archeology, our records do not reflect any correspondence since April 20, 1979, when the State Archeologist recommended a survey be conducted of the project area. Please inform us regarding the status of archeological review for this project, including archeological evaluation of the expanded study area.

*Maryland*

Division of Historical and Cultural Programs  
Department of Housing and Community Development  
Shaw House, 21 State Circle, Annapolis, Maryland 21401 (301) 974-5007

343

Further consultation with our office will be necessary to complete the project's Section 106 review. If you have questions or require further information, please call Ms. Elizabeth Hannold (for structures) or Ms. Beth Cole (for archeology) at (301) 974-5007.

Thank you for your assistance.

Sincerely,

Jo Ellen Freese  
Project Review and  
Compliance Administrator  
Office of Preservation Services

JEF:EJC:EH:lcj

cc: Ms. Rita Suffness  
Dr. Ira Beckerman  
Mr. Harrison B. Wetherill, Jr.  
Ms. Donna Ware

344  
Richard H. Trainor  
Secretary  
Hal Kassoff  
Administrator

**SHA**  
**Maryland Department of Transportation**  
**State Highway Administration**

August 29, 1989

RE: Contract No. AW 141-108 N  
East-West Boulevard  
MD 3 to MD 2  
PDMS No. 022188

Mr. J. Rodney Little  
State Historic Preservation Officer  
Maryland Historical Trust  
21 State Circle  
Annapolis, Maryland 21401

Dear Mr. Little:

Thank you for your letter of January 31, 1989. Since then the project area has been expanded, as shown on the attached map. Additional sites have been identified in this expanded study area, and are listed below with our proposed levels of significance.

| <u>No.</u> | <u>Name</u>                                    | <u>Address</u>  | <u>Proposed Level of Significance</u>                     |
|------------|--|---|---|
| AA 1064    | Pasadena School                                | Pasadena Rd.<br>between Altona<br>and Hopeland Rds.                 | Maryland Inven-<br>tory (M.I.)                            |
| AA 1065    | Pasadena Church                                | S.W. Corner Chest-<br>nut St. and Linden<br>Ave.                    | " " "   |
| AA 2055    | Ritchie Hwy. House                             | E. side Ritchie<br>Hwy. at Magothy<br>Bridge Road                   | " " "   |
| AA 803     | Magothy Methodist<br>Church                    | E. side Ritchie<br>Hwy., south of<br>Earleigh Heights<br>Fire Dept. | " " "   |
| AA 1057    | Earleigh Heights<br>Store, P.O. and<br>Station | Earleigh Heights<br>Road and B&A<br>Railroad                        | Possibly Na-<br>tional Register<br>Eligible<br>(P.N.R.E.) |
| AA 1056    | Silas Church                                   | 89 W. Earleigh<br>Heights Rd.                                       | M.I.  |

My telephone number is (301) 333-1177

345

Mr. J. Rodney Little  
August 29, 1989  
Page 2

AA 127 (the Duvall Homestead) has been razed. Should you have any questions, please call Ms. Suffness on 301-333-1183. We would appreciate receiving your response by September 28, 1989.

Very truly yours,

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

by: Cynthia D. Simpson  
Cynthia D. Simpson  
Assistant Division Chief  
Project Planning Division

LHE:RS:cd  
Attachment  
cc: Mr. Dennis Atkins (w/attach) ✓

MARYLAND  
HISTORICAL



TRUST

PROJECT  
DEVELOPMENT  
DIVISION

FEB 7 10 05 AM '89

346  
William Donald Schaefer  
Governor

Jacqueline H. Rogers  
Secretary, DHCD

January 31, 1989

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

Re: Contract No. AW 974-108N  
East West Boulevard  
MD 3 to MD 2

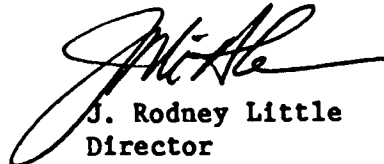
Dear Ms. Simpson:

Thank you for your letter of December 14, 1988, concerning the above referenced project.

This office concurs with your opinion that Christ Church (AA 1058) is not eligible for listing in the National Register of Historic Places and further, that no sites on or eligible for listing in the National Register are located within the project area.

Should you have any questions, please contact Michael Day at 974-5000.

