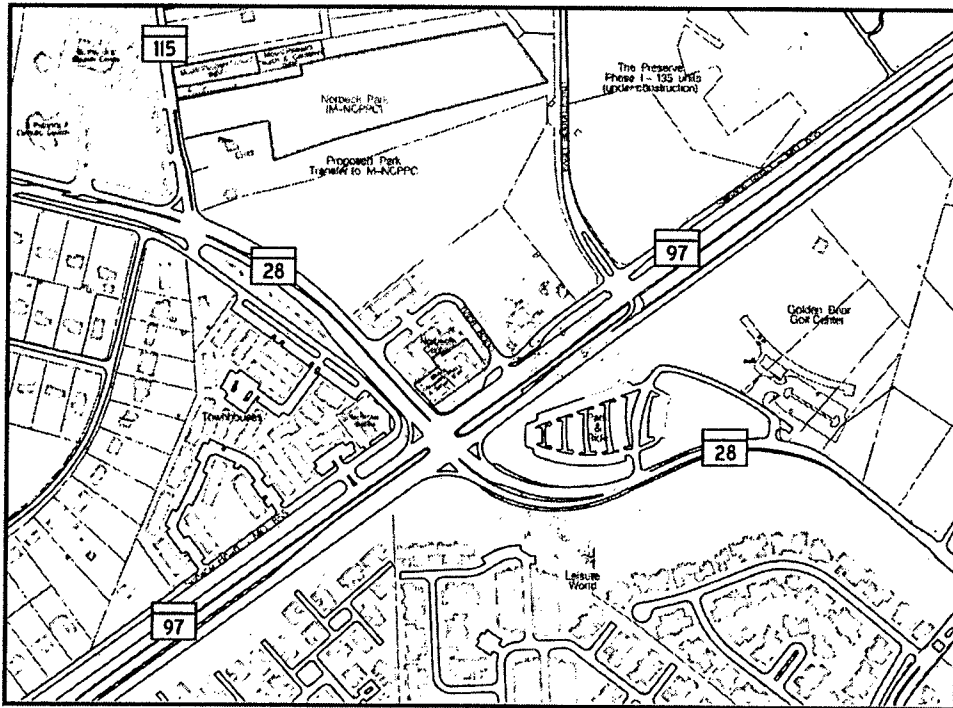


ENVIRONMENTAL ASSESSMENT

Maryland Route 28 and Maryland Route 97 Intersection Improvements

Project No. MO852B11

Montgomery County, Maryland



Prepared by:

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION



and:

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION



FEDERAL HIGHWAY ADMINISTRATION
MARYLAND DIVISION

MD 28/MD 97
INTERSECTION IMPROVEMENT PROJECT
MONTGOMERY COUNTY, MARYLAND

ADMINISTRATIVE ACTION
ENVIRONMENTAL ASSESSMENT

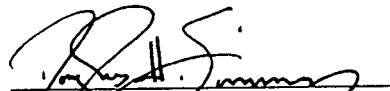
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

AND

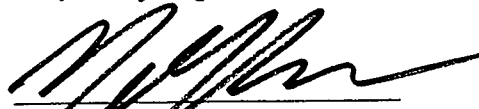
STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

SUBMITTED PURSUANT TO 42 U.S.C.4332 (2)(C); 49 U.S.C. 303
23 U.S.C.128(a) and CEQ REGULATIONS (40 CFR 1500 et seq.)

Parker F. Williams, Administrator
State Highway Administration



Douglas H. Simmons, Director
Office of Planning and
Preliminary Engineering



Nelson J. Castellanos
Division Administrator
Federal Highway Administration

10/16/02
Date

11/4/02
Date

SUMMARY

1. Administrative Action

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

2. Additional Information May Be Obtained By Contacting:

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 Deputy Director
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 Engineering
 State Highway Administration
 707 N. Calvert Street
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Ms. Denise W. King
 Environmental Specialist
 Federal Highway Administration
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3. Description of Proposed Action

This project proposes improving safety and traffic operations for vehicles and pedestrians using the MD 28/MD 97 intersection located in Montgomery County, Maryland, while enhancing mobility for bicyclists, pedestrians and transit users.

Severe traffic congestion occurs along all four legs of the intersection, especially during both the morning and evening peak hours due to the large percentage of through commuter traffic, mixed with local traffic resulting from ongoing development and growth near the project area. During these peak hours, traffic operates at a failing LOS "F", and users can expect frequent stop-and-go conditions. In addition, the intersection fails to adequately accommodate non-automotive modes of travel, such as bicycle and pedestrian movement.

Based on the approved future land use, these conditions will continue to deteriorate by the year 2020 under a no-build scenario. Traffic forecasts show that these conditions will steadily worsen, extending beyond the morning and evening peak hours with a projected 82% increase in traffic volume on both MD 97 and MD 28 by the design year, 2020.

For the five-year period from 1994 through 1998, the MD 28/MD 97 intersection experienced a total of 61 recorded accidents averaging approximately one accident per month. It can be assumed that as traffic volumes rise, accident numbers will increase. A more detailed discussion of this project's purpose and need can be found in Chapter II of this document.

In order to alleviate this congestion and to improve upon the safety and traffic operations, nine build alternates are being considered: upgrading the existing intersection to a single-point urban interchange (Alternatives 2 and 4), relocating MD 28 approximately 700 feet to the north while providing grade separation from MD 97 (Alternatives 3, 3-Modified, 3 with Thistlebridge Option 4, 6, 6-Modified and 7), and at-grade widening to the existing intersection configuration (Alternative 5). The no-build option (Alternative 1) is also under consideration.

Improvements to the existing MD 28/MD 97 intersection are consistent with the Governor's Smart Growth initiative in that they will serve an area with existing development and is contained within Montgomery County's Development Envelope and Priority Funding Area (PFA).

4. Alternatives Summary

Alternative 1 – No-Build

Under this alternative, no significant improvements to the MD 28/MD 97 intersection would occur. Only minor improvements would be conducted, which would not improve roadway capacity. The existing typical cross section on MD 97 includes six through lanes (three in each direction), south of MD 28 with left turn bays and a grass median with a 26-foot average width. Outside shoulders are paved and average 12 feet in width, while inside shoulders are paved and are approximately 4 feet in width. North of MD 28, MD 97 transitions to a four-lane divided roadway with an approximate 36-foot wide grass median. The roadway is an open section with shoulder widths similar to those south of MD 28. Utility poles are situated adjacent to the shoulders. MD 28, west of MD 97 is a four-lane divided roadway with auxiliary lanes and narrow monolithic medians. East of MD 97, MD 28 transitions to a two-lane roadway. The intersection of MD 28 and MD 97 is signalized and operates in eight (8) phases.

Alternative 2 – Single-Point Urban Interchange (MD 97 over MD 28)

The improvements along MD 97 would begin at Rossmoor Boulevard and end at Norbeck Avenue. The proposed MD 97 roadway (three through lanes in each direction) would bridge over MD 28 and is separated by a 54-foot wide median that could accommodate a future busway. MD 28 would have three through lanes in each direction as well. Connections between both routes will be provided through a series of ramps in a tight urban interchange configuration. The ramps would intersect MD 28 under the bridge, allowing opposing left turns to be made simultaneously. Only one traffic signal will be required. Extensive retaining walls would be required to minimize the footprint of the interchange.

On MD 28 west of MD 97, the existing curb line along side of historic White's Hardware Store and Residences would be retained and the roadway widened southward to accommodate three through lanes in each direction and the necessary turn lanes. As a result, a portion of the service road adjacent to the south side of MD 28 and possibly the Mobil service station will be relocated. The western limit of the MD 28 widening would be the MD 115 intersection. East of MD 97, MD 28 will be widened to three through lanes in each direction and realigned to improve the geometry of the existing reverse curve. The widening would tie back to existing MD 28 east of Bradford Road. To accommodate bicycle commuter traffic, additional width will be added to

the outermost through lanes of MD 28, MD 97 and the interchange ramps. In addition, a bikeway connection will be provided in front of the hardware store to accommodate local bicycle traffic on the existing service road (MD 655). This could alter the current access and parking configuration for the hardware store but would not require any right-of-way acquisition from the historic property.

Alternative 3 – Relocated MD 28 Over MD 97

With Alternative 3, MD 28 would be relocated approximately 700 feet to the north, providing a shorter, more direct route and avoiding the constraints associated with the existing MD 28/MD 97 intersection. The relocation would begin at the MD 115 (Muncaster Mill Road) intersection, bridge over MD 97, reconnect to existing Norbeck Road near Coolidge Avenue and end just past Bradford Road. MD 97 would have three through lanes in each direction and the 54-foot median width would be reserved for a future busway. Existing MD 28 would also be reconstructed and serve as the primary link for local movements between MD 97 and MD 28. All left turn movements from MD 97 onto MD 28 would be removed. On MD 28 west of MD 97, the existing curb line along side of historic White’s Hardware Store would be retained. Under this alternative, access to the service road adjacent to the south side of MD 28 at the existing MD 28/MD 115 intersection would be eliminated to avoid a 5-legged configuration.

A relocated alignment of Thistlebridge Drive would be necessary to accommodate the direct access ramp (Ramp A) from MD 97 to new MD 28. Thistlebridge Drive is the only outlet for residents of The Preserve, a new single-family home community consisting of 135 units. Under this alternative, portions of Thistlebridge Drive in the vicinity of the MD 28 overpass would be eliminated and the new entrance would connect to MD 655 and MD 97 north of the existing connection (across from Norbeck Avenue). Additionally, MD 655 would no longer continue to Norbeck Center south of Thistlebridge Drive.

Alternative 3-Modified – Relocated MD 28 Over MD 97, with elimination of Ramp A

Alternative 3-Modified is identical to Alternative 3, with the exception of the ramp from southbound MD 97 to westbound MD 28 (Ramp A). This ramp would be removed and the traffic movement would be accommodated by a free right-turn at the existing intersection of MD 28 and MD 97, which would then have to be modified to accommodate the additional volumes. The free right-turn is made possible because all left turns from MD 97 would be eliminated at the intersection, as is the case with Alternative 3. Under this alternative, there is no change in access to The Preserve.

Alternative 4 – Single-Point Urban Interchange (MD 97 under MD 28)

The improvements along MD 97 would begin at Rossmoor Boulevard and end at Norbeck Avenue. The proposed MD 97 roadway (three through lanes in each direction) would be depressed under MD 28 and the 54-foot median would be reserved for a future busway. Both MD 97 and MD 28 will have three through lanes in each direction. Connections between the two State routes will be provided through a series of ramps in a tight urban interchange configuration. The ramps intersect MD 28 on the bridge, allowing opposing left turns to be made

simultaneously. Only one traffic signal will be required. Retaining walls would be used extensively to minimize the footprint of the interchange.

On MD 28 west of MD 97, the existing curb line along side of historic White’s Hardware Store will be retained and the roadway widened southward to accommodate three through lanes in each direction and the necessary turn lanes. As a result, a portion of the service road adjacent to the south side of MD 28 and possibly the Mobil service station will be relocated. The western limit of the MD 28 widening would be the MD 115 intersection. East of MD 97, MD 28 will be widened to three through lanes in each direction and realigned to improve the geometry of the reverse curve. The widening would tie back to existing MD 28 east of Bradford Road. To accommodate bicycle commuter traffic, the same improvements are proposed as in Alternative 2.

Alternative 5 – At-Grade Improvements

This alternative retains the MD 28/MD 97 at-grade intersection in its current location. MD 97 will have three through lanes in each direction and MD 28 will be generally two through lanes in each direction. On each approach, there will be additional lanes to address the high turning volumes. Northbound MD 97 will have a double left turn onto MD 28 westbound; eastbound MD 28 will have a triple left turn onto MD 97 northbound; and MD 28 westbound will have a double left turn onto MD 97 southbound.

Along MD 97, the improvements will extend from International Drive to approximately 500 feet south of Norbeck Avenue. The improvements on MD 28 will extend from MD 115 to Bradford Road.

The existing curb line along MD 28 west of MD 97, adjacent to White’s Hardware Store, will be retained and the roadway widened southward to accommodate the through lanes and the turn lanes. As a result, a portion of the service road along the south side of MD 28 and possibly the Mobil service station will be relocated. To accommodate bicycle commuter traffic, additional width will be added to the outermost through lanes of both MD 28 and MD 97. In addition, a bikeway connection will be provided in front of the hardware store to accommodate local bicycle traffic on MD 655. No impacts to White’s Hardware Store are anticipated.

Under this alternative, there would be no change in access to The Preserve., meaning that the median break in MD 97 would remain open. The current rear entrance to the Park and Ride Lot will be realigned, the profile adjusted and a right in/right out added from MD 97 to improve access to the lot. Levels of service will improve initially due to the existing road widenings, but will be failing again by the 2020 design year.

Alternative 6 – Relocated MD 28 under MD 97

Under this alternative, MD 28 will be relocated approximately 700 feet to the north, providing a shorter, more direct route and avoiding the constraints associated with the existing MD 28/MD 97 intersection. The relocation would begin at the MD 115 (Muncaster Mill Road) intersection, under MD 97, reconnect to existing Norbeck Road near Coolidge Avenue and end just past Bradford Road. MD 97 will have three through lanes in each direction and the median will be reserved for a future busway. Existing MD 28 would be reconstructed to serve as the

primary link for movements between MD 97 and MD 28. On MD 28 west of MD 97, the existing curb line along side of historic White's Hardware Store will be retained. Under this alternative, the service road adjacent to the south side of MD 28 will not be affected.

To improve operations on MD 97, left turns from MD 97 onto MD 28 will be prohibited. Turns from northbound MD 97 to MD 28 westbound would be made by turning right onto MD 28 eastbound then turning left at Relocated MD 28. Turns from southbound MD 97 to eastbound MD 28 would be made by turning right onto MD 28 westbound then turning right at Relocated MD 28.

Under this alternative, the heavy traffic movement from southbound MD 97 to westbound MD 28 would be accommodated by a ramp that eliminates the existing Thistlebridge Drive connection to MD 97. Portions of Thistlebridge Drive in the vicinity of the MD 28 overpass would be eliminated and the new entrance would connect to MD 655 and MD 97 north of the existing connection. Additionally, MD 655 would no longer continue to Norbeck Center south of Thistlebridge Drive.

As mentioned in the description of Alternatives 3, a separate bikeway will be provided in the northwest quadrant from the MD 655 Service Road to the MD 115 intersection.

Alternative 6-Modified – Relocated MD 28 Under MD 97, with elimination of Ramp A

This alternative is identical to Alternative 6, with the exception of the ramp from southbound MD 97 to westbound MD 28 (Ramp A). This traffic movement is accommodated by a free right-turn at the existing intersection of MD 28 and MD 97, which would have to be modified to account for the additional volumes. The free right-turn is made possible because all left turns from MD 97 are eliminated at the intersection, as is the case with Alternative 6. Under this alternative, there is no change in access to The Preserve

Alternative 7 - MD 28 Relocated (Underpass)

Alternative 7 combines Alternative 6-Modified with some of the elements introduced during a Value Engineering Study, conducted by SHA in July, 2002. The relocation of MD 28 begins at the MD 115 (Muncaster Mill Road) intersection and reconnects to existing MD 28 near Coolidge Avenue and ends just past Bradford Road. This alignment incorporates a horizontal reverse curve to avoid impacts to the Norbeck Center and crosses under MD 97 at the same location as Alternative 6-Modified (approximately 700' north of existing MD 28). At the existing MD 28/MD 97 intersection, the median crossover and traffic signal are eliminated. Access to and from MD 97 to Relocated MD 28 is accomplished via right in/right out connector ramps that utilize much of the existing MD 28 right of way.

On MD 28, west of MD 97, a split tee configuration will be utilized. One tee intersection would serve existing MD 115 and the other tee intersection would serve the west side connector ramps. At MD 115, the existing concrete median would be removed and an additional northbound lane would be provided to accommodate the double right turn. MD 97 would have three through lanes in each direction and the median will be reserved for a future busway.

The Thistlebridge Drive connection to MD 97 remains the same as today except that the left turn lane within the median would be extended several hundred feet to the south. A two-lane connector is also proposed between Relocated MD 28 and Thistlebridge Drive to improve access from the east. A right in/right out connector will also be provided from Relocated MD 28 to the Norbeck Center and adjacent businesses.

Thistlebridge Drive Access Option

The following option would replace the Thistlebridge Drive connection shown on Alternative 3.

Option 4 – Ramp A bridges over Thistlebridge Drive

This option would bridge Ramp A, which connects southbound MD 97 to westbound MD 28 (relocated), over Thistlebridge Drive. The existing access to MD 97 from Thistlebridge Drive would be maintained with the exception of left-turn movements from Thistlebridge Drive to northbound MD 97. These movements require the use of the existing MD 28/MD 97 intersection. Thistlebridge Drive Access Option 4 cannot be applied to Alternative 6 due to the proposed grade difference between a depressed MD 28 Relocated and a raised Ramp A.

Construction costs will range from \$27 Million for Alternative 5 to \$112 Million for Alternative 2.

5. Summary of Environmental Impacts

A summary comparison of impacts associated with the alternatives under consideration is presented in Table S-1, and is briefly described below.

Socioeconomic Environment

The existing land use characteristics within the project area include a combination of low-density residential, low to medium density residential and commercial uses. The residential uses are located both north and south of MD 28, while the commercial use is located on the west side of MD 97. Approximately 66% of the population within the project area is located south of MD 28. The land use objectives encourage the protection, enhancement and continuation of current land use patterns; protect and reinforce the integrity of existing residential neighborhoods; and preserve and increase the housing resources in support of Montgomery County housing policies. The Olney and Vicinity and Aspen Hill Master Plans recommend only minor future land use changes, as relatively few acres are available for future development. In the vicinity of the MD 28/MD 97 intersection, the future land use element recommends residential densities of 1-acre lots west of Georgia Avenue and 2-acre lots east of Georgia Avenue.

Up to 5 business displacements would occur as a result of the build alternatives. Alternatives 2 and 4 require the relocation of a service station, while the other alternatives affect businesses within the northwest quadrant of the MD 28 / MD 97 intersection. Minor changes in access to properties, both residential and commercial, may be required. Residential relocations are not anticipated with any of the build alternatives. The number of properties affected by

potential right-of-way impacts ranges from 18 (Alternative 5) to 28 (Alternatives 2 and 4). Roughly half of these parcels are undeveloped. The right-of-way requirements range from 1.8 acres (Alternative 5) to 11.2 acres (Alternative 3 with Thistlebridge Drive Access Option 4).

Grade separation improvements at the MD 28/MD 97 intersection are not consistent with the Aspen Hill and Olney and Vicinity Master Plans because the former Inter-County Connector project is shown to intersect with MD 97 approximately 1/2 mile north of MD 28.

None of the nine build alternatives would require land acquisition from a historic or publicly owned park or recreational property, therefore a Section 4(f) Evaluation is not warranted. However, the Maryland Historical Trust (MHT) has concurred with the determination that several of the alternatives will cause adverse effects upon the White's Hardware Store and Residences, which is one of the three historic sites eligible for inclusion in the National Register of Historic Places. Alternatives 2 and 4 would require a portion of the paved lot currently used as parking for the hardware store, but that area is within the SHA right-of-way. A Phase I Archeological Investigation was conducted within the Area of Potential Effects (APE) and no significant archeological resources were identified. Therefore, no further archeological investigations are recommended.

Table S-1
MD 28/MD 97 Intersection Improvements
Summary of Impacts and Costs

Category		Alternative									Alternative 3 with Thistlebridge Dr. Access Option 4
		1 No-Build	2	3	3-Mod	4	5	6	6-Mod	7	
Displacements	Residential	0	0	0	0	0	0	0	0	0	0
	Commercial	0	1	5	5	1	1	4	4	3	5
	Total	0	1	5	5	1	1	4	4	3	5
Properties Affected	Undeveloped	0	9	12	10	9	7	14	12	11	15
	Residential	0	6	7	7	7	6	7	7	5	5
	Commercial	0	10	6	6	11	5	6	6	5	6
	Religious	0	1	1	1	1	0	1	1	1	1
	Parkland (Norbeck Park)	0	0	0	0	0	0	0	0	0	0
	Total	0	26	26	24	28	18	28	26	22	27
Right-Of-Way Required (Acres)	Undeveloped	0.0	1.1	6.1	3.9	1.1	0.6	5.5	4.3	4.8	6.5
	Residential	0.0	0.9	0.3	0.3	1.1	0.4	0.3	0.3	0.2	0.3
	Commercial	0.0	1.5	3.9	3.1	1.5	0.8	3.8	3.4	3.7	4.1
	Religious	0.0	0.1	0.3	0.3	0.1	0.0	0.3	0.3	0.2	0.3
	Parkland (Norbeck Park)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	3.6	10.6	7.6	3.8	1.8	9.9	8.3	8.9	11.2
Natural Resources	Open Water Wetlands (Acres)	0.0	0.17	0.07	0.07	0.16	0.04	0.07	0.07	0.07	0.07
	Forested Wetlands (Acres)	0.0	0.17	0.37	0.08	0.17	0.11	0.37	0.08	0.10	0.50
	Emergent Wetlands (Acres)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
	Total Wetlands (Acres)	0.0	0.34	0.44	0.15	0.33	0.15	0.44	0.15	0.17	0.63
	Waters of the US (linear feet)	0	320	335	320	320	320	320	320	320	760
	Stream Crossings	0	0	1	0	0	0	1	0	0	1
	100-yr Floodplain (acres)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Woodlands (Acres)	0.0	11.4	11.7	9.6	11.4	8.9	11.7	9.6	8.4	11.9
	Rare, Threatened or Endangered Species (each)	0	0	0	0	0	0	0	0	0	0
Cultural Resources	Adverse Effects to a Historic Site (White's Hardware Store, Mt. Pleasant Church or Mt. Pleasant School)	No	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes
	Historic Properties R.O.W. Required (Acres)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Archeological Sites Affected	0	0	0	0	0	0	0	0	0	0
Hazardous Materials (Number of Properties)		0	2	0	0	2	1	0	0	0	0
Air / Noise	Air Quality Violations	None	None	None	None	None	None	None	None	None	None
	Noise Impacts *	N/A	1	1	1	1	2	1	1	1	1
Consistent with Comprehensive Plans		no	no **	no **	no **	no **	yes	no **	no **	no **	no **
Construction Costs	(\$Millions)	\$0	\$122	\$65	\$53	\$106	\$28	\$58	\$52	\$59	\$68
Total Costs	Preliminary Engineering, Construction, R.O.W. (\$M)	\$0	\$141	\$84	\$69	\$123	\$32	\$74	\$68	\$76	\$88

* Expressed as the number of Noise Sensitive Areas (NSA's) for which a receptor projected to have a 3 dBA or greater change in design year noise levels over design year no-build noise levels. A total of 7 NSA's were analyzed.

** The Master Plans do not show a grade-separated interchange at MD 28/MD 97 because an interchange with the former ICC alignment is located along MD 97, less than 1/2 mile north of MD 28

Natural Resources

According to Federal Emergency Management Agency mapping, there are no 100-year floodplains identified within the project area. MD 97 is located on a ridge line that forms the drainage divide between Rock Creek, a tributary of the Potomac River, and Northwest Branch, a tributary of the Anacostia River. Three of the alternatives (Alternative 3, Alternative 3 with Thistlebridge Drive Option 4, and Alternative 6), would require a new stream crossing near the uppermost headwaters of Manor Run, a tributary to the North Branch of Rock Creek. This crossing is due to the location of the ramp connecting southbound MD 97 with westbound MD 28 Relocated. No direct impacts to the stream channel are anticipated under the other build alternatives; however, all of these alternatives will require the alteration of the existing (in-line) stormwater management pond where the stream originates and loss or relocation of an ephemeral channel along MD 97. Between 8.4 and 11.9 acres of woodland would also be impacted by the build alternatives.

Non-tidal wetlands in the project area would be impacted by each of the build alternatives. These impacts would range from 0.15 acre to 0.44 acre depending on which alternative is chosen. This acreage would increase if Thistlebridge Drive Option 4 is selected (increasing the total wetland impacts to 0.63 acre).

The new impervious area caused by the potential construction of the alternatives range from 2.97 acres (Alternative 2) to 11.9 acres (Alternative 7). There would be no impacts to active farmlands, but there would be impacts to two types of prime farmland soils. The areas of soil designated as prime farmland within the project area are either already developed or slated for development in the near future. Consequently, coordination under the Farmland Protection Policy Act (FPPA) is not anticipated for this project.

There are no federally proposed or listed endangered or threatened species known to occur within the project area. Also, there are no records of State rare, threatened or endangered plants and animals or unique or sensitive areas noted within the project area.

Noise and Air Quality

At five of the seven noise receptor areas (NSA's) analyzed for this project, noise levels for the design year (2020), under no-build conditions, were predicted to approach or exceed the Federal Highway Administration (FHWA) Noise Abatement Criteria of 67 dB(A) for private residences and 72 dB(A) for commercial businesses. For Alternative 5, two NSA's included a receptor that was projected to have a 3 dBA or greater change in design year noise levels over design year no-build noise levels. For the remainder of the alternatives, only one NSA was impacted. For these areas, a sound barrier analysis was performed.

The State and National Ambient Air Quality Standards (SNAAQS) would not be exceeded under the No-Build or build alternates for the MD 28/MD 97 Intersection Improvement Study.

6. Environmental Assessment Form

The following Environmental Assessment Form is a requirement of the Maryland Environmental Policy Act and Maryland Department of Transportation Order 11.01.06.02. Its use is in keeping with the provisions of 1500.4(k) and 1506.2 and 1506.6 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 socioeconomic environment which have been considered while preparing this environmental assessment. The reviewer can refer to the appropriate section of the document for a description of specific characteristics of the natural or socioeconomic environment within the project area. Potential impacts, beneficial or adverse, that the action may incur, are described. 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. The "Yes" column indicates that this topic needed to be investigated more thoroughly.

MD 28/MD 97 INTERSECTION IMPROVEMENT STUDY
ENVIRONMENTAL ASSESSMENT FORM

	<u>YES</u>	<u>NO</u>	<u>COMMENTS</u>
A. <u>Land Use Considerations</u>			
1. Will the action be within the 100 year floodplain?	_____	<u>X</u>	_____
2. Will the action require a permit for construction or alteration within the 50 year floodplain?	_____	<u>X</u>	_____
3. Will the action require a permit for dredging, filling, draining or alteration of a wetland?	<u>X</u>	_____	<u>Section V.E.5.a</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>X</u>	_____
5. Will the action occur on slopes exceeding 15%?	_____	<u>X</u>	_____
6. Will the action require a grading plan or a sediment control permit?	<u>X</u>	_____	<u>Section V.E</u>
7. Will the action require a mining permit for deep or surface mining?	_____	<u>X</u>	_____
8. Will the action require a permit for drilling a gas or oil well?	_____	<u>X</u>	_____

	<u>YES</u>	<u>NO</u>	<u>COMMENTS</u>
9. Will the action require a permit for airport construction?	_____	<u>X</u>	_____
10. Will the action require a permit for the crossing of the Potomac River by conduits, cables or other like devices?	_____	<u>X</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>	_____
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>	_____
13. Will the action affect the use of an archeological or historical site or structure?	<u>X</u>	_____	<u>Sections IV.B and V.D</u>
B. <u>Water Use Considerations</u>			
14. Will the action require a permit for the change of the course, current, or cross-section of a stream or other body of water?	<u>X</u>	_____	<u>Section V.E.2</u>
15. Will the action require the construction, alteration, or removal of a dam, reservoir, or waterway obstruction?	_____	<u>X</u>	_____

	<u>YES</u>	<u>NO</u>	<u>COMMENTS</u>
16. Will the action change the overland flow of stormwater or reduce the absorption capacity of the ground?	<u>X</u>	_____	<u>Sections IV.C.3 and V.E.3</u>
17. Will the action require a permit for the drilling of a water well?	_____	<u>X</u>	_____
18. Will the action require a permit for water appropriation?	_____	<u>X</u>	_____
19. Will the action require a permit for the construction and operation of facilities for treatment or distribution of water?	_____	<u>X</u>	_____
20. Will the project require a permit for the construction and operation of facilities for sewage treatment and/or land disposal of liquid waste derivatives?	_____	<u>X</u>	_____
21. Will the action result in any discharge into surface or sub-surface water?	<u>X</u>	_____	<u>Section V.E.3</u>
22. If so, will the discharge affect ambient water quality parameters and/or require a discharge permit?	_____	<u>X</u>	_____

	<u>YES</u>	<u>NO</u>	<u>COMMENTS</u>
C. <u>Air Use Considerations</u>			
23. Will the action result in any discharge into the air?	<u>X</u>	<u> </u>	<u>Sections IV.E and V.G</u>
24. If so, will the discharge affect ambient air quality parameters or produce a disagreeable odor?	<u> </u>	<u>X</u>	<u> </u>
25. Will the action generate additional noise which differs in character or level from present conditions?	<u>X</u>	<u> </u>	<u>Sections IV.F and V.H</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. <u>Plants and Animals</u>			
28. Will the action cause the disturbance, reduction or loss of any rare, unique or valuable plant or animal?	<u> </u>	<u>X</u>	<u> </u>
29. Will the action result in the significant reduction or loss of any fish or wildlife habitats?	<u> </u>	<u>X</u>	<u>Sections IV.C.5 and V.E.5</u>

	<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. <u>Socio-Economic</u>			
31. Will the action result in a pre-emption or division of properties or impair their economic use?	<u>X</u>	_____	<u>Sections V.A.1-3 and V.B.</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>Sections V.A.1-3 and V.B.</u>
33. Will the action alter land values?	_____	<u>X</u>	_____
34. Will the action affect traffic flow and volume?	<u>X</u>	_____	<u>Section III.D</u>
35. Will the action affect the production, extraction, 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>	_____

	<u>YES</u>	<u>NO</u>	<u>COMMENTS</u>
37. Is the action in accord with federal, state, regional and local comprehensive or functional plans-including zoning?	<u> X </u>	<u> </u>	<u>Section V.C</u>
38. Will the action affect the employment opportunities for persons in the area?	<u> </u>	<u> X </u>	<u>Sections IV.A.2.b and V.B</u>
39. Will the action affect the ability of the area to attract new sources of tax revenue?	<u> </u>	<u> X </u>	<u> </u>
40. Will the action discourage present sources of tax revenue from remaining in the area, or affirmatively encourage them to relocate elsewhere?	<u> </u>	<u> X </u>	<u> </u>
41. Will the action affect the ability of the area to attract tourism?	<u> </u>	<u> X </u>	<u> </u>
F. <u>Other Considerations</u>			
42. Could the action endanger the public health, safety or welfare?	<u> </u>	<u> X </u>	<u> </u>
43. Could the action be eliminated without deleterious affects to the public health, safety, welfare or the natural environment?	<u> </u>	<u> X </u>	<u>Section II.D</u>

	<u>YES</u>	<u>NO</u>	<u>COMMENTS</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>	_____	<u>Sections II-C-H</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>Environmental Assessment Document</u>

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I. DESCRIPTION OF PROPOSED ACTION

A. Project Location

Located in east-central Montgomery County, the MD 28 (Norbeck Road)/MD 97 (Georgia Avenue) intersection improvement project area includes portions of both the Aspen Hill and Olney & Vicinity Planning Areas. The project area extends less than a half-mile east to Norbeck Boulevard, westward less than a half-mile along MD 115 (Muncaster Mill Road), approximately one mile south to Rossmoor Boulevard, and less than a mile north to Norbeck Avenue.

The MD 28/MD 97 intersection serves as a crossroads leading to several destinations. MD 28 is an east-west route that runs from the extreme western portions of the county to MD 182. From the intersection, MD 28 leads to Rockville and the I-270 corridor to the west. Along MD 97, Olney lies north of the intersection while to the south are the communities of Wheaton and Aspen Hill. MD 97 serves as a major north-south commuter route into Washington, D.C., from points as far north as Carroll County (see Figures I-1 and I-2).

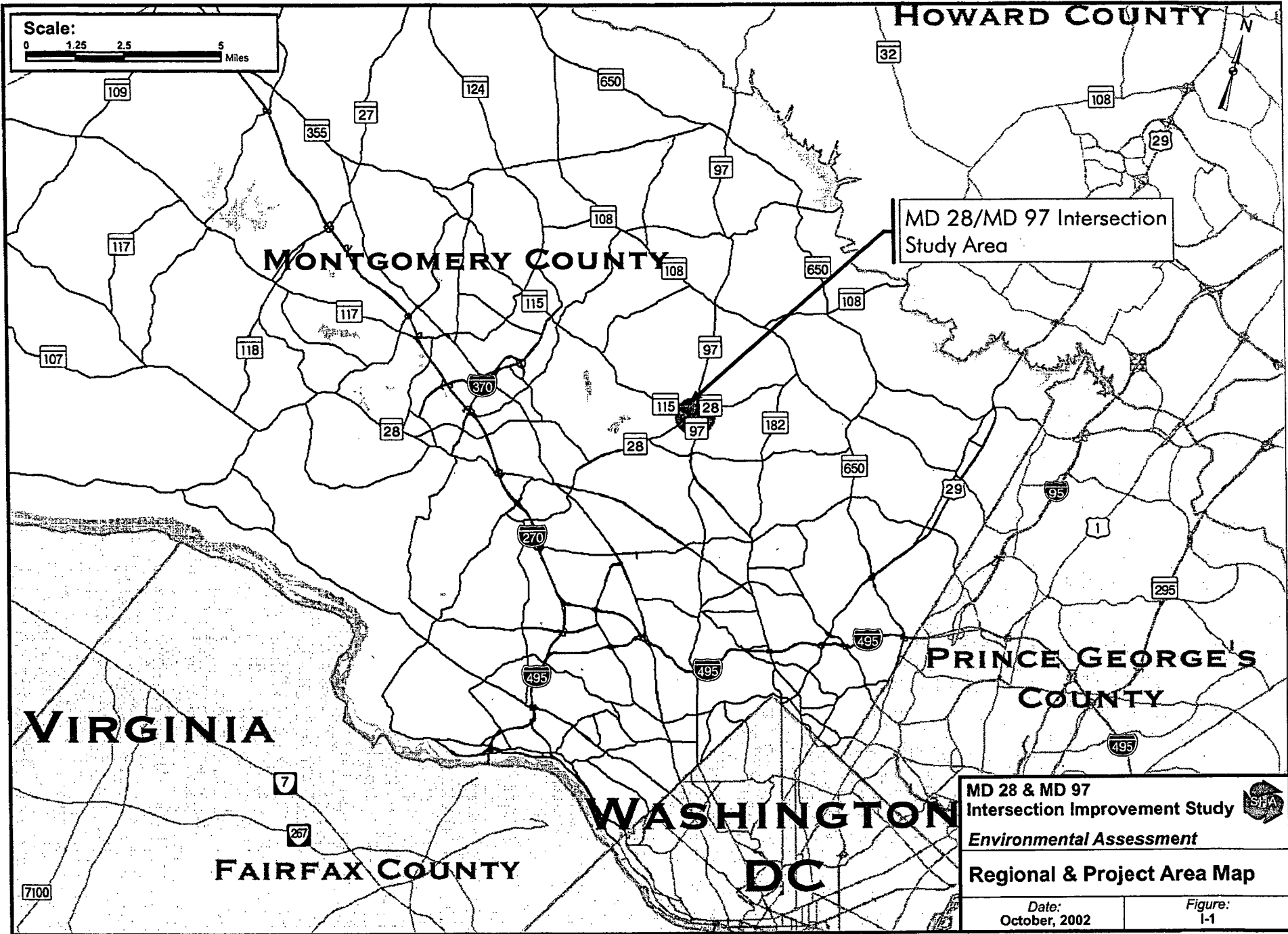
B. Project Description

MD 97 and MD 28 (west of MD 97), are functionally classified as other principal arterial highways. The east leg of MD 28 is functionally classified as a minor arterial. MD 28 and MD 97 are not included on the State Primary System or in the National Highway System.

Substantial traffic congestion occurs along all four legs of the intersection, especially during morning and evening peak hours due to the large percentage of through commuter traffic, mixed with local traffic resulting from ongoing development and growth near the project area.

Existing and planned land use in the project area consists of low-density residential uses north of MD 28 and low to medium density residential uses south of MD 28. Commercial uses, primarily retail, are located along the west side of MD 97 immediately adjacent to the MD 28 intersection. Based on future traffic forecasts, these conditions will continue to deteriorate by the year 2020 under a no-build scenario.

This study evaluates methods to improve traffic operations for vehicles and pedestrians using the MD 28/MD 97 intersection, enhance mobility for bicyclists, pedestrians and transit users, and to address needed transportation improvements in a manner consistent with Maryland's Smart Growth Initiative. Through the federally supported combined National Environmental Policy Act (NEPA) and Section 404 process, this study yields solutions that alleviate existing safety and capacity deficiencies while accommodating projected traffic increases resulting from planned growth in the area.



Scale:

0 0.125 0.25 0.5 Miles



Project Study Area

115

28

97

28

MD 28 & MD 97
Intersection Improvement Study



Environmental Assessment

Project Study Area

Date:
October, 2002

Figure:
1-2

II. PURPOSE AND NEED FOR THE PROJECT

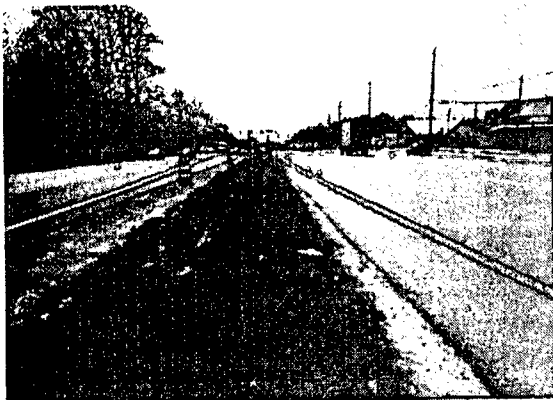
A. Purpose

The purpose of this project is to improve traffic operations for vehicles and pedestrians using the MD 28/MD 97 intersection, enhance mobility for bicyclists, pedestrians and transit users, and to address needed transportation improvements in a manner consistent with Maryland's Smart Growth Initiative.

B. Existing Conditions

The existing typical cross section on MD 97 includes six through lanes (three in each direction), south of MD 28 with left turn bays and a grass median with a 26-foot average width. Outside shoulders are paved and average 12 feet in width, while inside shoulders are paved and are approximately 4 feet wide. North of MD 28, MD 97 transitions to a four-lane divided roadway with approximately 36-foot wide grass medians. The roadway is an open section with shoulder widths similar to those south of MD 28. Utility poles are situated adjacent to the shoulders. MD 28, west of MD 97 is a four-lane roadway with auxiliary lanes and narrow monolithic (raised curb) medians. East of MD 97, MD 28 transitions to a two-lane roadway. The intersection of MD 28 and MD 97 is signalized and operates in up to 8 phases.

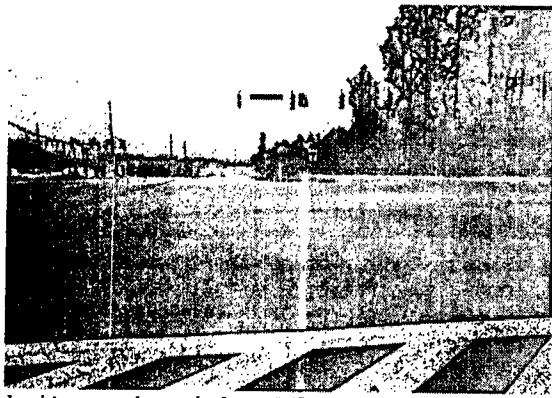
All traffic signals in Montgomery County are interconnected. There is a crosswalk across MD 97 on the south side of the intersection; however, no concrete or paved sidewalks lead up to the intersection. The only sidewalk near the intersection is along westbound MD 28 between Norbeck Center and MD 115. Near the southern terminus of the project, a small area of sidewalk on the eastside of MD 97 begins at International Drive and heads northward for approximately 200 feet. On street parking is prohibited on both MD 97 and MD 28 within the project limits.



looking southward along MD 97 towards MD 28



looking northward along MD 97 towards MD 28

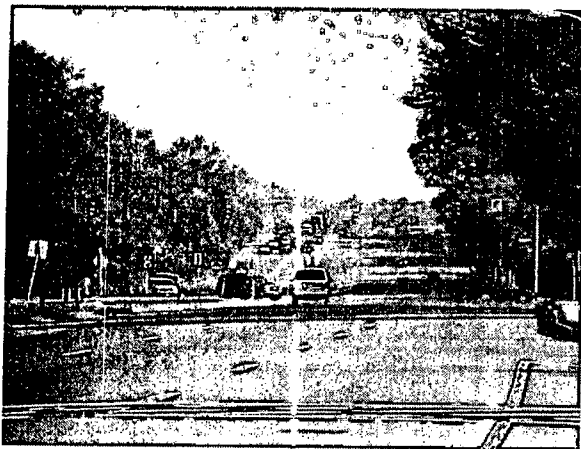


looking northward along MD 97 from crosswalk



looking eastward along MD 28, east of MD 97

MD 97 runs in a north-south direction throughout the entire county, connecting Washington D.C. with points northward in Howard and Carroll counties. A service road (MD 655) runs adjacent to the southbound lanes, providing access to the businesses and residences west of MD 97. One segment of the service road north of Norbeck Center is striped for one-way traffic northbound, while the service road segment south of MD 28 provides access to the Mobil service station and Manor Village, ultimately connecting to Bel Pre Road. Right-in/right-out access to MD 97 is permitted from this service road. Existing MD 97 within the project area has no controls of access. There are currently five local streets and one commercial property with access onto MD 97. Thistlebridge Drive, located immediately north of the MD 28 intersection, provides access primarily to The Preserve (residential community). The one-way service road begins at Thistlebridge Drive and extends northward to Norbeck Avenue. On the east side of MD 97, Norbeck Avenue provides access to communities northeast of the MD 28/MD 97 intersection. South of MD 28, both International Drive and Rossmoor Boulevard provide access to and from Manor Village and Leisure World, residential communities and shopping areas located south of the intersection.

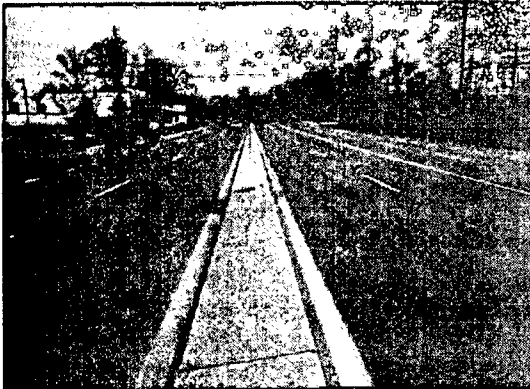


MD 97 northbound, from Rossmoor Boulevard. International Drive is the first signal. MD 28 is the signal at the top of the hill in the background



MD 97 southbound approaching MD 28, with access to the Norbeck Center and White's Hardware store on the right

Access to the Norbeck Center is provided via the service road along MD 97, and the MD 28 westbound lanes immediately west of the White's Hardware Store and Residences. Access to the Mobil Service Station is provided via the service road along the south side of MD 28, which is accessed across MD 28 from the MD 115 terminus and runs parallel to MD 28 eastbound, connecting to the service road (MD 655) as it runs parallel along MD 97 southbound. One of the primary entrances to Leisure World is from MD 28, via Norbeck Boulevard, which is less than a half-mile east of MD 97 and serves as the eastern edge of the project area.

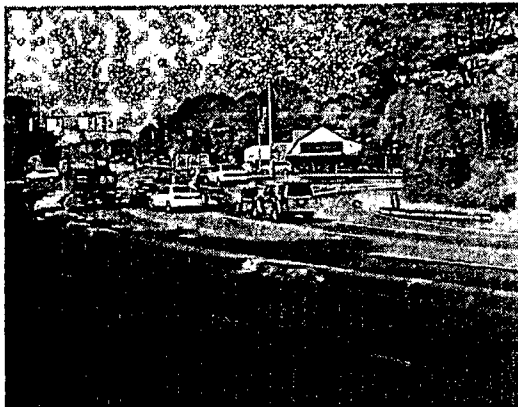


looking east along MD 28 towards MD 97 with the Norbeck Center entrance on the left.

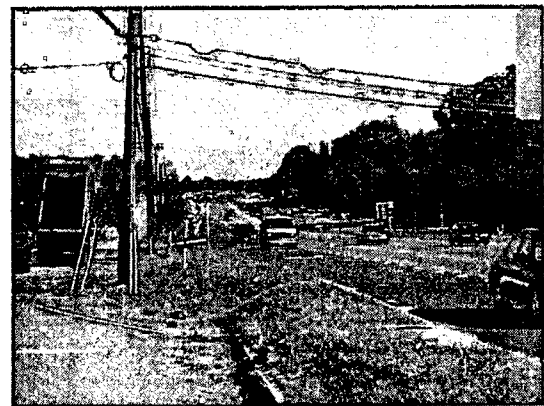


looking southward along the service road

Recent improvements completed within the past two years to MD 28 and MD 97 include an extension of the westbound left-turn lane on MD 28 and the construction of a southbound free-right-turn lane on MD 97. The latter was a direct result of the ongoing construction at The Preserve community. Also, the northbound right-turn lane on MD 97 was converted into a shared through-right-turn lane as you approach MD 28.



westbound left-turn lane on MD 28



southbound free-right-turn lane on MD 97

The project area south of MD 28 is within the Aspen Hill Planning Area (PA #27). The project area represents only a small portion (approximately 40 acres or less than 1%) of the entire planning area (see Figure II-1). The predominant land use in the Aspen Hill Planning Area is residential, ranging from detached homes on large and small lots to townhouses, garden apartments and high rises. Within the project area, residential developments dominate the land

use with Leisure World and Manor Village located in the southeast and southwest quadrant. The most current Master Plan was approved and adopted in 1994.

The Olney and Vicinity Planning Area (PA #23) contains the remaining portion of the project area, north of MD 28. Planning Area #23 extends north all the way to the Howard County line. The project area represents a very small portion (the southern tip, approximately 70 acres or less than a quarter of one percent) of this large planning area (see Figure II-1). The most current Master Plan was approved and adopted in 1980, and the Maryland-National Capital Park and Planning Commission (M-NCPPC) anticipates completing an updated Master Plan in 2003.

The Olney and Vicinity Planning Area is rural, exhibiting a population density of 727 people per square mile, while the Aspen Hill Planning Area has a density of approximately 4,450 people per square mile. The following tables indicate household and population figures for 2000, and forecasts for 2010 and 2020.

**Table II-1
NUMBER OF HOUSEHOLDS***

Planning Area	2000	2010	2020	% Growth (Between 2000-2020)
Olney & Vicinity (PA #23)	11,200	13,100	14,000	25%
Aspen Hill (PA #27)	23,500	24,700	25,600	9%

Source: Montgomery County - Round 6.2 Forecast - June 2000.

**Table II-2
HOUSEHOLD POPULATION***

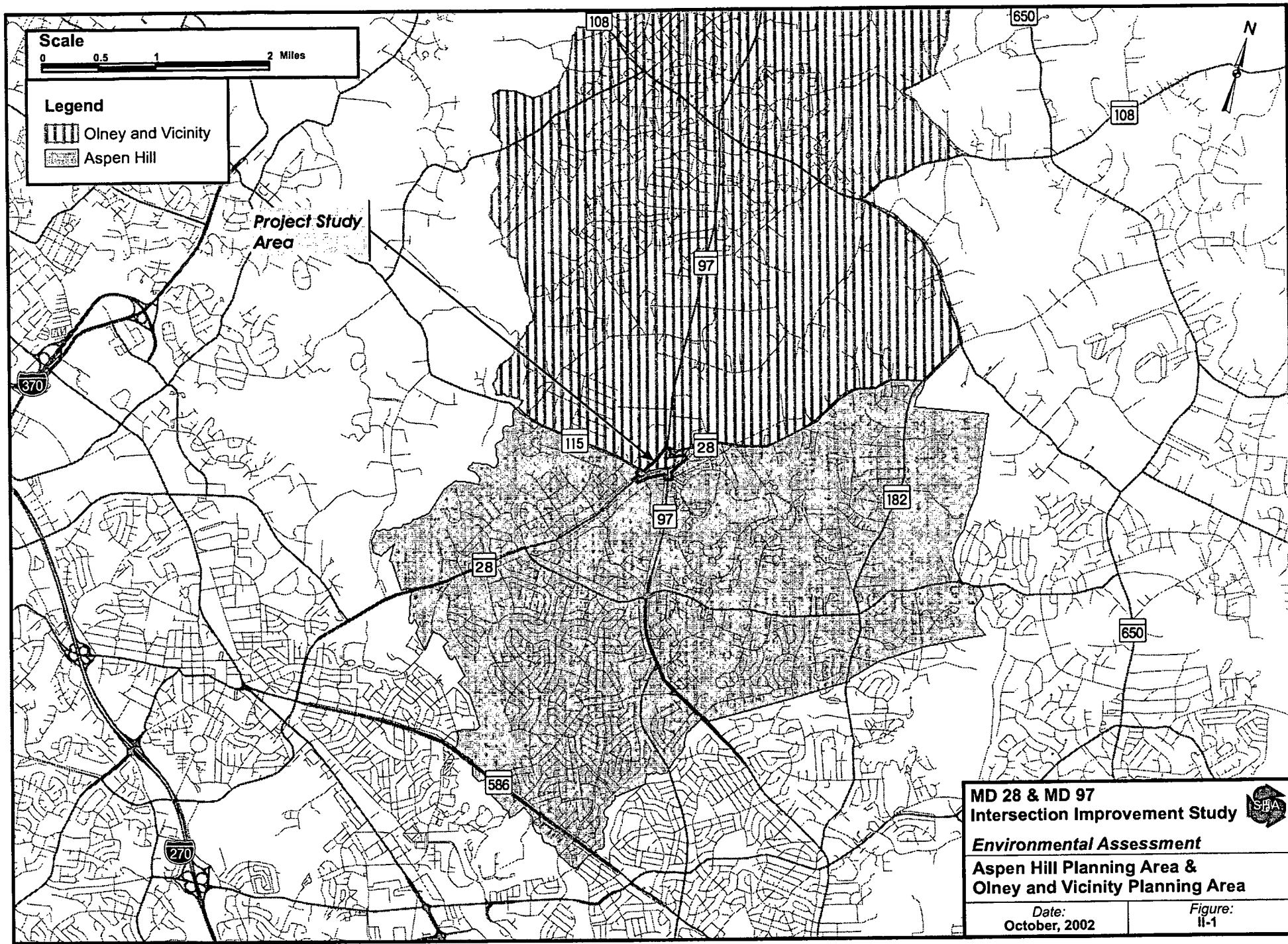
Planning Area	2000	2010	2020	% Growth (Between 2000-2020)
Olney & Vicinity (PA #23)	34,100	39,500	39,900	17%
Aspen Hill (PA #27)	58,600	60,800	60,800	4%

Source: Montgomery County - Round 6.2 Forecast - June 2000.