Sincerely,



J. Rodney Little  
Director

JRL/MKD/meh

cc: Ms. Rita Suffness  
Ms. Donna Ware  
Mr. Harrison B. Wetherill, Jr.  
Mr. Dean Johnson  
Ms. Donna Ware



**Maryland Department of Transportation**  
**State Highway Administration**

347  
Richard H. Trainor  
Secretary  
Hal Kassoff  
Administrator

December 14, 1988

RE: Contract No. AW 971-108N  
East-West Boulevard  
MD 3 to MD 2

Mr. J. Rodney Little  
State Historic Preservation Officer  
Maryland Historical Trust  
12 State Circle  
Annapolis, Maryland 21401

Dear Mr. Little:

The area outlined on the attached copies of U.S.G.S. quadrangles for Odenton and Round Bay, Maryland, was reconnoitered for historic sites. No sites on or considered eligible for inclusion in the National Register were located.

Site AA 127 has been destroyed. Another site, AA 1058 (Christ Church, or Listman Chapel) is considered Maryland Inventory quality and not eligible for the National Register.

Should you have any questions, please call Ms. Suffness on 333-1183. Your response by January 13, 1989 is requested.

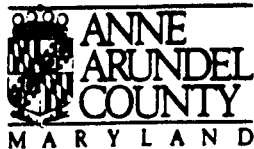
Very truly yours,

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

by: Cynthia D. Simpson  
Cynthia D. Simpson, Chief  
Environmental Management

LHE:CDS:cd  
Attachment  
cc: Mr. Dennis Atkins (w/attach)✓

My telephone number is (301) 333-1177




HERITAGE OFFICE CENTER  
2664 RIVA ROAD  
P.O. BOX 2700  
ANNAPOLIS, MARYLAND 21404

OFFICE OF PLANNING AND ZONING

December 9, 1991

Mr. Hal Kassoff, Administrator  
State Highway Administration  
707 N. Calvert Street  
Baltimore, MD 21203-0717

RE: East-West Boulevard Study

  
Dear ~~Mr. Kassoff~~:

You have asked our staff for some indication of the County's continuing interest in the consideration of alternatives for the East-West Boulevard. After discussing this matter with the County Executive, we urge the State Highway Administration to complete the East-West Boulevard Alternatives Analysis and Feasibility Study. Anne Arundel County continues to support the proposed two lane road design with sufficient right of way to accommodate a future widening to four lanes.

In order to expedite the completion of the study, we are not recommending any additional alignments or connections for review. In fact, we recommend that the Brightview/Obrecht alternate be dropped from further consideration in order to concentrate resources on more viable options. We believe the preliminary findings are sufficient to warrant this conclusion.

It is expected that the County will continue to improve Brightview/Obrecht to correct serious geometric deficiencies and safety hazards, regardless of when East-West Boulevard is built. However, in order to upgrade this route to arterial standards, it would necessitate the taking of approximately six to eight homes in addition to a considerable amount of front yard property and wetlands. It would also intersect 13 roads and 69 private driveways resulting in a serious loss of capacity for traffic flow and an increase of safety hazards due to turning and stopping conflicts.



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Mr. Hal Kassoiff  
December 9, 1991  
Page 2

We ask that you provide us a schedule for the completion of the analysis of the remaining alternatives.

Your attention to this matter is greatly appreciated. If you have any questions, you may call me at 410-222-7450, or Roland Davis, 410-222-7433.

Sincerely,

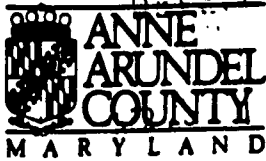
*Ardath*

Ardath M. Cade  
Planning and Zoning Officer

AMC/RED:ch

cc: Robert R. Neall  
Neil Pedersen  
Roland E. Davis

*Hal - We're most interested  
in keeping this project  
moving along as quickly  
as possible.  
R.M.C.*



ARUNDEL CENTER  
P.O. BOX 1831  
ANNAPOLIS, MARYLAND 21404

April 24, 1989

OFFICE OF PLANNING AND ZONING

cc: Frank De Santis

Mr. Neil Pederson, Director  
Office of Planning & Preliminary Engineering  
State Highway Administration  
707 N. Calvert Street  
Baltimore, Maryland 21203-0717

Re: East-West Boulevard

Dear Mr. Pederson:

In the original planning studies that established East-West Boulevard on our General Development Plan, several alternatives were considered. The extension of West Pasadena Road was rejected as a through route because of homes fronting along the road. It was our conclusion that an arterial classed road should have no residential individual driveway access and a minimum number of road intersections for maximum safety and efficiency as well as living quality for adjacent residents. An extension and relocation of Earleigh Heights Road was also eliminated from further consideration since the alignment was preempted by establishment of Kinder Park.