** Since the project area represents such a small portion of both planning areas, a better representation and more detailed breakdown of the population and employment data by census tract, is presented in Section IV.A.1.a.*

C. Project History and Background


The MD 28/MD 97 Intersection Improvement Study was initiated by the Maryland State Highway Administration (SHA) in early 1997 as part of the Congestion Relief Study (CRS), which was an outflow effort from the former Intercounty Connector Study. The Federal Highway Administration (FHWA) concurred with the project's Purpose and Need in November of 1997. Initially, only at-grade improvement schematics were developed, yielding little or no improvement to the existing traffic congestion. The CRS study recommended that this intersection be designated as a 'Priority III' intersection, meaning it would be programmed for future project planning studies in order to develop additional alternatives, including grade-separation options.



Scale
0 0.5 1 2 Miles

Legend
[Vertical Lines] Olney and Vicinity
[Stippled] Aspen Hill

Project Study Area

**MD 28 & MD 97
Intersection Improvement Study** 
Environmental Assessment
**Aspen Hill Planning Area &
Olney and Vicinity Planning Area**
Date: October, 2002
Figure: II-1

The study is currently in the Development and Evaluation Section of the 2001-2006 Consolidated Transportation Program and was included in the State Transportation Improvement Program (STIP) Amendment in December of 1999.

An Alternates Public Workshop was held on September 7, 2000 at Bauer Drive Recreational Center. Approximately 200 attendees including local residents, community leaders, elected officials, and county representatives were presented one No-Build alternative and three Build alternatives for consideration. The comments ranged from concerns regarding access to St. Patrick's Church to issues about noise impacts. Section VI of this document contains a summary of comments received at the Alternates Public Workshop.

A Focus Group comprised of local residents, community leaders, business owners and transportation activists was established in 1999 and continues to meet regularly with the study team to provide input into the development of concepts for improvements to the MD 28/MD 97 intersection and to discuss local traffic circulation, access and aesthetic concerns. Comments and suggestions received from the Focus Group have been evaluated and incorporated into the preliminary concepts, where possible.

D. Need for Improvement

Substantial traffic congestion occurs along all four legs of the intersection during morning and afternoon peak hours due to the large percentage of through commuter traffic, mixed with local traffic resulting from ongoing development and growth near the project area.

This intersection is currently experiencing stop-and-go conditions during the morning and afternoon peak-hour periods. Traffic analyses conducted confirm that there is heavy traffic congestion, operating at a level of service (LOS) 'F' during the AM and PM peak hours. Furthermore, traffic forecasts show that these conditions will steadily worsen, extending beyond the morning and evening peak hours with a projected 82% increase in traffic volumes on both MD 97 and MD 28 by the design year, 2020. The intersection also fails to adequately accommodate non-automotive modes of travel, such as bicycle and pedestrian movements. The designated pedestrian and bicycle routes in the area need to be connected. In addition, the intersection does not address needed transportation improvements and future transit use between Glenmont and Olney as envisioned in the 1994 Aspen Hill Master Plan.

The planned expansion of Leisure World and The Preserve in the next five years will increase the need for improvements to the MD 97/MD 28 intersection. Leisure World retirement community has plans for more than 960 additional units, while The Preserve is planned to expand from its current Phase I configuration of 135 single-family homes to a maximum of 180 single-family homes.

The projected increase in population and households in the vicinity of the project area will also support the need for transportation improvements. Between the years 2000 and 2025, the number of households within the Olney Master Planning Area is projected to increase 25%,

while the household population will increase roughly 17% (see Tables II-1 and II-2). Less growth is forecasted to occur within the Aspen Hill Planning Area, as there is less available land for potential for development. The number of households in the Aspen Hill Planning Area is projected to increase 9%, while the household population will increase roughly 4%.

E. Traffic Conditions and Operations

Existing 1998 and 2020 No-Build intersection average daily traffic (ADT) volumes, AM and PM peak period data and level of service (LOS) were developed for the MD 28/MD 97 intersection. The 2020 traffic volumes are based on Metropolitan Washington Council of Government's (MWCOC) approved and adopted Cooperative Forecast (Round 6a).

ADT volumes represent the average number of vehicles that travel on a roadway in both directions. Traffic counts used to determine ADT volumes were recorded in 1998, and represent existing conditions. The existing ADT volume on MD 28 west of the intersection is 31,075 vehicles. East of the intersection, MD 28 has an ADT volume of 17,000 vehicles. These volumes are projected to increase to 59,650 on the western leg and 33,500 on the eastern leg by 2020. The existing ADT volume on MD 97 north of the intersection is 36,325 vehicles. South of the intersection, MD 97 has an ADT volume of 38,300. These volumes are projected to increase to 65,500 on the northern leg and 67,350 on the southern leg by 2020 (see Figure II-2).

Since the MD 28/MD 115 intersection is within the MD 28/MD 97 project area, traffic volumes and operations were studied at this location as well. The existing (1998) ADT volume on MD 28 west of the MD 115 intersection is 19,500 vehicles. MD 115 has an ADT volume of 17,000 vehicles. The volumes are projected to increase 139% to 46,600 on MD 28 and increase 53% to 26,000 on MD 115 by 2020 (see Figure II-2).

LOS is a measure of the congestion experienced by drivers, and ranges from A (free flow with little or no congestion) to F (failure with stop-and-go conditions). LOS is computed for the peak periods of the typical day, with LOS D (approaching unstable flow) or better generally considered acceptable for highways in urban and suburban areas. At LOS E, volumes are near or at the capacity of the highway. LOS F represents conditions in which there are operational breakdowns with stop-and-go traffic and extremely long delays at signalized intersections. Volume to capacity (V/C) ratios show numerically how many vehicles or volume of traffic exists in comparison to the capacity of the roadway. A V/C ratio of 1.0 means that the volume of traffic is at the capacity of the roadway.

A summary of the intersection LOS analyses with V/C ratios for the 1998 and 2020 no-build volumes are presented in Table II-3.

Scale:
0 0.125 0.25 0.5 Miles

2020 No Build ADT
1998 Existing ADT

Project Study Area

65,500
36,325

33,500
17,000

26,000
17,000

46,600
19,500

59,650
31,075

67,350
38,300

MD 28 & MD 97
Intersection Improvement Study



Environmental Assessment

Average Daily Traffic (ADT)
Volumes

Date:
October, 2002

Figure:
II-2

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Scale:
0 0.125 0.25 0.5 Miles



Project Study Area


AM Peak			PM Peak		
↓	3360		↓	1820	
◀	▼	▶	◀	▼	▶
790	2370	200	500	1160	160

AM Peak		
△	150	
◀	1170	▶ 1600
▽	280	
PM Peak		
△	180	
◀	1050	▶ 1620
▽	390	

AM Peak			PM Peak		
↓	930		↓	1040	
◀	▼	▶	◀	▼	▶
210	20	700	100	30	910

AM Peak			PM Peak		
◀	△	▶	◀	△	▶
600	780	290	660	2200	340
↑	1670		↑	3200	

AM Peak	
650	△
2280	⇒ 950 ▶
	680 ▼
PM Peak	
900	△
2715	⇒ 1165 ▶
	650 ▼

**MD 28 & MD 97
Intersection Improvement Study** 

Environmental Assessment

**2020 No-Build AM/PM Peak
Hour Traffic Volumes**

Date: October, 2002	Figure: 11-3
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**Table II-3
INTERSECTION LEVEL OF SERVICE ANALYSES**

Intersection	LOS (V/C)			
	1998 Existing		2020 No-Build	
	AM Peak	PM Peak	AM Peak	PM Peak
MD 28 / MD 97	F (1.07)	F (1.13)	F (1.55)	F (1.62)
MD 28 / MD 115	C (0.75)	C (0.78)	E (0.95)	F (1.01)

The intersection of MD 28 at MD 97 currently operates at an unacceptable LOS F during both peak hours with a V/C ratio of 1.07 in the AM and 1.13 during the PM. The LOS shown above takes into consideration the improvements completed through 1998. Based on the approved future land use, the LOS will continue to deteriorate by the year 2020 under a no-build scenario with a continued LOS F with a V/C ratio of 1.55 and 1.62 for AM/PM respectively. For the design year 2020, the predominant turning movement at this intersection is from southbound MD 97 to westbound MD 28 during the AM peak hour (790 vehicles), and from eastbound MD 28 to northbound MD 97 during the PM peak hour (900 vehicles). Turning and through-movement volumes are shown in Figure II-3.

Currently, the MD 28/MD 115 intersection operates at an acceptable LOS. Existing AM and PM peak hour volumes yielded V/C ratios of 0.75 (LOS C) for the AM peak hour and 0.78 (LOS C) for the PM peak hour. Based on the approved future land use, the LOS will deteriorate at this intersection. By the year 2020, under a no-build scenario, V/C ratios will increase to 0.95 (LOS E) for the AM peak hour and 1.01 (LOS F) for the PM peak hour. For the design year 2020, the predominant turning movement at this intersection is from westbound MD 28 to northbound MD 115 during both the AM peak hour (900 vehicles), and the PM peak hour (950 vehicles).

A select link analysis was conducted to determine the general origin and destinations of all trips passing through the designated link within the project area (see Appendix A). Some key observations are noted below:

- Along MD 97 within the project area, approximately 22% of all trips are originating from or destined to Washington D.C. Approximately 68% of the trips originate or are destined for Montgomery County locations, while the remaining 10% is dispersed throughout the surrounding counties or beyond.
- Traveling eastbound along MD 28, only 9% of the trips originate outside Montgomery County. However, nearly 30% of these trips are through trips, destined for locations outside of the county.

F. Safety Conditions

For the five-year period from 1994 through 1998, the MD 28/MD 97 intersection experienced a total of 61 recorded accidents averaging approximately one accident per month. The total accident numbers fluctuated throughout the study period (from a low of 6 in 1994 to a high of 20 in 1995). However, this intersection was not classified as a High Accident Intersection (HAI) during any year within the five-year study period. Regarding projected total accidents for any given year, the following table illustrates the comparison of the years 1998 and 2020 (based on the no-build alternative). The total accident rate is expressed as accidents per one million vehicles entering the intersection (acc/mve). It can be assumed that as traffic volumes rise, accident numbers will increase proportionally. Therefore, the accident rate would remain the same in the year 2020 as it is currently (see Table II-4).

**Table II-4
MD 28/MD 97 INTERSECTION ACCIDENT DATA**

Year	Entering ADT	Total Accidents	Accident Rate
1998 (Existing)	51,100	12	0.64
2020 (Projected)	110,300	26	0.64

The 'total accident' and 'collision type' patterns were dispersed fairly consistently for each leg of the intersection. Overall, rear-end collisions were by far the most prevalent collision type with 61 percent (37 of 61) of the total accidents. This is typically indicative of congestion problems. The next most recurring collision type was angle collisions with 18 percent (11 of 61) of the total accidents.

Twenty-one percent (13 of 61) of the total accidents occurred in nighttime conditions. Wet surface conditions were existent in 21% as well. One of the accidents was fatal, resulting in one death. Injuries were reported in 33 of the 61 accidents, while property damage accounted for the remaining 27 accidents. Of the 129 vehicles involved in the 61 accidents, 5 were heavy trucks, 2 were motorcycles, 2 were school buses, and one was an emergency vehicle. The others involved either passenger vehicles or light trucks.

G. Intermodal and System Connectivity

The project area is currently served by bus transit, both locally within Montgomery County, and regionally within the greater Washington D.C. metropolitan area. Park and ride opportunities are also abundant within the project area. Montgomery County's Ride On and WMATA's Metrobus routes run along MD 97 and a RideOn bus route services the western segment of MD 28. Bus service extends to the existing 248-space park and ride lot occupying the northeast quadrant of the intersection. This lot is heavily underutilized, with an observed usage percentage of 7% or 17 cars in 2001.

A busway within the median along MD 97, between Glenmont and Olney was recommended in both the 1994 Aspen Hill Master Plan and the Georgia Avenue Busway Study

Technical Report, prepared by the Maryland - National Capital Park and Planning Commission (M-NCPPC) in 1998. The preferred busway concept would be incorporated within a 54-foot wide median, which would require widening improvements to the existing median and intersection configurations. This busway is not currently programmed for design or construction.

The closest rail transit station is in Glenmont, along WMATA's Metrorail red-line service, located along MD 97 approximately four (4) miles south of the project area.

The Aspen Hill Master Plan recommends a series of bikeways and trails along MD 28 west of the intersection to provide relief for the existing lack of pedestrian and bicycle facilities. Connectivity between these trails and the existing and planned commercial areas, residential areas, bus stops and the park and ride lot was considered with the design of the intersection improvements. All build alternatives incorporate a bikeway/pedestrian trail parallel to the southbound MD 97 lanes, and then continuing westbound along MD 28 to the MD 115 intersection. Sidewalks are also incorporated within each build alternative along all four legs of MD 28/MD 97 intersection, and along all other improved roadway segments within the project area.

H. Conclusion

This study examines proposed improvements to reduce congestion at the MD 28/MD 97 intersection. Data shows that this intersection is failing today and will continue to worsen. Improving safety is of the utmost importance and all traffic movements will be designed to provide the highest safety conditions possible, for people both inside the vehicle and outside. Improvements considered promote non-automotive use by providing pedestrian and bicycle access to points of destination within the project area. Adequate access to the existing park and ride lot is included to address the current underutilization of the lot, and to better accommodate buses to serve both the existing bus routes and stops, and create the possibility to expand bus transit service.

In order to address these concerns, the SHA recommends that the MD 28/MD 97 intersection be improved, whether it be the construction of a grade separated facility or widening the existing at-grade configuration.

While improvements at the MD 28/MD 97 intersection may further economic development in accordance with the Governor's Smart Growth Initiative, it would not force any additional transportation improvements as a result of its construction. Therefore, this project has independent utility and significance from other transportation projects within eastern Montgomery County. To present this, a Segmentation Paper was completed in February 2000 by the SHA project team. The paper concluded that the project termini are logical; the project has independent utility and significance; and the project does not restrict consideration of other projects.

III. ALTERNATIVES CONSIDERED

A. Preliminary Alternatives

Three alternatives for improvements to the MD 28 and MD 97 intersection were presented at an Alternates Public Workshop on September 7th, 2000. The alternatives included a No-Build alternative and three grade-separated alternatives. Prior to this public meeting, these alternatives were developed after studying several base concepts. The base concepts focused on the cross-traffic movements at the intersection. The concepts were at-grade and did not initially consider the vertical separation of the two roadways. One concept, however, did suggest an extensive reconfiguration that involved the possible realignment of the roads in the vicinity of the intersection. The base concepts studied were:

Concept A - This concept examined base widening that would be needed to make the MD 28/MD 97 intersection operate at an acceptable level of service (LOS "D" or better). This concept would require widening of MD 28 and MD 97 to at least 10 to 12 lanes.

Concept B - Left turning movements from northbound and southbound MD 97 were eliminated from the MD 28/MD 97 intersection. Instead, these movements were accommodated through a jug-handle and a median left turn lane respectively. The left turning movements from southbound MD 97 would occur at the median left turn lane that would connect to an at-grade ramp that merges to MD 28. MD 28 would be signalized at two locations, at the entrance of the ramp, which began at northbound MD 97 and at the end of the ramp, which joined MD 28. In this concept, the park and ride lot would need to be redesigned.

Concept C - Left turning movements from northbound MD 97, southbound MD 97, eastbound MD 28 and westbound MD 28 were eliminated from the intersection and provided through low speed at-grade ramps in the northeast quadrant. In this concept, the approach to the park and ride lot would need to be relocated.

Concept D - Left turning movements from eastbound and westbound MD 28 were eliminated from the intersection and provided through low speed at-grade ramps in the northeast and northwest quadrants respectively. Left turning movements from northbound MD 97 would also be provided in the northeast quadrant. In this concept, the approach to the park and ride lot would need to be relocated. This concept also provided an off-ramp for the right turning movements from southbound MD 97.

Concept G (One-way pair) - This concept separated the eastbound and westbound movements of MD 28. The westbound MD 28 movement was provided on a new alignment north of the MD 28/MD 97 intersection, while the eastbound movements were provided on existing MD 28. The left turning movements from eastbound and westbound MD 28 would be accommodated at the signalized intersections of the eastbound pair and MD 97, and westbound pair and MD 97 respectively. The left turning movements from northbound MD 97 to westbound MD 28 were accommodated through a jug-handle located north of the park and ride lot. The left turning movements from southbound MD 97 to eastbound MD 28 would be accommodated by making a right at the intersection of the westbound pair of MD 28 and



southbound MD 97 and exiting onto the ramp that connects the westbound and eastbound pairs of MD 28.

Most concepts, with the exception of Concept A, failed to improve the LOS at the intersection to an acceptable level. Without enough improvement in LOS from at-grade solutions, various forms of vertically separated road crossings were developed and presented to the public. The variations included elevating MD 97 to pass over MD 28 at the original intersection site or the realignment of MD 28 to pass over MD 97 at a location north of the existing intersection. Additionally, widening components from Concept A were included in the preliminary alternatives. Including the No-Build option, three alternatives were subsequently presented for public comment at the September 7, 2000 Alternates Public Workshop.

1. Alternative 1 – No-Build

Under this alternative, no substantial improvements to the MD 28/MD 97 intersection would occur. Only minor improvements would be conducted, which would not increase roadway capacity. This alternative creates no additional impact to the surrounding establishments and environment. This alternative does not require additional funds other than those already budgeted for maintenance and minor improvement projects as specified in the statewide Consolidated Transportation Program (CTP).

2. Alternative 2 - Single-Point Urban Interchange

This alternative consists of an urban interchange with MD 97 through lanes carried over MD 28 on a bridge. Both MD 97 and MD 28 would be 3 lanes in each direction in the vicinity of the interchange. The turning traffic from MD 97 would use ramps that would intersect MD 28 at-grade at the signal under the bridge. With this interchange, only one signal would be required, as the opposing left turning movements from MD 97 down the ramps to MD 28 would be made simultaneously. Similarly, the left turning movements from MD 28 onto the ramps to MD 97 would occur simultaneously. This configuration reduces the cycle time at the traffic signal and reduces traffic delay and emissions from idling vehicles.

3. Alternative 3a – MD 28 Relocated Overpass, Option A

This alternative would relocate MD 28 approximately 700 feet north of the existing intersection and would cross over MD 97 on a bridge. The proposed relocated roadway would tie into existing MD 28 at MD 115 (Muncaster Mill Road), west of MD 97. East of MD 97, the proposed relocated roadway would tie into existing MD 28 just east of the existing park and ride lot. The movement from northbound MD 97 to westbound MD 28 would be accommodated via a loop ramp located north of the park and ride lot. From southbound MD 97, traffic traveling onto eastbound and westbound MD 28 would turn right at the existing MD 28 and MD 97 intersection to use the ramps located behind the shopping center. The left turning movements from MD 28 onto MD 97 would be accommodated at the existing MD 28/MD 97 intersection.

4. **Alternative 3b – MD 28 Relocated Overpass, Option B**

This alternative is similar to Alternative 3a except for the following:

- The left turning movement from northbound MD 97 to westbound MD 28 would occur at the intersection of the proposed relocated MD 28 and existing MD 28, which is located to the east of MD 97.
- The right turning movement from southbound MD 97 to westbound MD 28 would not occur at the existing MD 28/MD 97 intersection. Instead, a directional ramp would be provided to accommodate the right turning movements from southbound MD 97 to the westbound MD 28 relocated overpass.
- The left turning movements from eastbound MD 28 to northbound MD 97 would not occur at the existing MD 28/MD 97 intersection. Instead, traffic would continue along the MD 28 relocated overpass and make two consecutive right turning movements to go onto northbound MD 97.
- The alignment for the relocated overpass would be 720 feet north of the existing MD 28/MD 97 intersection.

B. **Alternatives Dropped from Further Consideration**

The alternatives that were dropped from further consideration were the four initial at-grade concepts. These concepts were not recommended to be carried forward because each concept failed to improve the level of service at the MD 28/MD 97 intersection (i.e. LOS "F").

The alternative concepts are listed below:

At-grade Concept B

At-grade Concept C

At-grade Concept D

Concept G – One-way Pair

Additional Design Options Considered but Dropped

Following the Alternates Public Workshop, several additional design options were developed and considered, but were dropped from further consideration. The following paragraphs describe these options.

As an additional option to Alternative 3, the study team considered depressing MD 97 under MD 28 (relocated), which would keep MD 28 (relocated) at-grade. The goal was to minimize visual impacts by eliminating the need to build an elevated bridge structure, while also reducing potential noise impacts. However, several issues were identified through the analyses,

which caused this option to be dropped from further consideration. The major issues are listed below:

- Grade issues - MD 97 would not be able to tie-in to the existing MD 28/MD 97 intersection and meet the required under clearance between the MD 97 roadway surface and the steel girders of the MD 28 (relocated) bridge. To accomplish this, the existing MD 28/MD 97 intersection would need to be depressed which would result in impacts to the access points for the Norbeck Center and the historic White's Hardware Complex.
- Construction of the depressed MD 97 roadway would have to be staged to accomplish an acceptable maintenance of traffic. This would substantially increase construction costs.

As an additional option to Alternative 4 (refer to section III.C., 'Alternatives Retained for Detailed Study'), the study team considered depressing MD 28 under MD 97, which would keep the existing MD 97 travel lanes at-grade. The goal here was also to minimize potential visual impacts by eliminating the need to build a bridge structure in the air, while also reducing potential noise impacts. However, several issues were found through the analyses, which caused this option to be dropped from further consideration. The major issues are listed below:

- Access to the Norbeck Center and the White's Hardware Complex from MD 28 would be eliminated.
- Maintenance of traffic during construction would be quite difficult due to the high traffic volumes currently on MD 28.
- Extensive retaining walls would be required along both MD 28 and MD 97, which would increase construction costs.
- The grade adjustment along MD 28 east of the intersection would require the removal of a substantial number of trees, which currently buffer Leisure World from MD 28.

A roundabout option was considered for the MD 115/MD 28 intersection, in hopes of diminishing potential impacts to adjacent properties. Based on a preliminary engineering analysis, this concept would require additional right-of-way as compared to what is required under the alternatives retained for detailed study. A roundabout would not be desirable at this location for the following reasons:

- There are several heavy turning movements that must be accommodated. The two heaviest movements are from westbound MD 28 (relocated) to northbound MD 115 and from eastbound relocated MD 28 to existing MD 28.
- If separate bypass lanes were provided to address the above turning movements, the remaining circulating flows would require a 3-lane roundabout. The resulting roundabout and approaches could have substantial impact on adjacent properties.
- The ramp from southbound MD 97 to westbound MD 28 would create a weaving problem with the MD 28 to northbound MD 115 bypass lane. The ramp would need to

be pulled back closer to MD 97, which would push the ramp tie-in to MD 97 further north.

- The roundabout would not be as pedestrian or bicyclist friendly as a signalized intersection. This is especially important since the MD 97 hiker-biker trail crosses MD 28 at this location.

Alternatives 3 and 6 (refer to section III.C., 'Alternatives Retained for Detailed Study') require Thistlebridge Drive to be relocated to the north in order to access MD 97, as described in the descriptions above. Four other access options were developed in hopes of providing the safest and less circuitous possible access for the residents of The Preserve. Options 1 through 3 show Thistlebridge Drive turning southward and tying into MD 115 instead of MD 97. Option 4 does not relocate or adjust the grading of Thistlebridge Drive but, to remain functioning, Ramp A is raised and bridges over Thistlebridge Drive. These options would replace the Thistlebridge Drive connection shown on Alternatives 3 and 6. The improvements associated with Alternatives 2, 4 and 5 (refer to section III.C., 'Alternatives Retained for Detailed Study') allow Thistlebridge Drive to function as it does today. Therefore, these alternatives do not require, yet can accommodate, the Thistlebridge Drive options.

Options 1 through 3, described below, contain numerous impacts to property and natural resources. Option 1 would require the displacement of two homes within The Preserve, while Options 2 and 3 would require the acquisition of land from Norbeck Park, which is a publicly owned recreation facility. This would require the preparation of a Section 4(f) evaluation to comply with Federal regulations. Based on these discoveries, Options 1 through 3 were dropped from further consideration.

Option 1 – Thistlebridge Drive Relocated (Total Avoidance of Norbeck Park)

This option begins at MD 115, approximately 600 feet north of the existing MD 28/MD 115 intersection. From that point, the proposed roadway runs immediately adjacent to the boundary of two historic properties (Mt. Pleasant Church & Cemetery and Mt. Pleasant School/Norbeck School). A short retaining wall is utilized to avoid any direct impact to the historic properties. The proposed roadway then curves slightly towards the east, towards the rear portion of Norbeck Park and crosses a tributary of Manor Run before turning north to connect to existing Thistlebridge Drive. The facility is a two lane open section except near MD 115 where a third lane is provided for left turns. No impacts to Norbeck Park are anticipated, but possibly two newly constructed residences within The Preserve would be taken.

Option 2 – Thistlebridge Drive Relocated (Partial Avoidance of Norbeck Park)

This option is similar to Option 1 from MD 115 to the crossing of the tributary of Manor Run. At this point, the proposed roadway incorporates a minor "S" curve to avoid taking any existing residences within The Preserve. In doing so, this alignment does require a small amount of right of way from the rear of Norbeck Park. The facility is a two lane open section except near MD 115 where a third lane is provided for left turns. A roundabout has been proposed where existing and Relocated Thistlebridge Drive meet to be a traffic calming measure, to provide for U-turns, to delineate the entrance into the residential community and to provide an opportunity for major landscaping.

Option 3 – Thistlebridge Drive Relocated (Minimization of Impacts to The Preserve)

This option has the same connection to MD 115 as Option 1, but just past the cemetery the alignment turns southeast, bisects the primary portion of Norbeck Park and proceeds towards the toe of fill slope for Ramp “A”. Just prior to the hiker/biker trail, the alignment turns northeast, following the trail until connecting to existing Thistlebridge Drive. The facility is a two lane open section except near MD 115 where a third lane is provided for left turns.

A Value Engineering (VE) Study was conducted by SHA in July 2002. The objective was to analyze the current alternatives and offer insight as to what modifications, if any, would improve the cost and effectiveness of those alternatives. In the process, the VE team developed a new alternative (FC-1), which relocates MD 28 approximately 200 feet farther north than shown in Alternatives 3a and 3b. The purpose of this was to avoid the potential business displacements along the western side of MD 97. Other elements were presented as part of this new alternative and are summarized below as either advantages or disadvantages.

Advantages

- Eliminates the existing at-grade crossing of MD 97 since all movements into the Norbeck Center and the other businesses in the northwest quadrant of the existing intersection will be off of relocated MD 28.
- Access to Thistlebridge Drive will be from relocated MD 28, directly opposite of the proposed entrance point to Norbeck Center, thus creating a signalized, four-legged intersection.
- Existing MD 28 east of MD 97 would not need to be expanded since there would be no through movements crossing MD 97 and the only traffic would be to and from northbound MD 97. This would eliminate the need to displace the existing woodlands between MD 28 and Leisure World.

Disadvantages

- The existing park and ride lot would have to be modified.
- Wetland impacts would increase significantly.
- Impacts to woodlands would increase.
- The overall right-of-way taking would increase.
- There would be impacts to the Golden Bear Golf Center.
- A potentially hazardous weaving movement would be created between vehicles accessing westbound MD 28 (Relocated) from northbound MD 97, and the vehicles needing to access Thistlebridge Drive.

Based on the disadvantages list above, Alternative FC-1 was dropped from further consideration.

C. Alternatives Retained for Detailed Study

The No-Build Alternative, the three original build alternatives and two additional build alternatives were carried forward for detailed study, in hopes of addressing the project need. One of SHA's project goals is to develop alternatives that do not preclude the construction of Montgomery County Master Plan transportation improvements, including the Georgia Avenue Busway, within the project area. To accommodate the potential inclusion of a Busway between Olney and Glenmont, all of the alternatives studied include a 54-foot median along MD 97.

1. Alternatives Descriptions

a. Alternative 1 – No Build

Under this alternative, no substantial improvements to the MD 28/MD 97 intersection would occur (see Figure III-1). Only minor improvements would be conducted, which would not increase roadway capacity. This alternative creates no additional impact to the surrounding establishments and environment. This alternative does not require additional funds other than those already budgeted for maintenance and minor improvement projects as specified in the statewide Consolidated Transportation Program (CTP).

b. Alternative 2 – Single-Point Urban Interchange with MD 97 over MD 28

This alternative separates through traffic on MD 97 from the MD 28 intersection. The center through lanes, three in each direction on MD 97, would be gradually elevated to form north and south approaches for an overpass at the current intersection with MD 28 (see Figure III-2). The outside lanes on MD 97 would remain at grade and provide access from and to MD 28, in the form of an urban interchange. Deceleration lanes from MD 97 would accommodate two left turn lanes and one right turn lane at the intersection with MD 28. Two acceleration lanes from MD 28 would merge into MD 97 after the through lanes return to grade level. Before returning to grade, separation along MD 97 between the at-grade outside lanes and the center through lanes utilize retaining walls. These retaining walls were used extensively to minimize the overall footprint of the interchange.

A key component of this alternative is the use of only one traffic signal to control traffic moving through the urban interchange. This one-signal system would allow opposing traffic to make simultaneous left turns from the MD 97 deceleration lanes onto MD 28. This method would make travel through the intersection more efficient by eliminating additional traffic signal phases that would be necessary if traffic-turning movements were separate.

On MD 28 west of MD 97, the existing curb line along the side of historic White's Hardware Store was retained and the roadway widened southward to accommodate three through lanes in each direction and the necessary turn lanes. As a result, a portion of the service road along the south side of MD 28 would also be relocated. The western limit of the MD 28 widening would be the MD 115 intersection. East of MD 97, MD 28 would be widened to three through lanes in each direction and realigned to improve the geometry of the reverse curve,

enhancing vehicular safety. The widening would tie back to existing MD 28 east of Bradford Road. Improved sightlines on the approach to the interchange would allow motorists to see stopped vehicles while traveling from the east. The right turn onto the northbound MD 97 acceleration lanes would be less sharp.

This alternative restricts some direct access from MD 97 and MD 28 to the commercial properties west and immediately adjacent to the current intersection. Additionally, Thistlebridge Drive would no longer have access to MD 97 north of the interchange and, with this configuration, Thistlebridge Drive would terminate at the MD 655 service road. Along MD 28, access would have to be reconfigured for the Golden Bear Golf Center and St. Patrick's Church Center east and west respectively from the MD 97 interchange. These modifications along with the previous components of this alternative satisfy the purpose and need of the project by providing improved traffic operations, safety and efficiency. Thus, this alternative was retained for detailed study.

c. Alternative 3 – MD 28 Relocated Overpass (Options A and B Combined)

Under this alternative, MD 28 would be relocated approximately 700 feet to the north, providing a shorter, more direct route and avoiding the constraints associated with the existing MD 28/MD 97 intersection (see Figure III-3). The relocation would begin at the MD 115 (Muncaster Mill Road) intersection, bridge over MD 97, reconnect to existing Norbeck Road near Coolidge Avenue and end just past Bradford Road. MD 97 would have three through lanes in each direction and the 54-foot median width would be reserved for a future busway. Existing MD 28 would also be reconstructed and serve as the primary link for local movements between MD 97 and MD 28. On MD 28 west of MD 97, the existing curb line along side of historic White's Hardware Store would be retained. Under this alternative, the service road along the south side of MD 28 would not be affected.

A relocated alignment of Thistlebridge Drive would be necessary to accommodate the direct access ramp from southbound MD 97 to westbound MD 28. Thistlebridge Drive is the only outlet for residents of The Preserve, a new single-family home community consisting of 135 units. Under this alternative, portions of Thistlebridge Drive in the vicinity of the MD 28 overpass would be eliminated and the new right-of-way would connect to MD 655 north of the existing connection. Thistlebridge Drive would terminate at the new intersection with MD 655 and direct access to MD 97 would be eliminated. This new right-of-way would traverse wetlands presently north of the current MD 655 intersection. Additionally, MD 655 would no longer continue to Norbeck Center south of Thistlebridge Drive.

The relocated alignment of MD 28 satisfies the purpose and need of the project by separating through traffic on MD 28 from the existing intersection. Other components further improve traffic operations and enhance safety and efficiency; therefore this alternative was retained for detailed study.

d. Alternative 4 – Single-Point Urban Interchange (Depressing MD 97)

This alternative proposes an urban interchange with MD 97 depressed to pass under existing MD 28 (see Figure III-5). As in Alternative 2, this alternative would separate through traffic on MD 97 from the MD 28 intersection. The center through lanes, three in each direction on MD 97, would gradually be depressed to achieve sufficient clearance for MD 28 to cross on an overpass at the current intersection location, yet remain at-grade level. The outside lanes from MD 97 would remain at grade and intersect with MD 28 within the urban interchange. Deceleration lanes from MD 97 would accommodate two left turn lanes and one right turn lane at the interchange with MD 28. Two acceleration lanes from MD 28 would merge into MD 97 after the through lanes have returned to grade level. Before returning to grade, separation along MD 97 between the at-grade outside lanes and the center through lanes would utilize retaining walls.

The same intersection configuration as in Alternative 2 would be utilized. A key component includes the use of one signal that would allow simultaneous opposing left turning movements from MD 97 to MD 28. Similarly, the left turning movements from MD 28 onto the ramps to MD 97 would also occur simultaneously. Additionally, the alignment of MD 28 and associated access modifications would be similar to the MD 97 overpass option described in Alternative 2. These modifications along with the other components of this alternative satisfy the purpose and need of the project by providing improved traffic operations, safety and efficiency. This alternative, by utilizing an underpass, presents a reduced visual impact to the adjacent properties and therefore this alternative was retained for detailed study.

e. Alternative 5 – Base Widening Alternative (Previously - Concept A)

Alternative 5 consists of at-grade improvements to the existing intersection (see Figure III-6). Base widening would occur at all legs of the intersection. However, on MD 28 west of MD 97, the existing curb line along side of historic White’s Hardware Store would be retained and the roadway widened southward to accommodate the through lanes and the turn lanes. As a result, a portion of the service road along the south side of MD 28 was also relocated. Each approach to the intersection from MD 97 and MD 28 would have a total of five lanes. In addition to the through lanes, there would be multiple left turning lanes. Northbound MD 97 would have a double left turn onto MD 28 westbound; eastbound MD 28 would have a double left turn onto MD 97 northbound; and MD 28 westbound would have a double left turn onto MD 97 southbound.

This alternative realigns MD 28 east of the existing intersection. The ‘S’ curve in MD 28, as it approaches the interchange with MD 97 on the east, would be made more gradual which enhances vehicle safety in several aspects. This section of MD 28 would contain three lanes approaching the intersection with two lanes in the opposite direction, separated by a median. Widening would extend east beyond Bradford Road, potentially requiring additional rights of way from adjacent properties. Proceeding west from the intersection, MD 28 would return to two lanes in each direction prior to the intersection with MD 115.

The current rear entrance to the park and ride lot would be realigned, the profile adjusted and a right in/right out added from MD 97 to improve access to the lot. Also, an optional alignment for the MD 655 Service Road is shown that would eliminate the two 90 degree turns and connect the service road directly to MD 28.

This alternative was retained for detailed study at the request of Montgomery County Department of Public Works and Transportation, since an at-grade intersection improvement would comply with the Aspen Hill Master Plan.

d. Alternative 6 – MD 28 Relocated (Underpass)

Alternative 6 proposes a relocation of MD 28 that is similar to Alternative 3. The new alignment for MD 28 would be identical to Alternative 3, but the road would descend below grade and travel under MD 97 (see Figure III-7). The alignment for the new section of MD 28 would be identical to that used in Alternative 3. On either side of MD 97, MD 28 would be depressed below grade and pass beneath MD 97, which would remain at grade level. Modifications to Thistlebridge Drive access at MD 655 and right-of-way acquisition would be required, similar to Alternative 3. These modifications along with the other components of this alternative satisfy the purpose and need of the project by providing improved traffic operations, and enhancing safety and efficiency. This alternative, by utilizing an underpass on MD 28, presented a reduced visual impact to the adjacent properties and therefore this alternative was retained for detailed study.

2. Additional Considerations and Revisions

Following the selection of the alternatives to be retained for detailed study, additional considerations and revisions to the alternatives were developed and analyzed in hopes of further minimizing impacts to socioeconomic and natural environmental features. Reducing potential impacts to the White's Hardware Complex, the Norbeck Center, and the Mobil Service Station were key elements regarding the business community. Additional options were explored that would provide the best possible access for the residents of The Preserve, thus involving a closer analysis of the operations along Thistlebridge Drive. For the natural environment, minimizing potential wetland impacts and preserving woodlands, especially where they serve as a buffer between the proposed roadway and residential development, were key elements taken into consideration. Also, modifications to better incorporate pedestrian and bicycle facilities for all the alternatives were investigated.

The following paragraphs describe the design options and revisions that were incorporated into the list of alternatives.

a. MD 115 / MD 28 Intersection Adjustments

For the alternatives that relocate MD 28 north of the existing intersection (Alternatives 3 and 6), there would be an added complexity of a five-point intersection at the intersection of existing MD 28 and MD 115. To alleviate potential operational concerns, the access point to the service road along the south side of MD 28, directly across from the terminus of MD 115, will be

eliminated. Access to the service road along the south side of MD 28 would now only occur at its other access point to MD 28, which is several hundred yards west of the MD 115 intersection.

Adjustments were also made to the centerline of MD 28 (shifted slightly to the south), which would greatly reduce the parking impacts to St. Patrick's Church. The double right-turn from eastbound MD 28 (relocated) to eastbound existing MD 28 was converted to a channelized free right-turn, which allows the elimination of one lane at the intersection. A minor adjustment of the MD 28 (relocated) centerline and a longer retaining wall along the St. Patrick's Church property was also considered to reduce potential parking impacts.

b. Bicycle and Pedestrian Accommodations

A bikeway/pedestrian trail was added to the build alternatives to provide a connection from the proposed bikeway adjacent to southbound MD 97 (as mentioned in the local master plans), to westbound MD 28 and MD 115. To accommodate bicycle commuter traffic, additional pavement is included alongside the outermost through lanes and the ramp lanes for all of the build alternatives. This would allow up to five feet of paved shoulder for bicyclists.

For the alternatives that relocate MD 28 north of the existing intersection with MD 97 (Alternatives 3 and 6), the separate bikeway would be located in the northwest quadrant and extend from the MD 655 service road to the MD 115 intersection. Additional width has also been included in the outermost through lanes of MD 28, relocated MD 28 and MD 97, to accommodate bicycle commuter traffic.

For the remaining build alternatives (Alternatives 2, 4 and 5), the bikeway connection would be provided in front of the hardware store to accommodate local bicycle traffic on MD 655. Additional width is included in the outermost through lanes of both MD 28 and MD 97, and along the interchange ramps of Alternates 2 and 4, to accommodate bicycle commuter traffic.

c. Thistlebridge Drive Access Option 4

Alternatives 3 and 6 require Thistlebridge Drive to be relocated to the north in order to access MD 97, which would provide access from residents of the Preserve. Options 1 through 3 were dropped but Option 4 was carried forward since there are less environmental impacts anticipated (see Figure III-10).

Option 4 would replace the Thistlebridge Drive connection shown on Alternative 3 and could only be applied to Alternative 3. This option would bridge Ramp A, which connects southbound MD 97 to westbound MD 28 (relocated), over Thistlebridge Drive. The existing access to MD 97 from Thistlebridge Drive would be maintained with the exception of left-turn movements from Thistlebridge Drive to northbound MD 97. These movements require the use of the existing MD 28/MD 97 intersection. Thistlebridge Drive Access Option 4 cannot be applied to Alternative 6 due to the proposed grade difference between a depressed MD 28 Relocated and a raised Ramp A.

**d. Alternative 3-Modified and 6-Modified
(Elimination of Ramp A)**

These modified alternatives are very similar to Alternatives 3 and 6, except Ramp A is eliminated, therefore none of the Thistlebridge Drive Access options need to be applied to maintain access to the Preserve (see Figures III-4 and III-8). Upon further build traffic analyses, it was determined that all traffic movements from southbound MD 97 to westbound MD 28, which would use Ramp A on Alternatives 3 and 6, could now be channeled through the existing MD 28/MD 97 intersection. This is possible because a free-right condition will exist from MD 97 southbound onto existing MD 28 westbound, since all left turn movements from MD 97 would be eliminated. To account for the additional volumes making the free right turn, the radius will be smoothed out, approaching but not impacting the historic boundary of the White's Hardware Store and Residences. No additional widening will be needed at the existing MD 28/MD 115 intersection to accommodate the additional through and left-turn movements from existing MD 28 westbound.

e. Alternative 7 - MD 28 Relocated (Underpass)

Alternative 7 combines Alternative 6-Modified with some of the elements introduced by the Value Engineering Team during SHA's review of the project (see Figure III-9). The relocation of MD 28 begins at the MD 115 (Muncaster Mill Road) intersection, reconnects to existing MD 28 near Coolidge Avenue and ends just past Bradford Road. This alignment incorporates a horizontal reverse curve to avoid impacts to the Norbeck Center and crosses under MD 97 at the same location as Alternate 6-Modified (approximately 700' north of existing MD 28). At the existing MD 28/MD 97 intersection, the median crossover and traffic signal would be eliminated. Access to and from MD 97 to Relocated MD 28 would be accomplished via right in/right out connector ramps that would utilize much of the existing MD 28 right of way.

On MD 28, west of MD 97, a split tee configuration is proposed. One tee intersection would serve existing MD 115 and the other tee intersection would serve the west side connector ramps. At MD 115, the existing concrete median would be removed and an additional northbound lane accommodates the double right turn. MD 97 would consist of three through lanes in each direction and the median is reserved for a future busway.

The Thistlebridge Drive connection to MD 97 remains the same as today except that the left turn lane within the median would be extended several hundred feet to the south. A two-lane connector will also be provided between Relocated MD 28 and Thistlebridge Drive to improve access from the east. A right in/right out connector will be provided from Relocated MD 28 to the Norbeck Center and adjacent businesses.

3. Alternatives and Options Carried Forward

Below is the complete list of alternatives that are being carried forward for detailed analyses as part of the NEPA process. Each build alternative and option is shown in the figures following this page.

Alternatives

- Alternative 1 - No-Build (see Figure III-1)
- Alternative 2 - Single-Point Urban Interchange with MD 97 over MD 28 (see Figure III-2)
- Alternative 3 - MD 28 Relocated, with an overpass of MD 97 (see Figure III-3)
- Alternative 3-Modified - MD 28 Relocated, with an overpass of MD 97 with Ramp A eliminated (see Figure III-4)
- Alternative 4 - Single-Point Urban Interchange with MD 97 under MD 28 (see Figure III-5)
- Alternative 5 - Base Widening; At-grade Improvements (see Figure III-6)
- Alternative 6 - MD 28 Relocated, with an underpass of MD 97 (see Figure III-7)
- Alternative 6-Modified - MD 28 Relocated, with an underpass of MD 97 with Ramp A eliminated (see Figure III-8)
- Alternative 7 - A modified version of the Value Engineering Alternative (FC-1); MD 28 Relocated, with an underpass of MD 97 (see Figure III-9)

Thistlebridge Drive Access Option (applied to Alternative 3)

- Option 4 - Ramp A bridges over existing Thistlebridge Drive, applicable only to Alternative 3 (see Figure III-10)

D. Effects on Traffic Operations

A Level-of-Service (LOS) analysis was performed for the proposed alternatives using peak hour volume projections for the design year 2020. Table III-1 compares the LOS calculations (with volume/capacity ratios) for both the AM and the PM peak hours, for all alternatives being carried forward.

**TABLE III-1
LEVEL-OF-SERVICE (LOS) COMPARISONS¹**

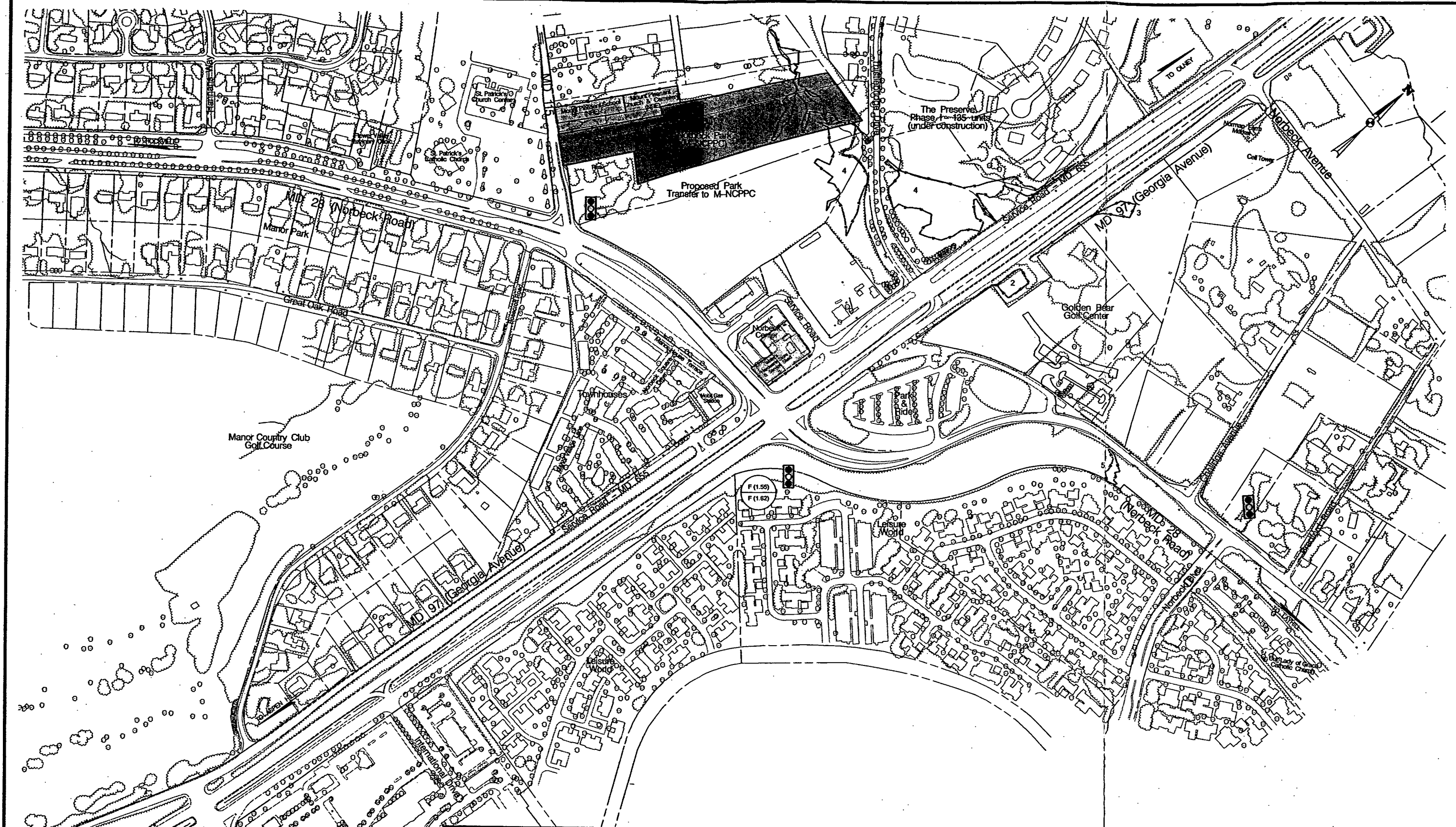
ALTERNATIVE	LOCATION ²					
	MD 97 @ MD 28		MD 28 @ MD 115		MD 28 @ Relocated MD 28	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
1998 EXISTING	F (1.07)	F (1.13)	C (0.75)	C (0.78)	n/a	n/a
2020 ALTERNATIVE 1 (No-Build)	F (1.55)	F (1.62)	E (0.95)	F (1.01)	n/a	n/a
2020 ALTERNATIVE 2	C (0.76) ³	D (0.85) ³	E (0.94)	E (0.93)	n/a	n/a
2020 ALTERNATIVE 3	D (0.84)	D (0.89)	D (0.88)	D (0.88)	C (0.78)	E (0.92)
2020 ALTERNATIVE 3-MODIFIED	D (0.84)	D (0.89)	D (0.88)	D (0.88)	C (0.78)	E (0.92)
2020 ALTERNATIVE 4	C (0.76) ³	D (0.85) ³	E (0.94)	E (0.93)	n/a	n/a
2020 ALTERNATIVE 5	F (1.39)	F (1.39)	E (0.94)	E (0.99)	n/a	n/a
2020 ALTERNATIVE 6	D (0.84)	D (0.89)	D (0.88)	D (0.88)	C (0.78)	E (0.92)
2020 ALTERNATIVE 6-MODIFIED	D (0.84)	D (0.89)	D (0.88)	D (0.88)	C (0.78)	E (0.92)
2020 ALTERNATIVE 7	n/a ⁴	n/a ⁴	D (0.82)	D (0.87)	A (0.56)	B (0.65)

¹ Traffic analysis was completed using the SHA critical lane volume methodology, 2020 traffic forecasts provided by SHA Travel Forecasting, and lane configurations shown on the Alternatives mapping dated April 3, 2002.