The primary purpose of East-West Boulevard is to divert local and through traffic away from existing 2 lane roads with residential frontages. Roads that would benefit from traffic diversion include the following:

1. W. Pasadena Road
2. Brightview Drive
3. Rustling Oaks Drive
4. Saint Ives Drive
5. Jumpers Hole Road
6. Benfield Blvd/Road
7. Governor Stone Parkway
8. Woodland Road
9. Obrecht Road
10. Old Mill Road
11. Elvaton Road

The further widening of Benfield Boulevard/Road is not a comparable alternative to East-West Boulevard. Although East-West Boulevard would divert traffic away from the above names roads, further improvement to Benfield Boulevard/Road would not. In fact, it would likely increase traffic on some of these roads.

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Regardless of the improvements that could be made to Benfield Boulevard/Road, it would never function adequately as an arterial road due to the numerous intersections and driveway access points that reduce effective capacity. On the other hand, East-West Boulevard will be built as an arterial road and access points will be controlled by the Subdivision Regulations. It is our assumption that the construction of East-West Boulevard would be more cost effective than further improvements to Benfield Boulevard/Road and provide more long term benefits toward community safety and traffic circulation.

Other alternates to East-West Boulevard were considered inadequate for similar reasons. One was the reconstruction of Brightview Drive, Obrecht Road and Jumpers Hole Road, a series of sub-standard two-lane roads now serving as east-west links between Md. 2 and Md. 3. Another alternative is the upgrading and improvement of Old Mill, Elvaton and Jumpers Hole Roads, which also serve as east-west links today. These roads will continue to absorb future growth of east-west traffic at a greater rate if East-West Boulevard is not built.

The selection of the proposed alignment of East-West Boulevard was made to avoid the acquisition of homes and minimize impacts on parks and wetlands. We could find no other comparable alignment that would perform the same functions with less impact. Minor adjustments may be appropriate in the design phase.

If you have any questions regarding these points of discussion please call me at 974-6750, extension 1474.

Sincerely,

*Roland E. Davis*

Roland E. Davis  
Sr. Transportation Planner

cc: Frank DeSantis

RED/mme



**Maryland Department of Transportation  
State Highway Administration**

*John Bauric*  
Richard H. Trainor  
Secretary  
Hal Kassoff  
Administrator *352*

May 5, 1988

The Honorable O. James Lighthizer  
Anne Arundel County Executive  
Arundel Center  
Annapolis, Maryland 21404

Dear Mr. ~~Lighthizer~~: *Jim*

Thank you for your April 7th letter and those of the Anne Arundel County delegation designating East-West Boulevard as the county's number one State secondary highway priority for inclusion in the State's Consolidated Transportation Program (CTP). East-West Boulevard will certainly be considered for inclusion in our upcoming programs.

A next step in the process will be to develop an agreement on State and county responsibilities for development of the project. Mr. Neil Pedersen, our Planning Director, will be in contact with your staff to begin the agreement process.

If I can be of further assistance on this or any other matter, please feel free to contact me.

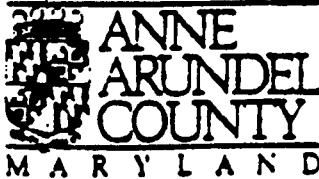
Sincerely,

*[Signature]*  
Hal Kassoff  
Administrator

HK:gdf

cc: The Honorable John Cade  
The Honorable Bernard Fowler  
The Honorable Gerald Winegrad  
The Honorable Michael Wagner  
The Honorable Philip Jimeno  
The Honorable John C. Astle  
The Honorable John G. Gary  
The Honorable Virginia Clagett  
Secretary Richard H. Trainor  
Mr. Neil J. Pedersen

My telephone number is (301) \_\_\_\_\_



ARUNDEL CENTER  
ANNAPOLIS, MARYLAND 21404  
(301) 280-1821

JAMES LIGNTHIZER  
County Executive

April 7, 1988

RECEIVED

D-75  
APR 19 1988

#517

DIRECTOR, OFFICE OF  
PLANNING & PRELIMINARY ENGINEERING

Mr. Hal Kassoﬀ, Administrator  
State Highway Administration  
707 N. Calvert Street  
Baltimore, Maryland 21202-0717

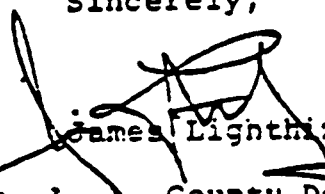
Re: East-West Boulevard

Dear Mr. Kassoﬀ:

Anne Arundel County considers the East-West Boulevard project, between Maryland Routes 2 and 3, to be our number one priority recommendation as a new project for introduction into the State's Secondary Development and Evaluation Program. It is the County's intention to carry out the engineering and right-of-way phases, now in progress. Following the completion of the Development and Evaluation phase, we are requesting construction of the project in the State's Consolidated Transportation Program.