² Volume distribution assumes that Thistlebridge Rd access is maintained on MD 97.

³ Assumes free right turn from southbound MD 97 to westbound MD 28.

⁴ This movement is dispersed through the two 'Tee' intersections, located east and west of MD 97. The levels of service range from C(0.72) for the AM peak east of MD 97, to E(0.92) for the PM peak west of MD 97.



Legend			
	Proposed Roadway		Preliminary Wetland Boundary
	Pavement Removal		Wetland Number
	Historic Property		Proposed Lane Movement
	Park Boundary		Property Line
	Proposed Bridge		Existing Right-of-Way Line
	Proposed Limit of Disturbance (LOD)		Business Displacements
	Residential Displacements		2020 Level of Service (V/C ratio)
	Retaining Wall		Proposed Bikeway
	Proposed Sidewalk		

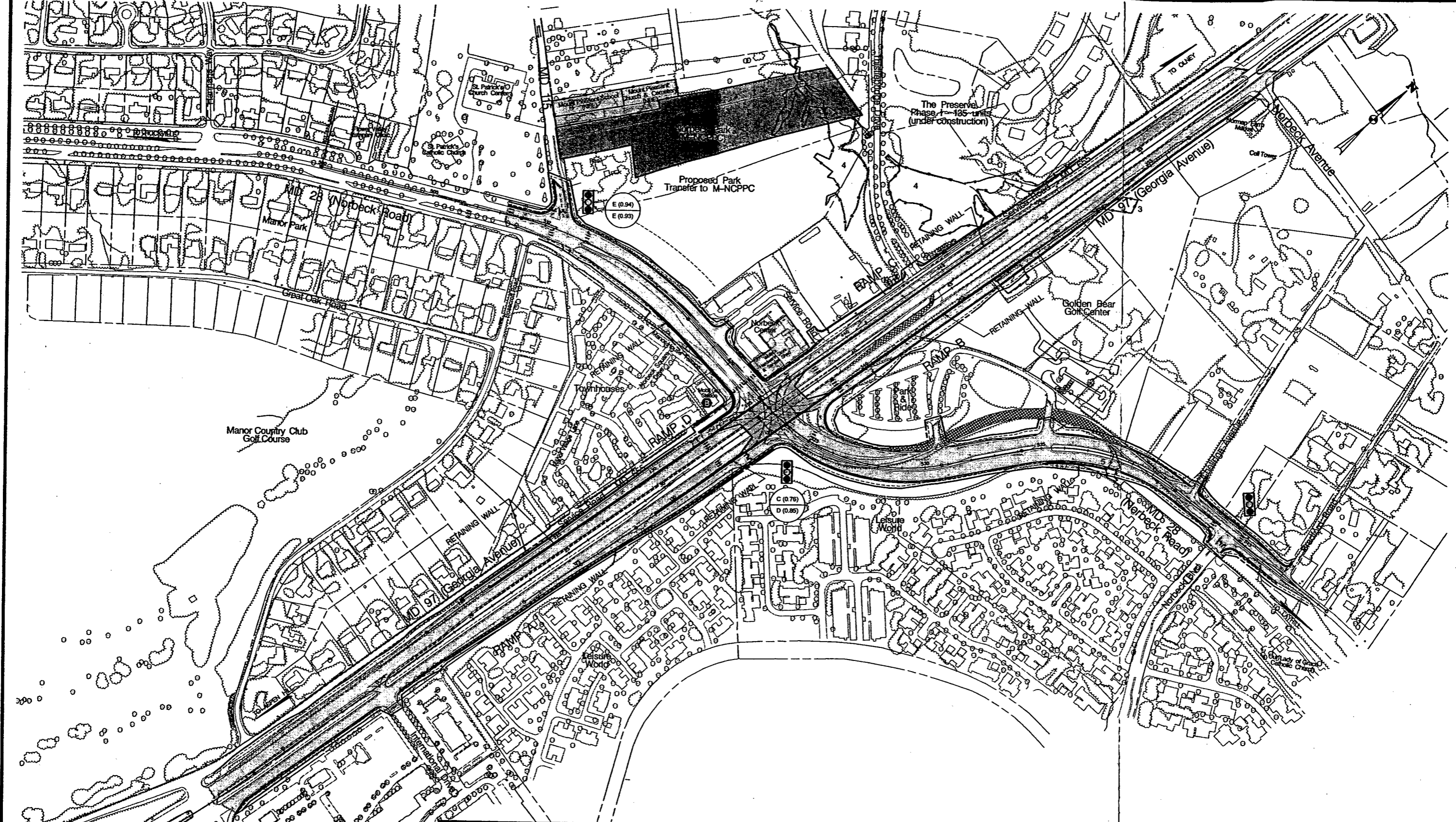
MD 28 & MD 97 Intersection Improvement Study

Environmental Assessment

Alternate 1 - No Build

Scale: 1" = 400'	Date: October, 2002	Figure: iii-1
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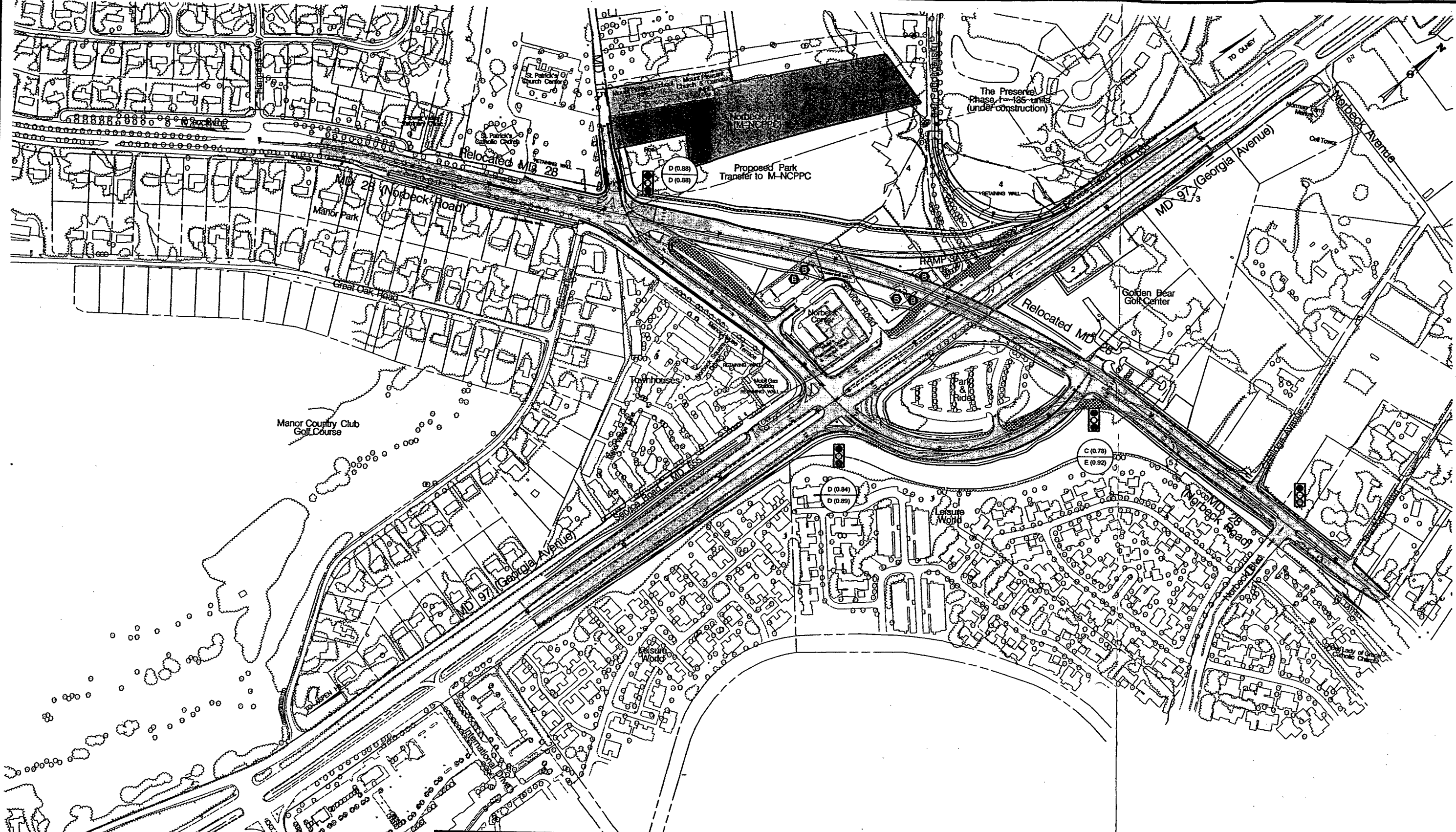
Legend			
	Proposed Roadway		Proposed Limit of Disturbance (LOD)
	Pavement Removal		Business Displacements
	Historic Property		Residential Displacements
	Park Boundary		Retaining Wall
	Proposed Bridge		Proposed Sidewalk
	Preliminary Wetland Boundary		2020 Level of Service (V/C ratio)
	Wetland Number		Proposed Bikeway
	Proposed Lane Movement		
	Property Line		
	Existing Right-of-Way Line		

**MD 28 & MD 97
Intersection Improvement Study**

Environmental Assessment

Alternative 2 - Single-Point Urban Interchange (MD 97 over MD 28)

Scale: 1" = 400'	Date: October, 2002	Figure: III-2
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Legend

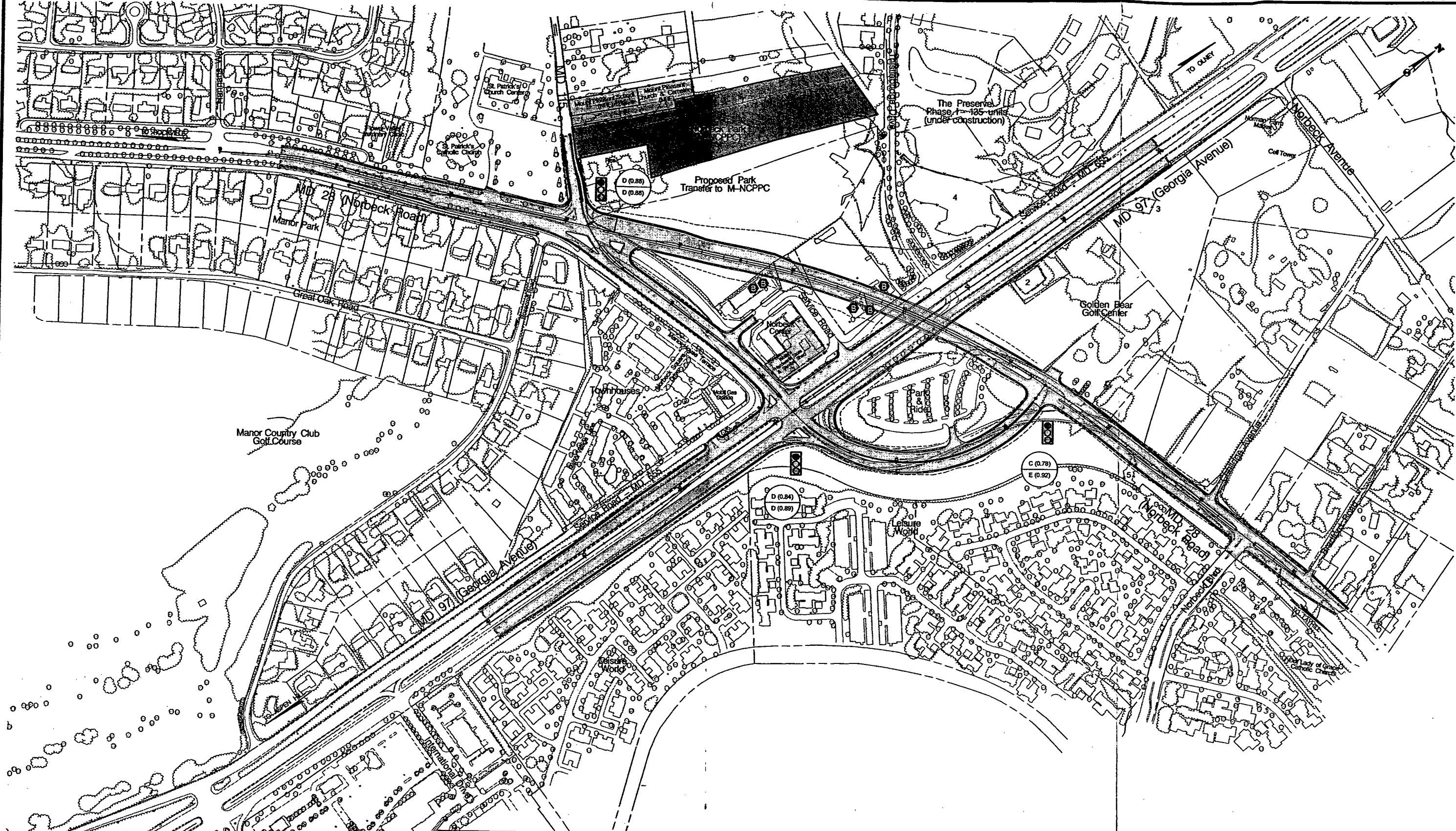
Proposed Roadway	Preliminary Wetland Boundary	Proposed Limit of Disturbance (LOD)
Pavement Removal	Wetland Number	Business Displacements
Historic Property	Proposed Lane Movement	Residential Displacements
Park Boundary	Property Line	Retaining Wall
Proposed Bridge	Existing Right-of-Way Line	Proposed Sidewalk
		2020 Level of Service (V/C ratio)
		Proposed Bikeway

**MD 28 & MD 97
Intersection Improvement Study**

Environmental Assessment

**Alternative 3 - MD 28 Relocated, with
Overpass of MD 97**

Scale: 1" = 400'	Date: October, 2002	Figure: III-3
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Legend

Proposed Roadway	Preliminary Wetland Boundary	Proposed Limit of Disturbance (LOD)
Pavement Removal	Wetland Number	Business Displacements
Historic Property	Proposed Lane Movement	Residential Displacements
Park Boundary	Property Line	Retaining Wall
Proposed Bridge	Existing Right-of-Way Line	Proposed Sidewalk
		2020 Level of Service (V/C ratio)
		Proposed Bikeway

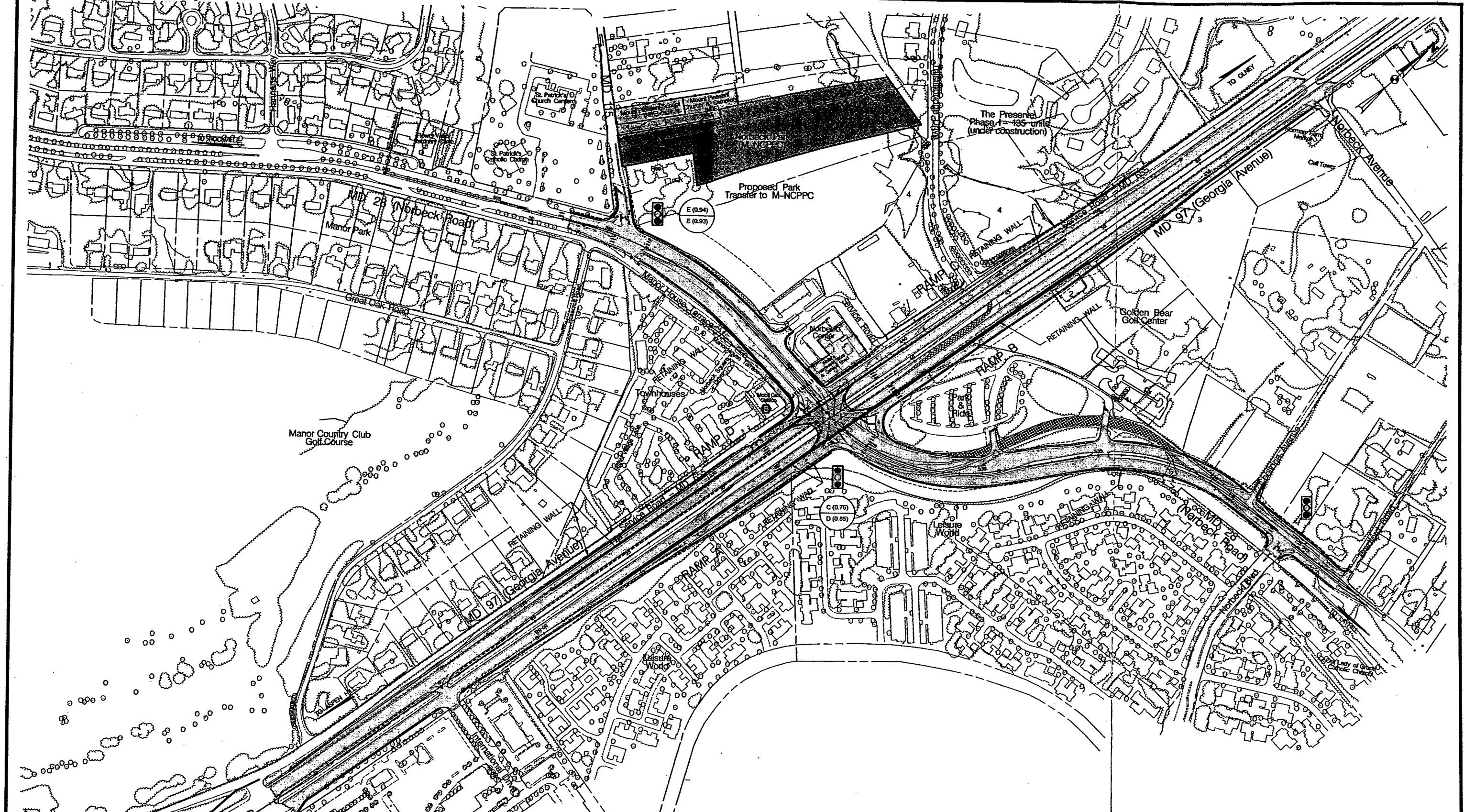
**MD 28 & MD 97
Intersection Improvement Study**

Environmental Assessment

**Alternative 3 - Modified
(Ramp A Eliminated)**

Scale: 1" = 400'	Date: October, 2002	Figure: III-4
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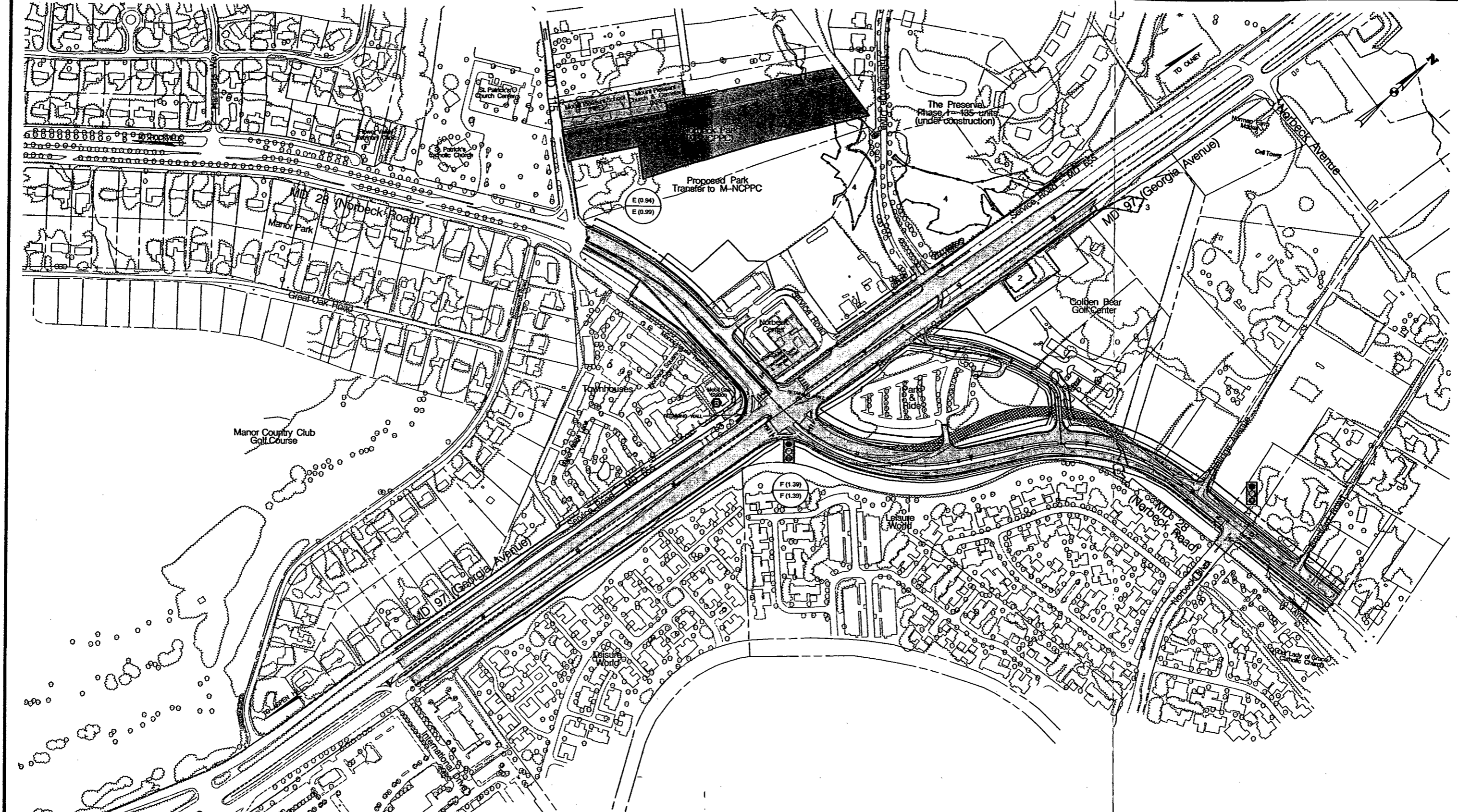
Legend			
	Proposed Roadway		Proposed Limit of Disturbance (LOD)
	Pavement Removal		Business Displacements
	Historic Property		Residential Displacements
	Park Boundary		Retaining Wall
	Proposed Bridge		Proposed Sidewalk
	Preliminary Wetland Boundary		2020 Level of Service (V/C ratio)
	Wetland Number		AM PEAK PM PEAK
	Proposed Lane Movement		Proposed Bikeway
	Property Line		
	Existing Right-of-Way Line		

**MD 28 & MD 97
Intersection Improvement Study**

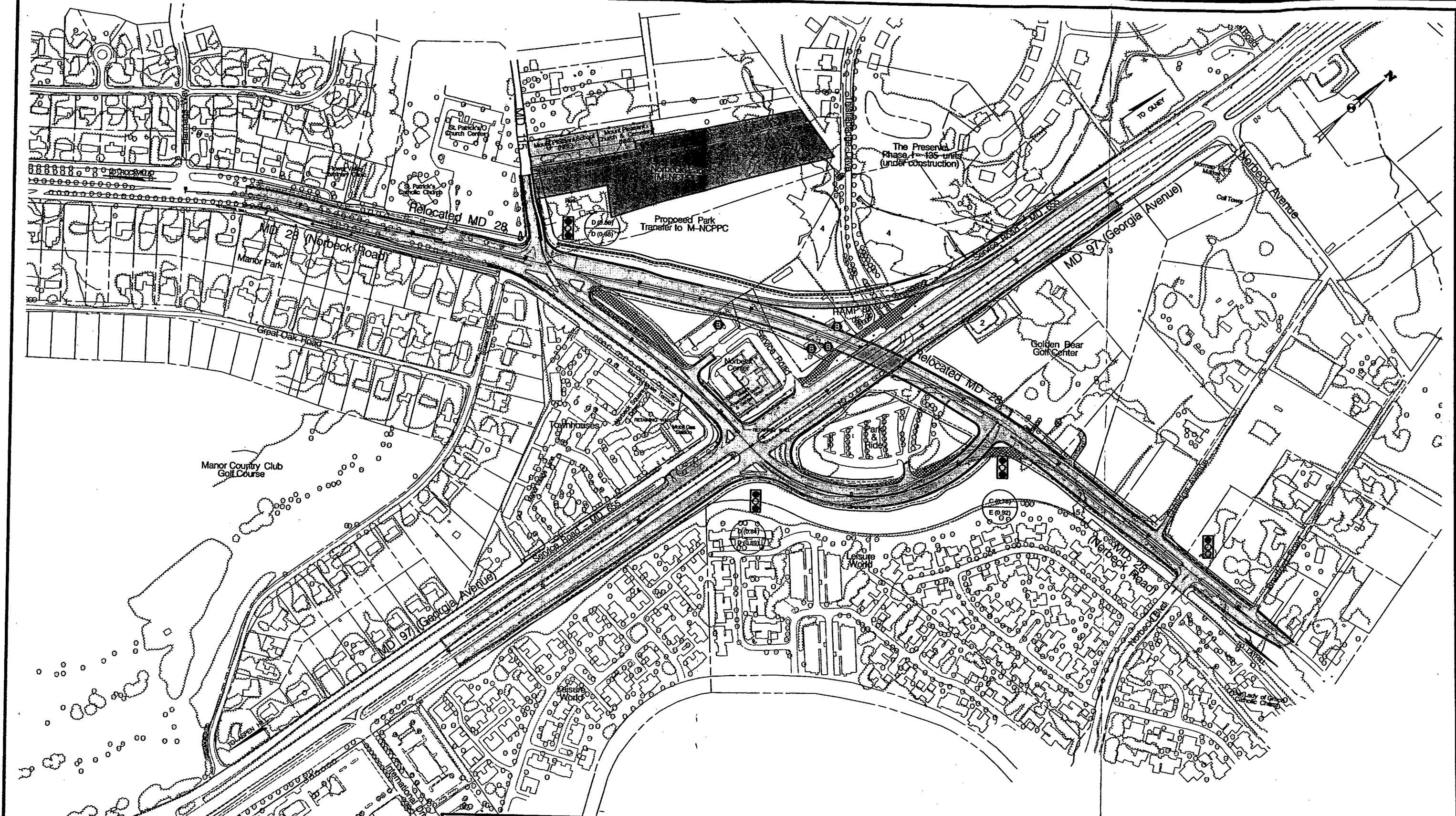
Environmental Assessment

Alternative 4 - Single-Point Urban Interchange (MD 97 under MD 28)

Scale: 1" = 400'	Date: October, 2002	Figure: III-5
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<p>Legend</p> <ul style="list-style-type: none"> Proposed Roadway Pavement Removal Historic Property Park Boundary Proposed Bridge Preliminary Wetland Boundary Wetland Number Proposed Lane Movement Property Line Existing Right-of-Way Line Proposed Limit of Disturbance (LOD) Business Displacements Residential Displacements Retaining Wall Proposed Sidewalk 2020 Level of Service (V/C ratio) Proposed Bikeway 			<p>MD 28 & MD 97 Intersection Improvement Study</p> <p><i>Environmental Assessment</i></p> <p>Alternative 5 - At-Grade Improvements</p>		
<p>Scale: 1" = 400'</p>		<p>Date: October, 2002</p>		<p>Figure: III-6</p>	



Legend			
	Proposed Roadway		Proposed Limit of Disturbance (LOD)
	Pavement Removal		Business Displacements
	Historic Property		Residential Displacements
	Park Boundary		Retaining Wall
	Proposed Bridge		Proposed Sidewalk
	Preliminary Wetland Boundary		2020 Level of Service (V/C ratio)
	Wetland Number		Proposed Bikeway
	Proposed Lane Movement		
	Property Line		
	Existing Right-of-Way Line		

**MD 28 & MD 97
Intersection Improvement Study**

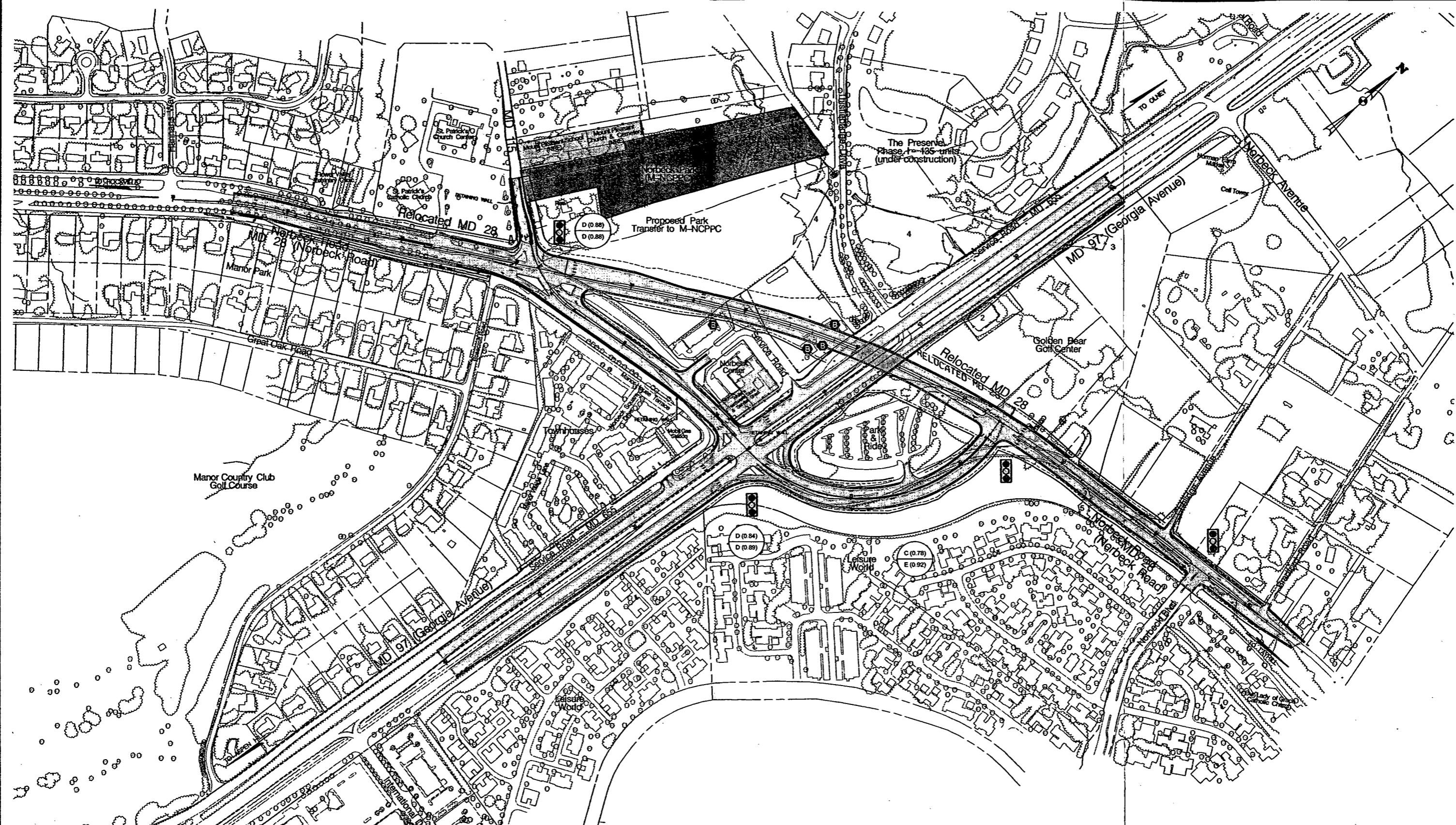
Environmental Assessment

Alternative 6 - MD 28 Relocated with Underpass of MD 97

Scale: 1" = 400'

Date: October, 2002

Figure: III-7



Legend

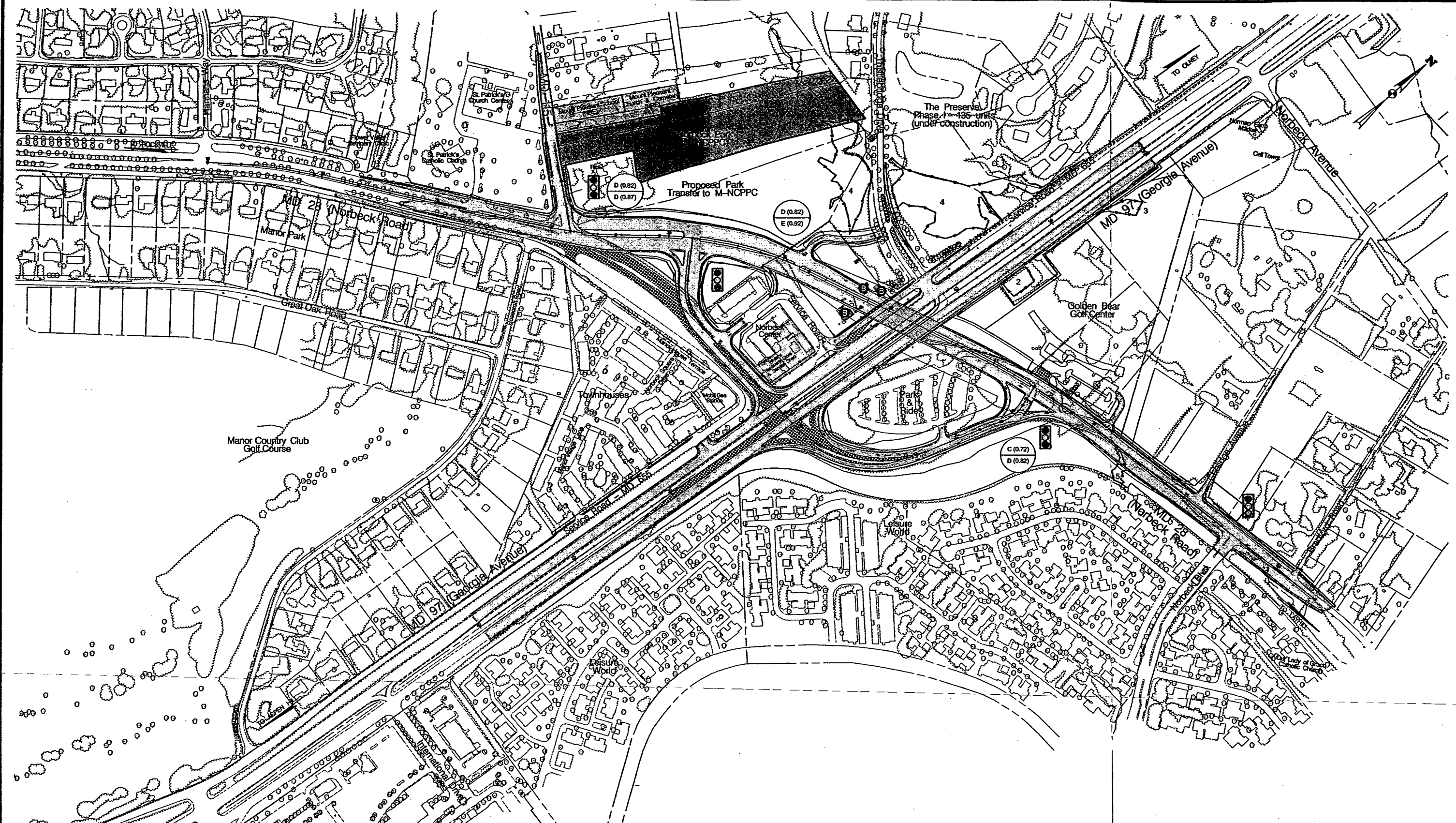
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|-------------------|------------------------------|-------------------------------------|
| Proposed Roadway | Preliminary Wetland Boundary | Proposed Limit of Disturbance (LOD) |
| Pavement Removal | Wetland Number | Business Displacements |
| Historic Property | Proposed Lane Movement | Residential Displacements |
| Park Boundary | Property Line | Retaining Wall |
| Proposed Bridge | Existing Right-of-Way Line | Proposed Sidewalk |
| | | Proposed Bikeway |

AM PEAK
 PM PEAK
 2020 Level of Service (VIC ratio)

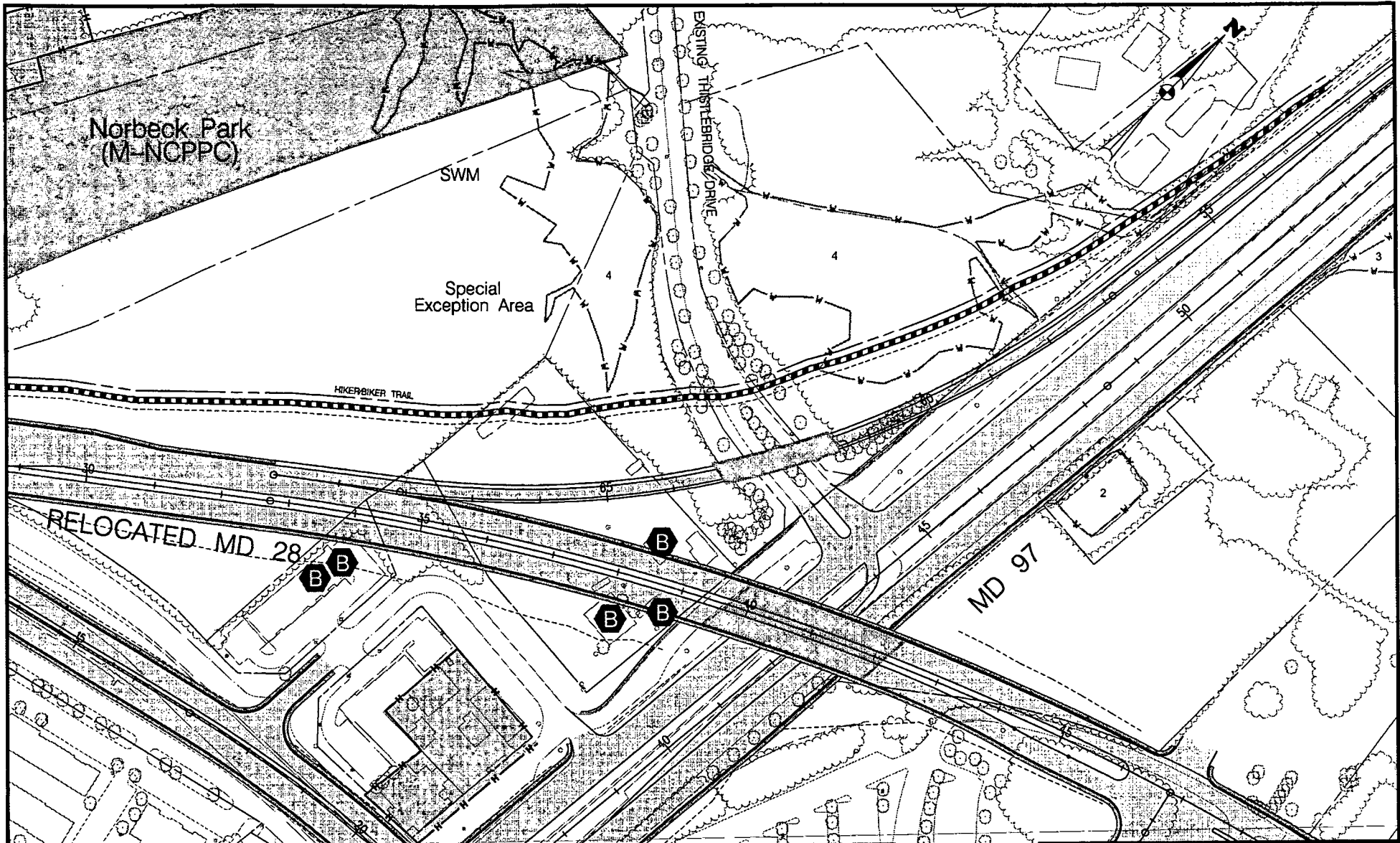
MD 28 & MD 97 Intersection Improvement Study

Environmental Assessment
Alternative 6 - Modified (Ramp A Eliminated)

Scale: 1" = 400' Date: October, 2002 Figure: III-8



<p>Legend</p> <ul style="list-style-type: none"> Proposed Roadway Pavement Removal Historic Property Park Boundary Proposed Bridge Preliminary Wetland Boundary Wetland Number Proposed Lane Movement Property Line Existing Right-of-Way Line Proposed Limit of Disturbance (LOD) Business Displacements Residential Displacements Retaining Wall Proposed Sidewalk 2020 Level of Service (V/C ratio) Proposed Bikeway 			<p>MD 28 & MD 97 Intersection Improvement Study</p> <p><i>Environmental Assessment</i></p> <p>Alternative 7</p>	
<p>Scale: 1" = 400'</p>		<p>Date: October, 2002</p>	<p>Figure: III-9</p>	



Legend

- | | | | | | |
|--|-------------------|--|------------------------------|--|-------------------------------------|
| | Proposed Roadway | | Preliminary Wetland Boundary | | Proposed Limit of Disturbance (LOD) |
| | Pavement Removal | | Wetland Number | | Business Displacements |
| | Historic Property | | Proposed Bikeway | | Residential Displacements |
| | Park Boundary | | Property Line | | Retaining Wall |
| | Proposed Bridge | | Existing Right-of-Way Line | | Proposed Sidewalk |

MD 28 & MD 97 Intersection Improvement Study		
Environmental Assessment		
Thistlebridge Drive Access Option 4		
Scale: 1" = 200'	Date: October, 2002	Figure: III-10

IV. DESCRIPTION OF EXISTING ENVIRONMENT

A. Social, Economic and Land Use

1. Social Environment

a. Population and Housing

The U.S. Census Bureau data for 2000 indicates that Montgomery County remains the most populous jurisdiction in the State of Maryland and that it is the second largest jurisdiction in the Washington metropolitan region. The county population grew by approximately 15% during the period from 1990 to 2000, from approximately 757,000 to 869,500 people. This increase was approximately 2% above previous estimates for 2000. Montgomery County's population is forecasted to reach 975,000 by 2010, an increase of 105,500 from the 2000 figure. This is slightly less growth than the county experienced during the 1990s when the county's population grew by about 116,000. By 2020, the population is forecasted to be 1,050,000 compared to 1 million in the previous forecast. This revised forecast shows a population growth of 75,000 from 2010 to 2020 compared to a growth of 55,000 in the previous forecast.

Baseline demographic information was obtained from the 2000 US Census of Population and Housing. The demographic analysis used census data that is presented for census tracts that represent geographic areas. Census tracts are sub-areas of counties.

The project area is located within census tracts 701303, 701308, 703202 and 703203, as shown in Figure IV-1. The census tract data is summarized in Table IV-1. This census tract data indicates that the populations in these tracts are approximately 2% of the total Montgomery County population. As depicted in Table IV-1, approximately 88% of the population within the project area is located south of MD 28. The project area consists of 82.1% Caucasian, 8.6% African American, 5.5% Asian, 1.3 % other races, 1.8% two or more races and 4.7% Hispanic.

Census tract 701308 not only had the largest percentage of minority population in the project area, 27%, but also had the lowest percent of total population with 12.4% of the census tracts. This compares with a 41.5% minority population for Montgomery County. Further information on minority and low-income populations appears in the Section IV.A.1.b on Environmental Justice.

The project area contained 40% of persons 65 years or older, compared with 8.8% elderly population for Montgomery County. Numerically, the elderly population is largest in census tract 703203 (5,811 persons), which encompasses Leisure World, a retirement community. Census tract 703203 also contains the largest concentration of persons, families and households within the project area. Nearly three-quarters of this tract is comprised of the elderly, while only 3.1% is comprised of those ages 20 through 49.

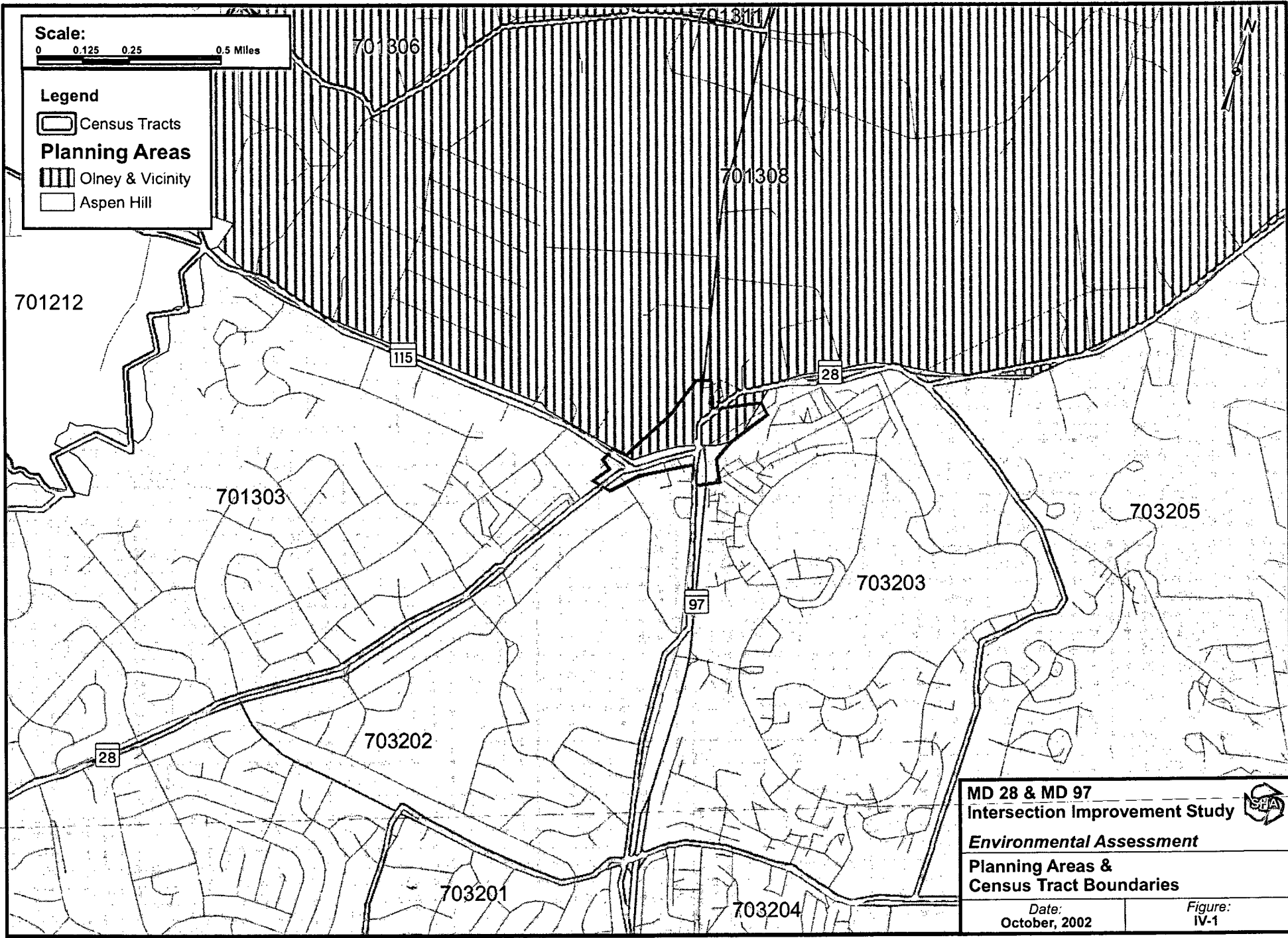
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**Table IV-1
Summary of Population in Study Area**

	Census Tract				Census Tract Totals	Montgomery County
	701303	701308	703202	703203		
Number of Persons	3,758	2,379	5,280	7,685	19,102	873,341
Number of Families	1,116	647	1,473	1,787	5,023	224,225
Number of Households	1,324	781	2,132	4,895	9,132	324,565
Median Household Income	\$117,749	\$129,424	\$85,964	\$46,079	\$94,804	\$71,551
White	3,195 85.0%	1,792 75.3%	4,296 81.4%	6,402 83.3%	15,685 82.1%	565,719 64.8%
African American	171 4.6%	274 11.5%	324 6.1%	880 11.5%	1,649 8.6%	132,256 15.1%
Asian	325 8.6%	218 9.2%	363 6.9%	136 1.8%	1,042 5.5%	98,651 11.3%
Native Hawaiian/Other	0 0.0%	1 0.0%	2 0.0%	1 0.0%	4 0.0%	412 0.0%
Other	20 0.5%	47 2.0%	168 3.2%	14 0.2%	249 1.3%	43,642 5.0%
2 or More Races	47 1.3%	47 2.0%	127 2.4%	126 1.6%	347 1.8%	30,117 3.4%
Hispanic	69 1.8%	103 4.3%	384 7.3%	341 4.4%	897 4.7%	100,604 11.5%
Study Area Total Minority	612 16.3%	643 27.0%	1200 22.7%	1484 19.3%	3,939 20.6%	362,452 41.5%
Age 0 thru 4	198 5.3%	129 5.4%	232 4.4%	101 1.3%	660 3.5%	56,757 6.5%
Age 5 thru 9	255 6.8%	161 6.8%	304 5.8%	129 1.7%	849 4.4%	50,475 5.8%
Age 10 thru 19	509 13.5%	394 16.6%	630 11.9%	237 3.1%	1,770 9.3%	86,153 9.9%
Age 20 thru 49	415 11.0%	359 15.1%	618 11.7%	236 3.1%	1,628 8.5%	386,775 44.3%
Age 50 thru 64	656 17.5%	377 15.8%	786 14.9%	440 5.7%	2,259 11.8%	99,782 11.4%
Age 65 and over	615 16.4%	233 9.8%	987 18.7%	5,811 75.6%	7,646 40.0%	77,085 8.8%

Hispanics have been double counted in the sense that while they appear as a separate category, they have also been included within the White, African American, Native American, Asian or Other categories.