The priority of this project is supported by the Anne Arundel County Delegation and the County Council, as reflected by the attached letters.

Sincerely,

  
James Lighthizer

cc: John C. Astle, Chairman, A. A. County Delegation  
John G. Gary, Delegate  
Virginia Clagett, Chairman, A. A. County Council  
Senator John Cade  
Senator Bernard Fowler  
Senator Gerald Winegrac  
Senator Michael Wagner  
Senator Philip Jimeno

APR 9 1988



## SENATE OF MARYLAND

ANNAPOLIS, MARYLAND 21401-1991

JOHN A. CADE  
DISTRICT 32, ANNE ARUNDEL COUNTY  
ROOM 407 SENATE OFFICE BUILDING  
ANNAPOLIS, MARYLAND 21401-1991  
841-3366

MINORITY LEADER

COMMITTEES  
LEGISLATIVE POLICY  
BUDGET & TAXATION  
RULES

April 6, 1988

The Honorable James Lighthizer  
Office of the County Executive  
The Arundel Center  
Annapolis, Maryland 21401


Dear Mr. Lighthizer:

Please be aware that we fully support the proposed East-West Boulevard to be constructed between Maryland Route 2 and Maryland Route 3 as Anne Arundel County's number one priority, and for inclusion in the County portion of the Consolidated Transportation Program.


It is understood that once this project is identified as the number one priority by the Anne Arundel County elected officials, it can be added to the SHA program, and efforts can be undertaken to identify costs, impacts, and funding requirements. Therefore, we strongly urge that such assurances be forwarded by your office to Mr. Hal Kassoff, Administrator, State Highway Administration at your earliest convenience.

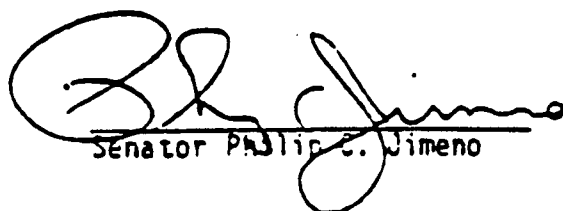
Thank you for your continuing cooperation and support for this project.

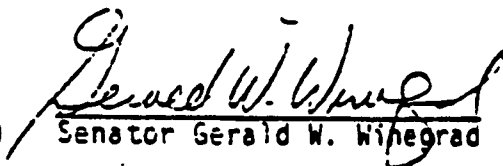
Sincerely,

  
Senator John A. Cade

  
Senator Michael C. Wagner

  
Senator C. Bernard Fowler

  
Senator Philip C. Jimeno

  
Senator Gerald W. Winegrad

APR 7 1988



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# HOUSE OF DELEGATES

ANNAPOLIS, MARYLAND 21401-1991

JOHN C. ASTLE

20TH LEGISLATIVE DISTRICT

CHAIRMAN

ANNE ARUNDEL COUNTY DELEGATION

APPROPRIATIONS COMMITTEE

212 HOUSE OFFICE BUILDING  
ANNAPOLIS, MARYLAND 21401-1991  
841-3208 / 836-3208

5 March 1988

The Honorable James Lighthizer  
Office of the County Executive  
The Arundel Center  
Annapolis, Maryland 21401

Dear Mr. <sup>Jim</sup>Lighthizer:

The Anne Arundel County Delegation supports the East-West Boulevard project between Maryland Routes 2 and 3 as the County's number one priority and recommends it as a new project for introduction into the State's secondary development and evaluation program. We also request that construction of this project be included in the State's consolidated transportation program.

The East-West Boulevard is an important factor in meeting the transportation needs of the citizens of this County, and we unanimously support the project.

Sincerely,

John C. Astle, Chairman  
Anne Arundel County Delegation

JCA:mm

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COUNTY COUNCIL OF ANNE ARUNDEL COUNTY

VIRGINIA P. CLAGETT  
CHAIRMAN  
EDWARD C. AMERN, JR.  
VICE-CHAIRMAN

THEODORE J. SOPHOCLEU  
MICHAEL F. GILLIGAN  
DAVID G. BOSCHERT  
CAROLE B. BAKER  
MAUREEN LAMB

April 6, 1986

TO: O. J. Lighthizer, County Executive  
FROM: Virginia P. Clagett, Chairman *VP*  
RE: East-West Boulevard

Dear Mr. Lighthizer:

The Anne Arundel County Council concurs with Administration position that the East-West Boulevard project, between Maryland Routes 2 and 3, is the number one priority as a new project and should be introduced into the State's Secondary Development and Evaluation Program.