Source: Various 2000 Census Quick Tables



Montgomery County contained 324,565 households in 2000 with an average household size of 2.66 persons. By the year 2020, the number of households is projected to reach 393,000 an increase of 17% over the 2000 figures. The number of households is expected to increase while the County household size is expected to decline slowly through 2025.

Median household income levels for census tracts in the project area range from \$46,790 to \$129,424. This compares with a 2000 median household income of \$71,551 for Montgomery County as a whole. Census tract 703203, which is located in the southeast quadrant of the project area, has the lowest median household income, while census tract 701308 has the highest median household income.

Based on the 2000 Census data, the county contained 334,632 housing units of which 51.2% were one-unit detached homes (single family), 17.9% were one-unit attached homes (townhouses) and 23.4% were 'ten or more' unit homes (presumed apartment and condominium complex). The county median housing price is \$221,800.

b. Environmental Justice

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (EJ)*, signed on February 11, 1984, reaffirms the principles of Title VI. The Executive Order requires that each Federal agency project identify and address, any disproportionately high and adverse impact on minority and/or low-income populations resulting from alternates under consideration and to provide opportunity for participation in the public involvement process.

"Minority" populations, as defined by the U.S. Census Bureau, include those persons of African American (non-Hispanic), Asian, Native Hawaiian/Other Pacific Islander, Two or More Races, Hispanic, or Other (i.e. American Indian or Alaskan native descent). "Low-income" populations are defined as persons whose median household income is at or below the U.S. Department of Health and Human Services poverty threshold for a four-person household for the year 1999.

Baseline demographic information from the 2000 U.S. Census was used to identify the locations of minority and low-income populations (See Table IV-1). The census tract data was compared to county totals to identify concentrations of minority and low-income populations.

The percentage of minority populations in each of the census tracts ranges from 16.3% to 27% with a combined total for the project area of 20.6%. This amount is substantially smaller than the overall number of minorities in Montgomery County, which is 41.5%. Further, two of the four census tracts (701308, 703202) exceeded the average minority population for the project area (20.6%), however, none of the project areas' census tracts contain a "meaningfully greater" percentage of minority populations than the average percentage in the project area. Census tract 701308 had the largest percentage of minority populations with 16.8% compared to the project area average of 20.6%. (As shown in Table IV-2, census tract 701308 had the highest median household income in the project area).

Additional efforts to evaluate whether low income and minority populations occur within the project area, included analysis of information obtained from the Flower Valley Elementary School as well as community involvement initiatives sponsored by the project team. The Flower Valley Elementary School boundary includes the MD 28/MD 97 intersection and during the 2001-2002 school year enrolled 443 students. Of that amount, 33% were minority populations as defined by the Environmental Justice Executive Order, 14% participated in the free and reduced priced meals program (the criteria for this program is based on household size and income) and 4% were enrolled in the English for speakers of other languages program. The community involvement efforts for this project included representatives from minority communities at both the Community and Focus Group meetings. The project team held individual meetings with each of the communities (The Preserve, Leisure World, Flower Valley and Manor Village) located within the study area as well as a separate meeting with the business community. All of these meetings discussed a variety of elements associated with the project.

Within the project area, the median household income levels range from \$46,079 to \$129,424. Census tract 703203, which is located in the southeast quadrant of the project area, has the highest population and the lowest median household income. As depicted in Table IV-2, census tract 703203 also had the highest percentage of low-income households with 14.7% compared to the project area, which was 9.7%.

**TABLE IV-2
SUMMARY OF LOW-INCOME HOUSEHOLDS IN THE PROJECT AREA**

Census Tract	701303	701308	703202	703203	Totals
Number of Households	1,324	781	2,132	4,895	9,132
Median Household Income	\$117,749	\$129,424	\$85,964	\$46,079	\$94,804
Low-Income Households (all ages)	12	14	117	374	517
Percent of Families	.9%	1.8%	2.4%	4.1%	2.3%

Note: "Low-Income populations are defined as persons whose median household income is at or below the U.S. Department of Health and Human Services 1999 poverty threshold of \$16,700 for a family of four.

Source: 1999 Health and Human Services Poverty Guidelines

SHA has encouraged public participation and conducted outreach throughout the planning study. Among the purposes of the public involvement process is to provide information and generate participation/input on the project by all potentially affected community members including minority and low-income populations in the decision-making process. An Alternates Public Workshop was held on September 7, 2000 at Bauer Drive Recreational Center. Notices were distributed to a mailing list that included property owners and residents within the project area. The list includes churches, elected officials, community associations, and businesses. Approximately 200 people including local residents, community leaders, elected officials, and county representatives attended the workshop. Public comments ranged from concerns regarding access to St. Patrick's Church to issues about noise impacts. Section VII of this document contains a summary of comments received at the Alternates Public Workshop.

A Focus Group that comprises local residents, community leaders, business owners and transportation activists was established in 1999 and continues to meet regularly with the study

team to provide input into the development of concepts for improvements to the MD 28/MD 97 intersection and to discuss local traffic circulation, access and aesthetic concerns. Comments and suggestions received from the Focus Group have been evaluated and incorporated into the preliminary concepts, where possible.

c. Communities Within the Project area

The project area is small enough that only a few residential communities exist within it. Each quadrant within the project area, with the exception of the northeast quadrant, contains a residential community.

Rossmoor/Leisure World is a retirement community located within the southeastern quadrant of the MD 28/MD 97 intersection. Originally built in 1966, the community has grown to be one of the largest senior communities on the east coast with over 7,000 residents. It is a large, self-sufficient retirement community spread throughout several hundred acres south and east of the MD 28/MD 97 intersection. The community consists of patio and townhouse style homes along with multi-level apartment style condominiums, all built around a golf course. Future plans include a second high-rise luxury condominium building to accompany the recently constructed condominium. The second building is currently under construction. Free shuttle bus service is provided throughout the Leisure World community and to and from nearby shopping centers and other points of interest.



existing condominiums within Leisure World

Manor Village is an established town home and condominium community located within the southwest quadrant of the MD 28/MD 97 intersection. There is direct access to MD 28 via Manor Terrace, and to MD 97 southbound via a service road, MD 655.

Manor Park is an established community comprised primarily of single-family houses. The community is located within the southwestern quadrant of the intersection, immediately south of Manor Village. Access is via MD 655, Norbeck Road and Bel Pre Road. The Manor Country Club and a public park (Manor Park) are located within the project boundary.

The Preserve is a new single-family home development that is currently under construction. This development is located within the northwestern quadrant of the MD 28/MD 97 intersection. The current phase of 135 homes is nearing completion. The second phase of construction will add an additional 45 homes. All access to MD 97 is currently via Thistlebridge Drive.

d. Community Facilities and Services

There are a limited number of community facilities within the project area. However, there are no schools, police and fire stations, or libraries are located within the project area (see Figure IV-2).

1. Parks and Recreational Areas

The Norbeck-Muncaster Mill Neighborhood Park (Norbeck Park) is located in the northwest quadrant of the project area and is under the jurisdiction of the Maryland-National Capital Park and Planning Commission (M-NCPPC). This 6.3-acre local park is located north of Muncaster Mill Road. The park has a community building, picnic and playground areas, lighted basketball court and a small softball field. The M-NCPPC has plans to expand the park to the east to include additional facilities, and possibly the construction of a soccer/lacrosse field.

The Golden Bear Golf Center is a privately owned golf driving range that is located in the northeastern quadrant of the project area and is accessed via the east leg of MD 28. Because this facility is privately owned, it could not be considered a Section 4(f) resource. The entrance to this facility shares an access point with the northern entrance to a 248-space park and ride lot.

2. Religious Institutions

Two places of worship are located within the project area – Saint Patrick’s Parish and Waves of Glory Worship Center. Saint Patrick’s Parish is located in the southwest quadrant of MD 115 (Muncaster Mill Road) and MD 28. Waves of Glory Worship Center is located on the north side of MD 115 near the intersection with MD 28.

3. Education/Library

Flower Valley Elementary School, Earle B. Wood and William Farquhar Middle School, and Colonel Zadok Magruder High School are the public schools zoned for the project area. The nearest library is the Aspen Hill Branch of the Montgomery County Library System, located approximately 2.5 miles to the south, along Aspen Hill Road.

4. Health Care Facilities

The nearest hospital is Montgomery General Hospital, located in Olney, roughly 3.5 miles to the north of the MD 28/MD 97 intersection.

5. Emergency Services

Fire rescue service for residents within the project area is provided by the both the Kensington Co. #25 and Sandy Spring Co. #40 stations, as part of the Montgomery County Fire Department. Both stations are approximately 1.5 miles from the MD 28/MD 97 intersection. The Montgomery County Police Department has jurisdiction throughout the area.

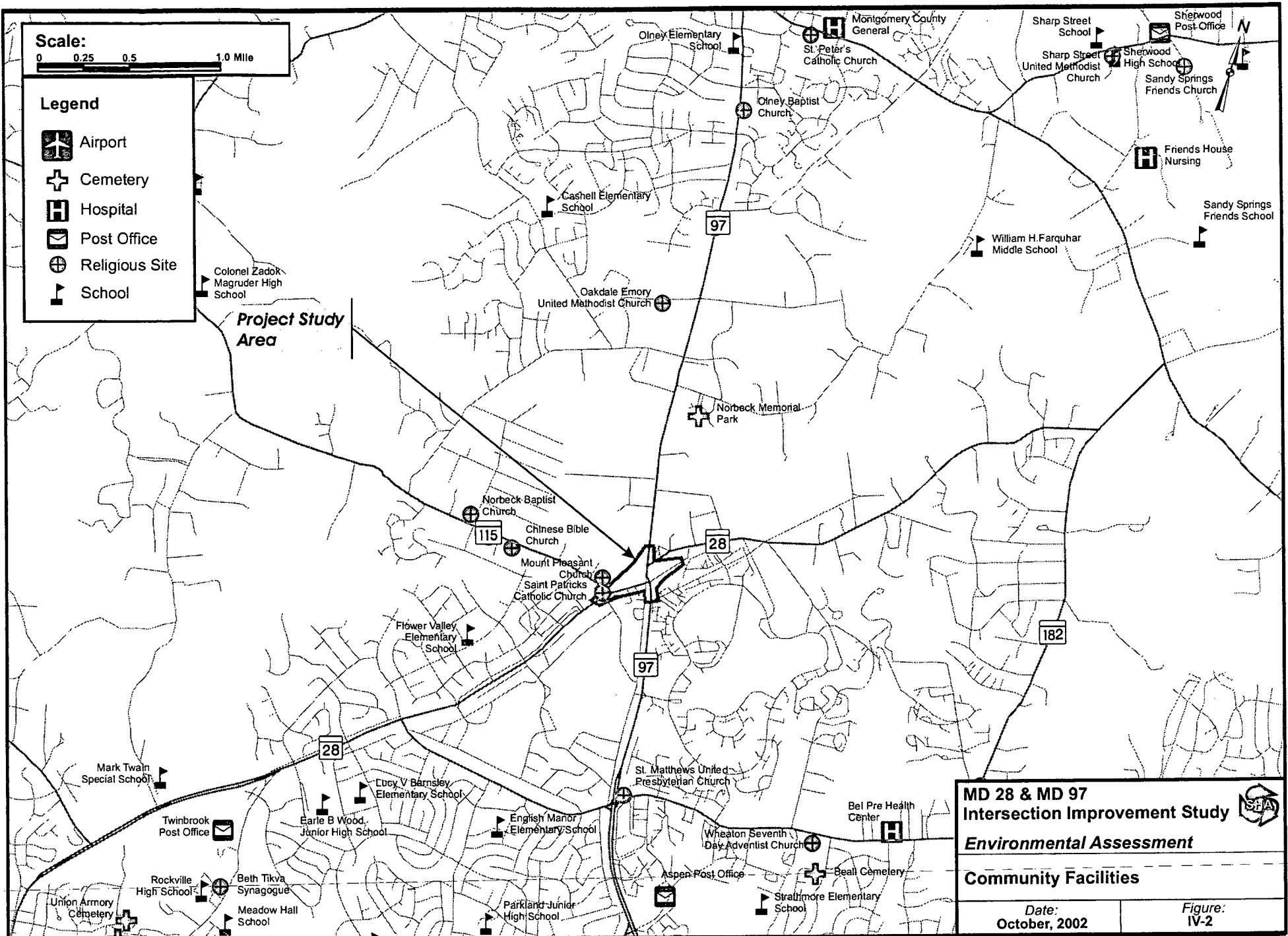
Scale:
 0 0.25 0.5 1.0 Mile

Legend

-  Airport
-  Cemetery
-  Hospital
-  Post Office
-  Religious Site
-  School

Colonel Zadok Magruder High School

Project Study Area



MD 28 & MD 97 Intersection Improvement Study	
Environmental Assessment	
Community Facilities	
Date: October, 2002	Figure: IV-2

2. Economic Environment

a. Countywide Employment Characteristics

Montgomery County currently has a population of approximately 870,000 and in 1997, there were roughly 464,100 jobs based there, making it Maryland's largest employment center. The transportation network is essential to the success of the county and is a top priority. The county is strategically located within the region and has easy access to three major airports - BWI, Reagan National and Dulles International. Amtrak, MARC, and Metro provide rail service into the county as well as connections to a well-established network of bus service that provides mobility for many.

Based on the Montgomery County At-Place Employment, Round 6.3 Forecast information gathered by M-NCPPC's Research Information Center, the labor force in Montgomery County grew by 3.5%, from 448,290 to 464,100 persons during the period 1990-1997. By 2025, the county's labor force is expected to reach 685,000, which is an increase of 46.5% over 1997. In April 2000, the county's unemployment rate was 1.4%.

The 1997 Census Update Survey revealed that 57.9% of the county residents work within the county while 23.6% work in Washington, D.C. The Update Survey also indicated that of the county's total number of employees, 35.8% were employed in professional and related services (scientific and technical), 21.5% were in executive/managerial positions, 12.7% provide support (administrative/clerical) services while the remainder of the employees provided "other" services.

There are four types of employers located within Montgomery County according to the 1997 Census Update Survey and they are: Private industry (49.7%); Government (25.8%); Non-Profit (13.2%) and Self Employed (13.2%). The Montgomery Business Gazette stated that some of the largest employers - both public and private, located in the county include: National Institute of Health, Naval Medical Command, National Institute of Standards and Technology, Marriott International, Adventist Health Care, Giant Foods, Inc., Bell Atlantic MD, Hughes Network Systems, IBM, Lockheed Martin Corporation, Sodexho Marriott Services, Holy Cross Health and Claims Administration Corporation.

Table IV-3 illustrates the employment characteristics of Montgomery County as well as the project area.

b. Local Employment Characteristics

As depicted in Table IV-3, the project area (census tracts 701303, 701308, 703202, 703203) employment characteristics are very close to the overall county's characteristics. Based on the 2000 U.S. Bureau of Census data for the project area, an average of 59.48% of the employees are in management/professional services area, 26.4% are employed in sales/office positions and 24.80% are government (local, state or federal) workers.

The detailed 2000 Census information was not available, however, the 1997 Census Update Survey was conducted for the specific planning areas (not specific tract). Data obtained from the 1997 Census for the entire Aspen Hill Planning Area indicate that, of all those employed, 61.5% work within the county, 7.7% commute elsewhere in Maryland, and 21.6% commute to work in Washington, D.C. Of those who drive to work (approximately 86.3% of the labor force) 75.1% drive alone and 11.2% carpool to their place of employment. The data indicate approximately 10.5% use public transit or rail.

Labor force characteristics are similar for the Olney & Vicinity Planning Area according to the 1997 Census Update Survey. Of all those employed, 63.5% work within Montgomery County, 12.4% work elsewhere in Maryland, and 16.5% commute to work places in Washington, D.C. The data indicate that 88.5% of the employed population drive to work and 7.1% take public transit or rail to get to work. Of those who drive, 78.8% drive alone and 9.7% carpool.

Table IV-3
Summary of Employment Characteristics in Study Area

	Census Tract				Study Area Total	Montgomery County
	701303	701308	703202	703203		
Management / Professional Services	68.30%	58.60%	64.70%	46.30%	59.48%	56.60%
Service	5.40%	6.80%	6.50%	12.50%	7.80%	11.50%
Sales and Office	22.30%	24.90%	24.10%	34.30%	26.40%	22.00%
Farming, Fishing & Forestry	0.00%	0.00%	0.00%	0.00%	0.00%	0.10%
Construction & Maintenance	1.80%	4.90%	2.90%	1.80%	2.85%	5.20%
Production and Transportation	2.20%	4.80%	1.90%	5.10%	3.50%	4.60%
Agriculture	0.20%	0.00%	0.00%	1.50%	0.43%	0.20%
Manufacturing	4.50%	6.80%	3.60%	1.90%	4.20%	4.30%
Government Workers	32.30%	21.10%	25.60%	20.20%	24.80%	21.70%

Source: 2000 Census Information - detailed breakout information is currently unavailable.

3. Land Use

a. Existing Land Use

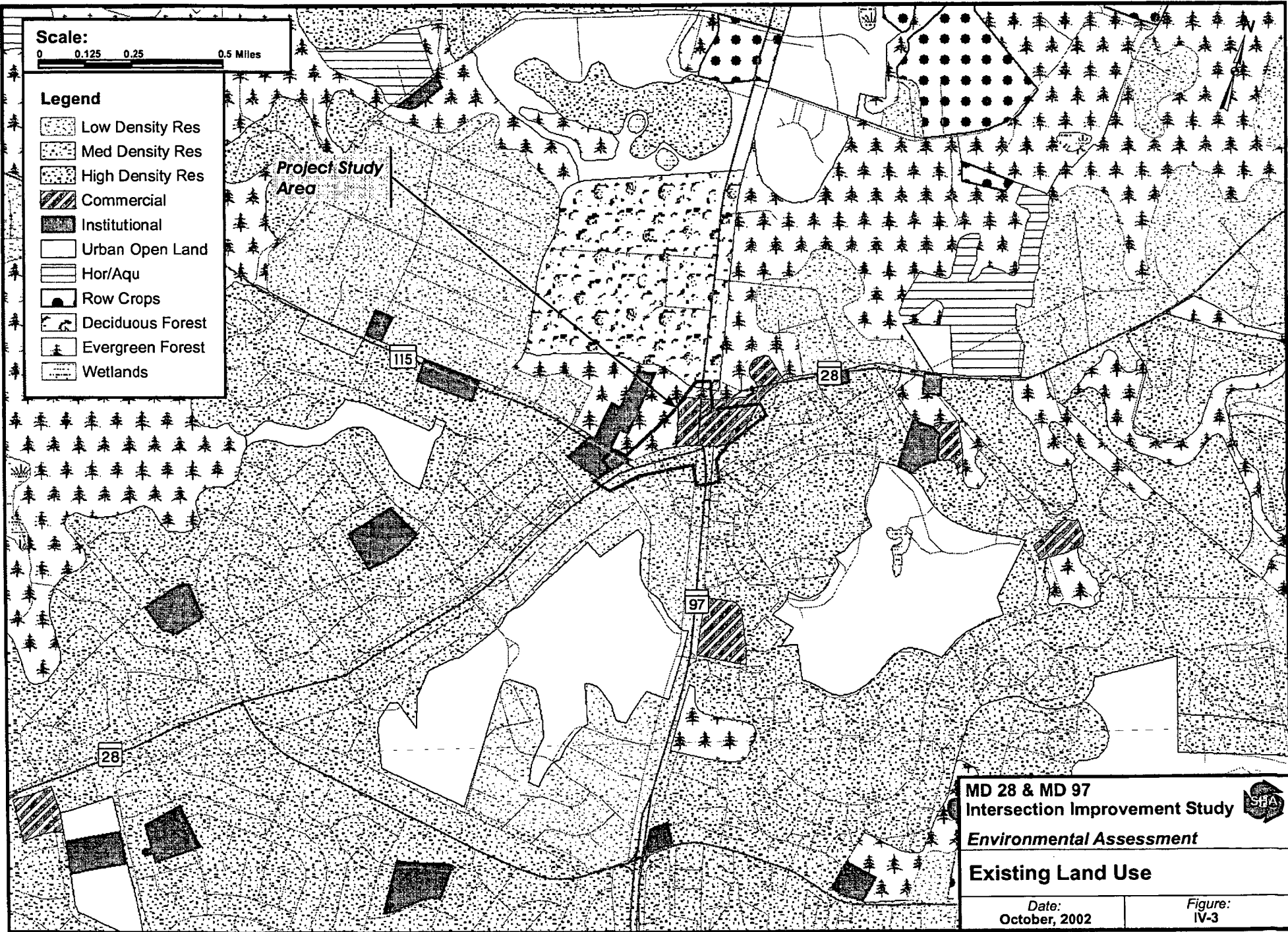
The existing land use characteristics within the project area include a combination of low-density residential, low to medium density residential and commercial uses. The residential uses are located both north and south of MD 28, while the commercial use is located on the west side of MD 97. Figure IV-3 depicts the land use within the project area.

The M-NCPPC is a bi-County (Montgomery and Prince George's) agency with responsibility for the development of local plans, recommendations on zoning amendments, administration of subdivision regulations and general administration of parks. To carry out these responsibilities, M-NCPPC has divided the counties into planning areas. The project area for the proposed MD 28/MD 97 intersection improvements contains portions of both the Aspen Hill and Olney and Vicinity Planning Areas. Muncaster Mill Road and Norbeck Road (MD 28) act as the boundary between the two planning areas, with the Aspen Hill Planning Area on the south and the Olney and Vicinity Planning Area on the north. The Planning Areas and the 2000 census tract boundaries for the project area are shown in Figure IV-1.

The Aspen Hill Planning Area is approximately 13.2 square miles, which is 2.7% of the total land area of Montgomery County. The planning area is situated between the urbanized areas of Wheaton and Rockville and the low-density areas of Olney and Cloverly. The regional function is defined as an urban-suburban-transitional area, or a suburban community. The predominant land use in the Aspen Hill Planning Area is residential, ranging from detached homes on large and small lots to townhouses, garden apartments and high rises. Within the project area, residential developments dominate the land use with Leisure World and Manor Village located in the southeast and southwest quadrants of the MD 28/MD 97 intersection.

The Olney Planning Area is approximately 46.9 square miles, which is 9.4% of the total land area of Montgomery County. The Olney Planning Area's land use is also predominantly residential, with the majority of new development within the northern portion of the project area. Several commercial and retail developments are located in the project area within the northwest quadrant.