## VII. LIST OF PREPARERS

## VII. LIST OF PREPARERS

This Draft Environmental Impact Statement and Section 4(f) Evaluation was prepared by the Maryland Department of Transportation - State Highway Administration on behalf of the Federal Highway Administration. The following personnel were instrumental in the preparation of this document:

### STATE HIGHWAY ADMINISTRATION:

#### Project Planning Division:

|                        |  |
|------------------------|--|
| Mr. Dennis M. Atkins   | Environmental Manager<br>Environmental Planning<br>Room 503<br>State Highway Administration<br>707 North Calvert Street<br>Baltimore, MD 21202<br>(410) 333-6748 |
| Mr. Bruce M. Grey      | Chief, Technical Analysis<br>Environmental Planning  |
| Ms. Cynthia D. Simpson | Deputy Division Chief,<br>Project Planning Division  |
| Mr. Alan H. Straus     | Project Manager<br>Room 501<br>State Highway Administration<br>707 North Calvert Street<br>Baltimore, MD 21202<br>(410) 333-1190                                 |

### CONSULTANT:

|                |                     |
|----------------|---------------------|
| Mr. Mike Adams | Greiner Engineering |
| Mr. Ron Rye    | Wilson T. Ballard   |

### FEDERAL HIGHWAY ADMINISTRATION:

|                      |  |
|----------------------|--|
| Ms. Jareene Barkdoll | Environmental Specialist                             |
| Mr. David Lawton     | Planning, Research,<br>Environment & Safety Engineer |

## VIII. DISTRIBUTION LIST

360

VIII. DISTRIBUTION LIST

Contract No. AA 484-101-570  
EAST - WEST BOULEVARD  
CORRIDOR STUDY  
Veterans Highway to MD 2  
in Anne Arundel County, Maryland

FEDERAL AGENCIES

Mr. Robert J. Klumpe  
State Conservationist  
Soil Conservation Service  
U.S. Department of Agriculture  
339 Revell Highway, Suite 301  
Annapolis MD 21401

Mr. Jonathan Deason, Director  
Office of Environmental Project  
Review  
Room 4239  
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 Esher, Chief (3ES41)  
NEPA Compliance Section  
841 Chestnut Street  
Philadelphia PA 19107

Mr. Robert J. Lippsom  
Assistant Regional Director  
National Marine Fisheries Service  
Federal Building  
14 Elm Street  
Gloucester MA 19130

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

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FEDERAL AGENCIES (CONT'D)

Mr. John Wolflin  
U.S. Fish and Wildlife Service  
Division of Ecological Services  
1825 B Virginia Street  
Annapolis MD 21401

Director  
NOAA/CS/EC/Room 6222  
Department of Commerce  
14th and Constitution Avenue, N.W.  
Washington D.C. 20230

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

Division of NEPA Affairs  
Department of Energy  
Room 4G 064  
1000 Independence Avenue, S.W.  
Washington D.C. 20230

Mr. Robert W. Harris, Chief  
Transportation Planning  
National Capital Planning Commission  
1325 G Street, N.W.  
Washington D.C. 20576

Mr. Peter N. Stowell  
Regional Administrator  
Federal Transit Administration  
Suite 714  
841 Chestnut Street  
Philadelphia PA 19107

Associate Director for Planning  
Management and Demonstration  
Federal Transit Administration  
400 7th Street, S.W.  
Washington D.C. 20590

Office of Economic Opportunity  
Director  
1200 19th Street, N.W.  
Washington D.C. 20506

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STATE AGENCIES (CONT'D)

Judge John North  
Chesapeake Bay Critical Areas  
Commission  
45 Calvert Street, 2nd Floor  
Annapolis MD 21401  
ATTN: Ms. Claudia Jones

Mr. Andrew Der  
Maryland Department of the  
Environment  
Division of Standards and Certification  
2500 Broening Highway  
Baltimore MD 21224

Mr. Peter Dunbar, Director  
Maryland Department of Natural  
Resources  
Tidewater Administration  
Power Plant and Environmental  
Review Division  
Tawes State Office Building C-2  
Annapolis MD 21401  
ATTN: Mr. Sean Smith

Mr. H. Grant Dehart, Director  
Maryland Department of Natural  
Resources  
Program Open Space  
Tawes State Office Building E-3  
Annapolis MD 21401  
ATTN: Mr. Gene Cheers

Mr. Donald E. MacLauchlan  
Assistant Secretary  
Resource Management  
Maryland Department of Natural  
Resources  
Tawes State Office Building  
Annapolis MD 21401

Maryland State Law Library  
Upper Level Court of Appeals  
Building  
361 Rowe Boulevard  
Annapolis MD 21401

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FEDERAL AGENCIES (CONT'D)

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

STATE AGENCIES

Ms. Mary Abrams, Chief  
State Clearinghouse  
MD Office of Planning  
301 West Preston Street  
Baltimore MD 21201

STATE CLEARINGHOUSE DISTRIBUTION

Local Governments  
MD Office of Planning  
Department of Natural Resources  
Department of Budget and Fiscal  
Planning  
Department of General Services  
Department of Housing and  
Community Development  
Department of Education  
Department of Health and Mental  
Hygiene  
Interagency Committee for School  
Construction  
Maryland Historical Trust  
Department of Public Safety and  
Correctional Services

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

Ms. Rebecca Hughes  
Floodplain Management Division  
Water Resources Administration  
Department of Natural Resources  
Tawes State Office Building  
Annapolis MD 21401

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MARYLAND DEPARTMENT OF TRANSPORTATION

Director  
Public Affairs  
Maryland Department of Transportation  
BWI Airport

Mr. Paul Wiedefield, Director  
Office of Systems Planning  
and Evaluation  
Maryland Department of Transportation  
BWI Airport

Office of General Counsel  
Maryland Department of Transportation  
BWI Airport

LOCAL GOVERNMENT

The Honorable Robert R. Neall  
County Executive  
Post Office Box 2700  
Arundel Center  
Annapolis MD 21404

Mr. Joseph J. McCann, Director  
Anne Arundel County  
Department of Recreation and Parks  
Post Office Box 2700  
Annapolis MD 21404  
ATTN: Mr. John T. Keene

Mrs. Ardath M. Cade  
Planning and Zoning Officer  
Anne Arundel County  
Office of Planning and Zoning  
Post Office Box 2700  
Annapolis MD 21404

Mr. Parker Andrews, Director  
Anne Arundel County  
Department of Public Works  
1 Harry S. Truman Parkway  
Annapolis MD 21401



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OTHER

President  
Greater Severna Park  
Chamber of Commerce  
P.O. Box 93  
Severna Park, MD 21146

President  
Elvaton Area Improvement Assn.  
341 Dogwood Road  
Millersville, MD 21108

President  
Shipley's Choice Homeowners Association  
P.O. Box 671  
Millersville, MD 21108

President  
Greater Severna Park Council  
P.O. Box 786  
Severna Park, MD 21148

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# APPENDICES

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## **Appendix A Glossary of Terms**

(These terms may appear either in the EIS or as noted on the drawings)

|                                 |  |
|---------------------------------|--|
| <b>A.D.T.</b>                   | <b>Average Daily Traffic</b> -- The total volume of auto and truck traffic passing a given point during a given time period (greater than one day and less than one year) in whole days, divided by the number of days in that time period.  |
| <b>Boulevard</b>                | A major highway primarily for the movement of local traffic. May have grade separations, interchanges or at-grade intersections, depending on traffic volume. Generally paralleled by sidewalks and plantings, etc.  |
| <b>Control of Access</b>        | <b>FULL</b> -- Complete restriction of access on a through facility except at interchanges. Grade separations for all crossings.<br><br><b>UNCONTROLLED</b> -- Access control limited only to safe geometrics. All crossroads, driveways, etc. may have points of ingress or egress. |
| <b>Design Hour Volume (DHV)</b> | The percent of average daily traffic (ADT) generally accepted as the criterion used in the geometric design of rural and urban highways. Ideally, the 30th highest hourly volume during a year, the DHV is commonly found to vary from 8 percent to 12 percent of the ADT.           |
| <b>Design Speed</b>             | A speed selected for purposes of design and correlation of those geometric features of a highway, such as curvature and sight distance, upon which safe vehicle operations are dependent.  |
| <b>Easement</b>                 | An area of land that falls outside of the highway right-of-way (See definition that follows) that is used temporarily or permanently for highway purposes.   |
| <b>Endangered</b>               | An organism of very limited numbers that may be subject to extinction and is protected by law under the Endangered Species Act.  |
| <b>Fauna</b>                    | The animal life of an area.  |

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|                               |  |
|-------------------------------|--|
| <b>Flora</b>                  | The plant life of an area.   |
| <b>Grade Separation</b>       | Bridge structure such as an underpass or overpass that vertically separates two or more intersecting roadways, thus permitting traffic to cross without interference.  |
| <b>Herbaceous</b>             | A non-woody plant.   |
| <b>Housing of Last Resort</b> | A Maryland SHA Program to rehouse people who are displaced by right-of-way acquisition for highway projects when the cost to do so exceeds the limits of the Uniform Relocation Act (See Appendix B).  |
| <b>Interstate Freeway</b>     | A freeway primarily for through traffic with full interchanges for access. Interchange spacing is generally greater than that for a freeway.   |
| <b>Levels of Service</b>      | <p>Levels of Service are a measure of the conditions under which a roadway operates as it accommodates various traffic volumes. Influencing factors include speed, travel time, traffic interruptions, maneuvering freedom, safety, driving comfort, economy and, of course, the volume of traffic.</p> <p>Levels of Service on expressways and freeways with uninterrupted flow conditions are ranked from A to F (best to worst) as follows:</p> <p>LEVEL A: free traffic flow, low volumes; high speeds</p> <p>LEVEL B: stable traffic flow; some speed restrictions</p> <p>LEVEL C: stable flow; increasing traffic volumes</p> <p>LEVEL D: approaching unstable flow; heavy traffic volumes, decreasing speeds</p> <p>LEVEL E: low speeds; high traffic volumes approaching roadway capacity; temporary delays</p> <p>LEVEL F: forced traffic flow at low speeds; low volumes and high densities; frequent delays</p> |

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For interrupted flow conditions, such as major highways and arterials with traffic signals, the following Levels of Service apply:

- LEVEL A: free flow, no delay at traffic signals
- LEVEL B: occasional delays at traffic signals
- LEVEL C: increasing volumes; moderate delays at traffic signals
- LEVEL D: lower speeds; increasing volumes, frequent delays at traffic signals
- LEVEL E: low speeds, high traffic volumes; signal backups almost to the previous light
- LEVEL F: forced traffic flow; successive backups between signals

**Median** That portion of a divided highway separating the traveled ways for traffic in opposite directions.

INITIAL -- to be constructed initially  
ULTIMATE -- the configuration subsequent to future construction.

**Retaining Walls** A structure used to retain earth from an obstruction, such as an improved property. Walls are used to reduce the area of impact adjacent to a newly constructed roadway section.

**R/W, R.O.W.** RIGHT-OF-WAY (Line) -- The outer limits inside which are publicly owned and maintained lands for a highway facility.

**Section 4(f)** Section 4(f) of the Department of Transportation Act requires that publicly-owned land from a park, recreation area, wildlife and/or waterfowl refuge, or historic site of national, state or local significance can be used for Federal-Aid Highway projects only if there is no feasible and prudent alternative to its use, and if the project includes all possible planning to minimize harm to "4(f) lands".

**Sensitive** An organism or community very susceptible to environmental changes.

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| <b>Shldr.</b>                | <b>SHOULDER</b> -- That portion of a highway adjacent and parallel to the traveled roadway for the accommodations of stopped vehicles for emergency use and for lateral support. May or may not be fully paved.  |
| <b>Side Slopes</b>           | The slope of earth permissible in given locations, as a ratio of horizontal to vertical measurement (2:1, 4:1, 6:1).   |
| <b>Stream Relocation</b>     | The process involving the movement of a flowing stream from its present channel to a different channel.  |
| <b>Understory</b>            | Shrubs and small trees growing under the larger tree canopy.   |
| <b>Vehicle Recovery Area</b> | That portion of ground adjacent to the traveled way that is clear of any fixed obstructions. For safety operation, it is generally no less than 30 feet measured from the edge of the traveled lane.   |
| <b>Wetlands</b>              | The term "wetlands" refers to those areas that are inundated by surface or groundwater with a frequency sufficient to support and, under normal circumstances, does or would support a prevalence of vegetative or aquatic life that requires <u>saturated</u> or <u>seasonally saturated</u> soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats and natural ponds. |

APPENDIX B

Revised: October 16, 1992  
Relocation Assistance Division

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

All State Highway Administration projects must comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 USC 4601) as amended by Title IV of the Surface Transportation & Uniform Relocation Assistance Act of 1987 (P.L. 100-17), the Annotated Code of Maryland entitled "Real Property Article" Section 12-112 and Subtitle 2, Sections 12-201 to 12-212. The Maryland Department of Transportation, State Highway Administration, Office of Real Estate administers the Transportation Relocation Assistance Program in the State of Maryland.

The provisions of the Federal and State laws require the State Highway Administration to provide payments and services to persons displaced by a public project. The payments include replacement housing payments and moving costs. The maximum limits of the replacement housing payments are \$22,500 for owner-occupants and \$5,250 for tenant-occupants. Certain payments may also be made for increased mortgage interest costs and incidental expenses. In order to receive these payments, the displaced person must occupy decent, safe and sanitary replacement housing. In addition to these payments, there are also moving expense payments to persons, businesses, farms and non-profit organizations. Actual moving expenses for residences are reimbursed for a move of up to 50 miles or a schedule moving payment of up to \$1,300 may be used.

The moving cost payments to businesses are broken down into several categories, which include actual moving expense payments, reestablishment expenses limited to \$10,000 or fixed payments "in lieu of" actual moving expenses of \$1,000 to \$20,000. The owner of a displaced business is entitled to receive a payment for actual moving and related expenses in moving his/her business or personal property; actual direct losses of tangible personal property; and actual expenses for searching for a replacement site up to \$1,000.

The actual reasonable moving expenses may be paid for a move by a commercial mover or for a self-move. Payments for the actual reasonable expenses are limited to a 50-mile radius unless the State determines a longer distance is necessary. The expenses claimed for actual cost moves must be supported by firm bids and receipted bills.

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An inventory of the items to be moved must be prepared in all cases. In self-moves, the State will negotiate an amount for payment, usually lower than the lowest acceptable bid. The allowable expenses of a self-move may include amounts paid for equipment hired, the cost of using the business vehicles or equipment, wages paid to persons who participate in the move, the cost of actual supervision of the move, replacement insurance for the personal property moved, costs of licenses or permits required and other related expenses.

In addition to the actual moving expenses mentioned above, the displaced business is entitled to receive a payment for the actual direct losses of tangible personal property that the business is entitled to relocate but elects not to move. These payments may only be made after an effort by the owner to sell the personal property involved. The costs of the sale are also reimbursable moving expenses.

If the business elects not to move or to discontinue the use of an item, the payment shall consist of the lesser of: the fair market value of the item for continued use at the displacement site, less the proceeds from its sale; or the estimated cost of moving the item.

If an item of personal property which is used as part of a business or farm operation is not moved and is promptly replaced with a substitute item that performs a comparable function at the replacement site, payment shall be of the lesser of: the cost of the substitute item, including installation costs at the replacement site, minus any proceeds from the sale or trade-in of the replaced item; or the estimated cost of moving and reinstalling the replaced item.

In addition to the moving payments described above, a business may be eligible for a payment up to \$10,000 for the actual expenses of reestablishing at the replacement site. Generally, reestablishment expenses include repairs and improvements to the replacement site, increased operating costs up to \$5,000, exterior signing up to \$1,500, advertising the replacement location up to \$1,500 and other fees paid to reestablish. Receipted bills and other evidence of these expenses are required for payment. The total maximum reestablishment payment eligibility is \$10,000.

In lieu of all moving payments described above, a business may elect to receive a fixed payment equal to the average annual net earnings of the business. This payment shall not be less than \$1,000 nor more than \$20,000. In order to be entitled to this payment, the State must determine that the business cannot be relocated without a substantial loss of its existing patronage; the business is not part of a commercial enterprise having more than two other establishments in the same or similar business that are not being acquired; and the business contributes materially to the income of a displaced owner during the two taxable years prior to the year of the displacement.



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A business operated at the displacement site solely for the purpose of renting to others is not eligible. Considerations in the State's determination of loss of existing patronage are the type of business conducted by the displaced business and the nature of the clientele. The relative importance of the present and proposed locations to the displaced business and the availability of suitable replacement sites are also factors.

In order to determine the amount of the "in lieu of" moving expenses payment, the average annual net earnings of the business is to 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, owner's spouse, or dependents during the period. Should a business be in operation less than two years, the owner of the business may still be eligible to receive the "in lieu of" payment. In all cases, the owner of the business must provide information to support its net earnings, such as income tax returns, or certified financial statements, for the tax years in question.

Displaced farms and non-profit organizations are also eligible for actual reasonable moving costs up to 50 miles, actual direct losses of tangible personal property, search costs up to \$1,000 and reestablishment expenses up to \$10,000 or a fixed payment "in lieu of actual moving expenses of \$1,000 to \$20,000. The State may determine that a displaced farm may be paid a minimum of \$1,000 to a maximum of \$20,000, based upon the net income of the farm, provided that the farm has been relocated or the partial acquisition caused a substantial change in the nature of the farm. In some cases, payments "in lieu of" actual moving costs may be made to farm operations that are affected by a partial acquisition. A non-profit organization is eligible to receive a fixed payment or "in lieu of" actual moving cost payment, in the amount of \$1,000 to \$20,000 based on gross annual revenues less administrative expenses.

A more detailed explanation of the benefits and payments available to displaced persons, businesses, farms and non-profit organizations is available in the "Relocation Assistance" brochure that will be distributed at the public hearing for this project and be given to displaced persons.

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

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Federal & State laws require that the State Highway Administration shall not proceed with any phase of a project which will cause the relocation of any persons, or proceed with any construction project, until it has furnished satisfactory assurances that the above payments will be provided, and that all displaced persons will be satisfactorily relocated to comparable decent, safe and sanitary housing within their financial means, or that such housing is in place and has been made available to the displaced person.