The majority of the existing commercial and retail businesses within the project area are located to the west of MD 97. White's Hardware Store and Residences are a combination of commercial and residential buildings that were identified by the Maryland Historical Trust (MHT) as being eligible for inclusion in the National Register of Historic Places as an example of a late nineteenth/early twentieth century commercial/residential complex. White's Hardware Store and Residences are located within the northwest quadrant of the MD 28/MD 97 intersection. Behind White's Hardware Store and Residences is the Norbeck Center, which is a retail/commercial plaza. The Norbeck Center is comprised of six eateries/restaurants; a realty office, a hair salon, a dry cleaners, a liquor store, a cosmetics store and a business supply store. Other retail businesses are located adjacent to the Norbeck Center, including Sherwin Williams Enterprises and The Tire Depot, Inc.



Scale:
 0 0.125 0.25 0.5 Miles

- Legend**
- Low Density Res
 - Med Density Res
 - High Density Res
 - Commercial
 - Institutional
 - Urban Open Land
 - Hor/Aqu
 - Row Crops
 - Deciduous Forest
 - Evergreen Forest
 - Wetlands

Project Study Area

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Existing Land Use

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 October, 2002

Figure:
 IV-3

85

A Mobil service station is located within the immediate southwest quadrant of the MD 28/MD 97 intersection.

Pictures of Existing Land Uses within the Project area



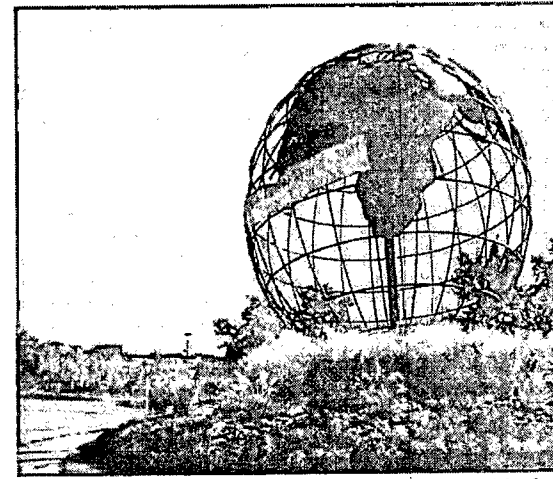
Mobile Service Station



White's Hardware Store and Residences

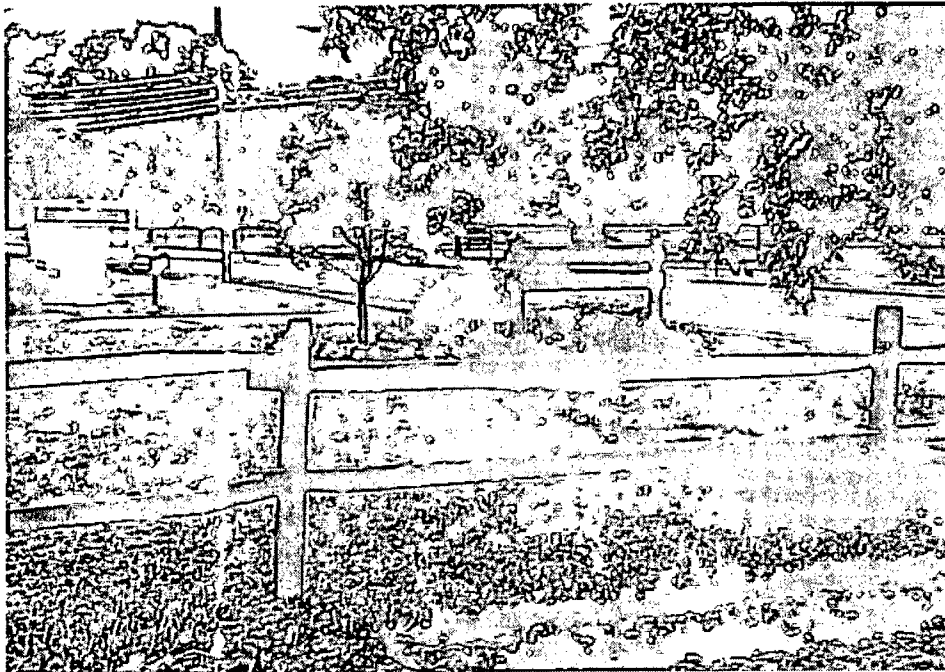


Entrance to the Golden Bear Golf Center from MD 28

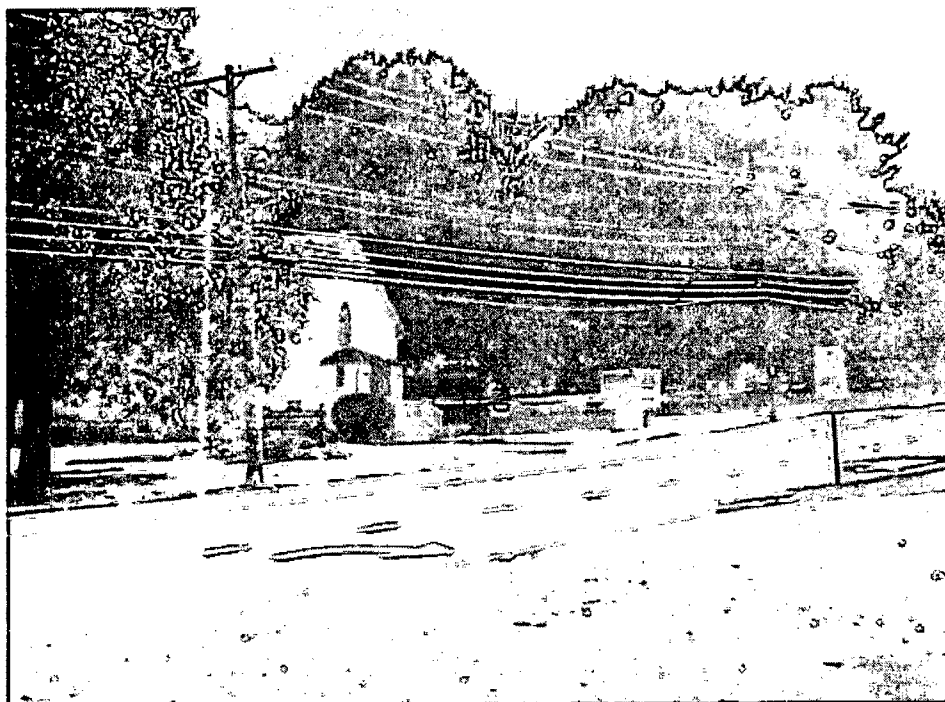


Leisure World Entrance from Rossmoor Blvd

Located along MD 115, are two sites that are eligible for inclusion in the National Register of Historic Places (NRHP) – Mount Pleasant Church and Cemetery and Mount Pleasant School. These facilities are significant because they served as the community parish in both the 19th and 20th century and as an example of one of the earliest African American schools in the county. Also, an entrance to Norbeck Park is located along the roadway. More detailed information is provided in Chapter VI (Comments and Coordination).



Norbeck Park entrance off of MD 115



Waves of Glory Worship Center (Mount Pleasant Church Historic Site)

b. Future Land Use

Land use plans and recommendations are contained in the respective master plan for each planning area. The most recent master plans referenced for this study are the Aspen Hill Master Plan (April 1994) and the Olney Master Plan (June 1980). The master plans for each planning area contain specific recommendations for future land use.

According to current data available through Montgomery County, maximum housing development densities were reached in 2001 within the southern portions of the Olney Planning Area and in 1989 for the Aspen Hill Planning Area. Based on recommended densities in the Master Plan, the maximum theoretical capacity in Olney is 10,800 housing units. As a result, a moratorium is currently in place to restrict new residential subdivisions within the vicinity of the MD 28/MD 97 intersection. Enacting a moratorium on development is guided by the county's Annual Growth Policy (AGP). Proposed developments are tested to determine the maximum amount of development that can be accommodated by the transportation network. This moratorium is in place until a sufficient amount of capacity, as determined by the M-NCPPC, is added to the roadway network servicing the area.

Aspen Hill Master Plan

The most recent Aspen Hill Master Plan was approved and adopted in April 1994. The planning area boundary for Aspen Hill and vicinity are: Muncaster Mill and Norbeck Road to the north, Rock Creek Regional Park in the west, Henson State Park to the south and Northwest Park to the east. The plan reinforces the primarily suburban and residential character of the community by retaining its residential zoning with relatively few changes. The plan also seeks to increase opportunities for community interaction in order to reduce the social and sometimes physical isolation of various neighborhoods through both public investment and physical designs of private activity. While creating this plan, other planning initiatives were incorporated such as the visions from the Economic Development, Resource Protection, and Planning Act of 1992 (the Planning Act) and the 1993 General Plan Refinement which provides clear guidance regarding the general pattern of development in Montgomery County, while retaining enough flexibility to respond to unforeseeable circumstances as they arise.

The Aspen Hill community is a maturing suburb that has a large built out residential area with a wide range of residential densities and a large employment area. Based on these factors, the current land use patterns project that they will remain the same, as relatively few acres are available for future development. The land use objectives obtained from the Master Plan indicate: encourage the protection, enhancement and continuation of current land use patterns; protect and reinforce the integrity of existing residential neighborhoods; and preserve and increase the housing resources in support of Montgomery County housing policies.

According to the 2000 census information, the population within the Aspen Hill community have decreased from 54,612 in 1990 to 50,228 in 2000. The population of the elderly community, defined as aged 65 or older, was 6,295 based on the 2000 census. This can probably be attributed to the overall aging population as well as the expansion of facilities within the Leisure World community.

In the Master Plan, future land use discusses substantial parcels or areas that are recommended for a change in zoning and points out issues that should be investigated at a later time. The plan also supports the retention and reconfirmation of existing public facility sites in the area and existing zoning for the developed, and undeveloped land, except for those sites recommended for a change in this plan. Generally, these changes are in the types of zoning for the area and reflect the desire for infill development.

Olney Master Plan

The Olney Master Plan was last approved and adopted in June 1980. The M-NCPPC initiated an update/amendment to the Plan in July 2001. According to the current schedule presented on the Montgomery County Planning Board internet website, the final approval of the Plan update by County Council is expected in December 2003. The website summary also indicated that the Planning Board approved the *Purpose and Outreach Strategy Report dated March 7, 2002* prepared as an initial effort in the update process. This report provides an assessment of the issues to be addressed in the next phase of the Olney Master Plan update/amendment. It proposes to update the Plan without major changes in the fundamental structure or basic principles of the 1980 Master Plan. The update will focus on physical planning issues, including land use, zoning, transportation, environment and community facilities.

The 1980 Olney Master Plan proposes “a residential satellite community surrounded by open space.” The plan also proposes a program to “preserve prime farmland and a Town Center Urban Design to strengthen community identity.” To retain Olney’s semi-rural atmosphere, single-family homes are the predominant housing type proposed in the plan. Along the boundary that encompasses the MD 28/MD 97 intersection, the plan recommends residential densities of 1-acre lots west of Georgia Avenue and 2-acre lots east of Georgia Avenue. For planning purposes, the Olney Planning Area is divided into three sub-planning areas within the Master Plan document:

- o Town Center
- o Greater Olney
- o Rural Area and Rural Community.

The Proposed Land Use Map contained in the Master Plan defines the following land use classifications for the area surrounding the project area as: Institutional, Rural Residential, Commercial/Office, and Park. Other highlights of the 1980 Plan include the following land use initiatives:

- o Maintains the low-density residential character in the southeast quadrant of the planning area.
- o Proposes a rural cluster option in the southeast portion of the planning area.
- o Discourages strip commercial development along Georgia Avenue and MD 108.
- o Provides a buffer of low-density residential uses between lower Georgia Avenue and Olney Town.

Less than 10,000 people lived in the Olney Planning Area in 1960. In 1970, there were over 20,000. Growth forecasts contained in the Olney Master Plan projected a population

between 25,500 and 31,600 for 1995. The 1997 Census Update Survey estimated a population of 33,290. Most of the new development to accommodate this growth has been in the southern portion of the planning area. The northern portions of the planning area are still primarily agricultural. At the southern edge of the Olney Planning Area is the Norbeck community. The 1980 Plan indicated that land use modifications would be necessary should an east/west connection be built because of the potential development pressures that could occur within the Olney Planning Area. Also, demand for commercial uses near a proposed interchange and along Georgia Avenue could occur. The Plan recommends "that residential, not commercial, uses be located near the proposed interchange."

Recent subdivision development has occurred with the construction of the The Preserve located northwest of the MD 28/MD 97 intersection. Phase 1 of the development plan contains 135 single-family homes on a minimum of half-acre lots. No plans have been approved for the construction of a second phase of 45 homes. More detailed information pertaining to the moratorium is contained in Chapter VI - Comments and Coordination, (page VI-B25).

While there are limitations on new subdivision development, there is capacity within the Olney Planning Area to accommodate additional employment land uses. The plan promotes the Town Center as part of the satellite concept. The plan encourages commercial development at the core, proposing convenience retail, which are items for day-to-day living. The plan also proposes that "development serve local residents and not compete with regional shopping centers." A market analysis of the Olney Planning Area described in the plan identified the following types of uses that will be needed in the 1976-1996 period defined by the Master Plan:

- o Institutional – banks, insurance firms, etc.
- o Personal Services – hardware, dry cleaners, drug stores, eating places, etc.
- o Repair Services – shoe repair, radio and television, etc.

c. Smart Growth Initiatives

The 1997 Maryland General Assembly adopted several specific programs, which together form the Smart Growth initiatives. Collectively, these initiatives aim to direct State resources to revitalize older developed areas, preserve some of Maryland's valuable resource and open space lands and discourage the continuation of sprawling development into our rural areas:

The Smart Growth legislation allows the State to direct its programs and funding to support locally designated growth areas and protect rural areas called Priority Funding Areas (PFAs). This landmark legislation's passage is an accomplishment that will play a major role in Maryland's efforts to better manage land use and growth. PFAs consist of existing communities and other locally designated areas as determined by local jurisdictions in accordance with "smart growth" guidelines. They seek to guide development to existing towns, neighborhoods, and business areas by directing state infrastructure improvements to those places.

The project area, with the exception of the northeast quadrant, is located within a Montgomery County Certified PFA. Since both MD 28 and MD 97 serve as PFA boundaries, property in the northeast quadrant of the intersection is excluded from the PFA. Figure IV-4 shows the PFA's in the project area.

B. Cultural Resources

1. Historic Architectural Resources

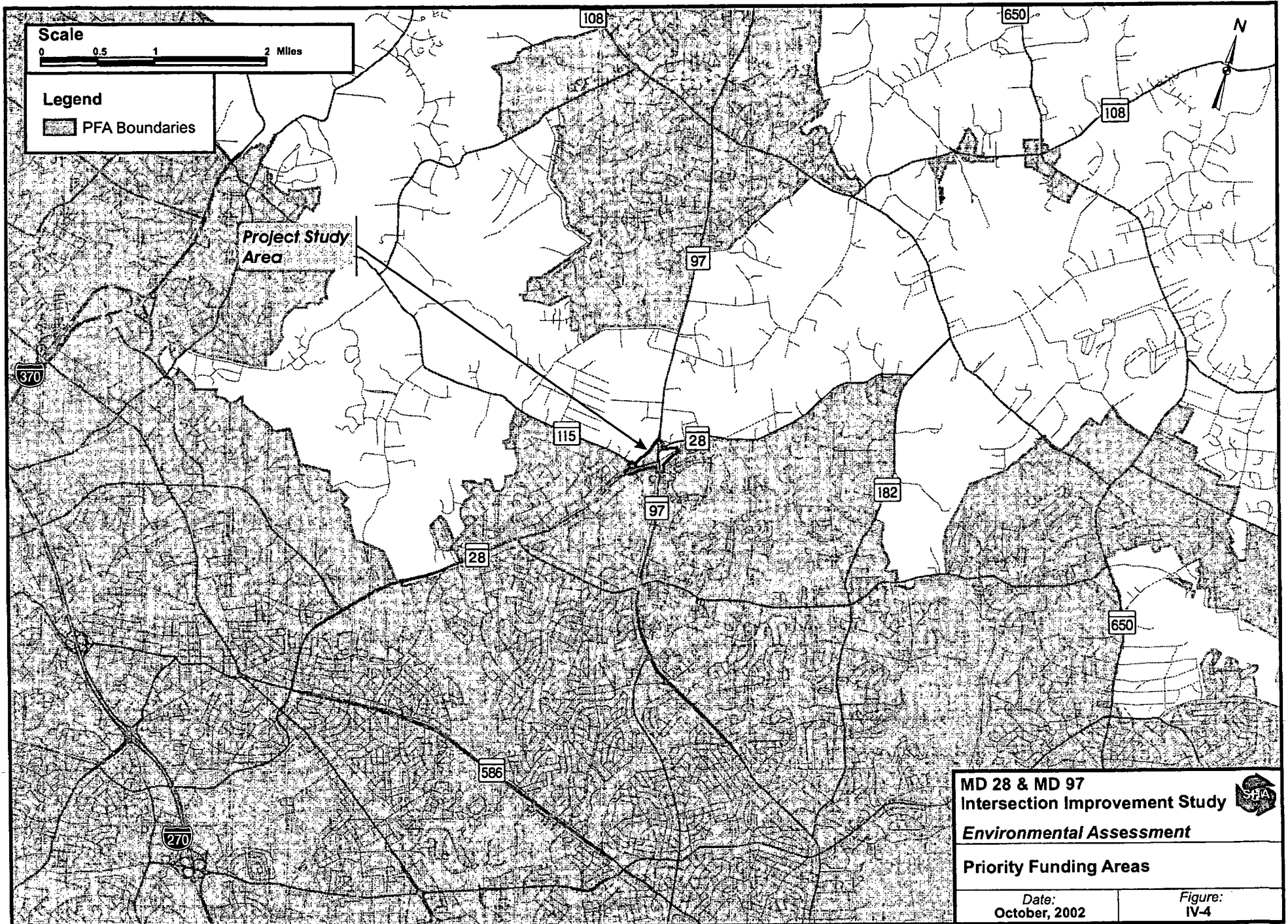
The nineteenth century community of Norbeck was composed of two separate but related communities; Mount Pleasant, the African-American settlement established by freed slaves on Muncaster Mill Road and a white commercial crossroads settlement at the intersection of Norbeck Road and Georgia Avenue. The African-American settlement was oriented around the Mount Pleasant Church, the community church, and the Mount Pleasant School, while the white settlement centered around the post office, general store and blacksmith shop


SHA, through coordination with the Maryland Historical Trust (MHT) and other interested parties, has identified three historic sites within the project area – White’s Hardware Store and Residences, Mount Pleasant Church and Cemetery and the Mount Pleasant School. The approximate locations of the sites are shown on the alternatives mapping in Chapter III (Figures III-1 through III-11). All three sites are listed as eligible for inclusion in the National Register of Historic Places. Listed below is information regarding the current condition and historical significance of these sites.

a. White’s Hardware Store and Residences

White’s Hardware Store and Residences (M:23: 113-4) is located within the northwest quadrant of the MD 28/MD 97 intersection. It began as a blacksmith and wheelwright shop in 1880 at the crossroads of Norbeck Road and Georgia Avenue. Several additions were added in the building between 1917 and 1950 as merchandise was added. Currently, the complex consists of several commercial and residential buildings (refer to the photo on page IV-11). The hardware store is the main building within the complex, located at the corner, while two residences and two metal workshop buildings are located immediately north and west of the store. The National Register boundary of White’s Hardware Store and Residences follows the current property lines of Parcels P935 and P956 on Montgomery County Tax Map HS 342. The size of the historic property is 0.77 acres.

The hardware store is a two-story, eight-bay commercial structure constructed circa 1880 and substantially enlarged in the early twentieth century. The store is of wood frame construction with wood clapboard on the front-gambrel roof section and German siding on the side-gable sections. One of the residences (15510 Georgia Avenue) is located immediately north of the hardware store and is a two-story, three-bay cottage with bungalow features and wood-frame construction. The second residence (15512 Georgia Avenue) is located immediately north of the first residence. The house is a two-story, three-bay four-square with a one-story hipped roof front porch and a two-story shed roof addition on the rear elevation. The house, constructed circa 1920, is of wood-frame construction with vinyl siding. The property also has two modern metal storage/workshop buildings constructed circa 1970. The first is located north of the hardware store and cottage and south of the four-square residence. The second building is located north of the four-square residence.



**MD 28 & MD 97
Intersection Improvement Study** 
Environmental Assessment
Priority Funding Areas
Date: October, 2002 Figure: IV-4

b. Mount Pleasant Church and Cemetery

Mount Pleasant Church and Cemetery (M:23: 113-1) is located off MD 115, approximately 800 feet west of the intersection of MD 28. As the corner stone of the 19th century African American settlement, this Methodist Episcopal complex consists of the church building and a small cemetery containing approximately 30 headstones, to the east. The National Register boundary of Mount Pleasant Church and Cemetery follows the current property lines of Parcels P968 and P913 on Montgomery County Tax Map HS 342. The combined size of the historic church and cemetery is 0.41 acres.

The church is a one and a half story, one-bay, vernacular Gothic Revival-style structure constructed circa 1885. A one story, concrete block vestibule is seen from the western elevation while a half story wood-frame entry porch is located to the east. The wood-framed church has been stuccoed and constructed upon a stone foundation. The front, or western façade has wooden double doors and a projecting vestibule with a hipped roof. The entire structure is adorned with Gothic arched, stained glass windows. The small, deteriorated cemetery located to the rear, or east of the church, includes headstones ranging in date from 1902 to 1961. Many of the thirty or so headstones are cracked and overturned.

c. Mount Pleasant School

Mount Pleasant School (M:23: 113-2) is located off MD 115, approximately 800 feet from the intersection of MD 28. Originally a two-room schoolhouse, this building is the remaining structure of the Mount Pleasant School/Norbeck School. The National Register boundary of the Mount Pleasant Norbeck School follows the current property lines of Parcels P923 on Montgomery County Tax Map HS 342. The size of the historic school property is 0.50 acres.

Mount Pleasant School was constructed between 1872 and 1879, as a two-room, side-gable schoolhouse for African-American students and remained operational until the end of segregation. Typical of most schoolhouses constructed during that period, it once included bands of windows in the one-story, Ten Bay framed structure. The schoolhouse consists of wood-frame construction with wood clapboard siding resting on a brick foundation. Modern, double-hung windows replace the bands of windows that once adorned the east and west elevations. Placed in the front, or south façade, are two ramps leading to dual entrances covered by front-gable entry porches.

2. Archaeological Resources

An assessment of the archaeological potential was done through review of previous archeological studies, SHA GIS site and survey inventory information, modern land use mapping, and historic mapping. A field visit was conducted to ascertain current land use and conditions on December 17, 2001. In determining the Area of Potential Effects (APE), the general view sheds and terrain were considered as well. For archeological resources and historic standing structures, the APE is consistent with the area of potential direct construction impact, or the worst case impacts area anticipated under all alternative scenarios. Therefore, the APE is

restricted to the area within the proposed right of way line, wherein all ground disturbing activities will take place.

One historic archeological site (18MO566) was identified within the corridor as a component of a derelict early 20th century domestic dwelling located in the northwest quadrant of the MD 28/MD 115 intersection. This site is not considered eligible for the National Register of Historic Places based on the four established criteria. There are no other recorded archaeological sites in or near the APE despite extensive investigations by several prior surveys (see VIIA-53) Examination of historic maps, indicated that several structures were clustered near the MD 28/MD 97 intersection in the 19th century. With the exception of the White's Hardware Store and Residences, Mount Pleasant Church, and Mount Pleasant School, all of these locations have been destroyed by previous efforts to reconfigure the intersection between the late 19th and mid-20th century and by earlier transportation and development improvements. These included high density residential development (Manor Village and Leisure World), commercial construction (Norbeck Center), and the park and ride facility. However, areas in the northwest quadrant of the MD 28/MD 97 intersection associated with the Mount Pleasant Church and Mount Pleasant Church were determined to have high archeological potential. The Mount Pleasant community was established by freed African American slaves circa 1866. The original schoolhouse was built between 1872 and 1879, and the church was constructed in 1885 as stated on the previous page. Throughout the history of the Mount Pleasant community, settlement has focused on the community school and church. In addition to potential archeological deposits associated with the school and church, there may be remains associated with the residential and commercial life of the community not indicated by historic maps or prior written histories.

Only those areas immediately adjacent to the standing structures contained within the White's Hardware Store and Residences have not been disturbed by road construction and parking lots, and these areas would be avoided by the MD 28/MD 97 intersection improvements. The majority of the APE is situated on a sloping interfluvial upland with low potential for significant prehistoric archaeological resources. In this area, only one historic archeology site was identified by SHA but determined not eligible for the National Register of Historic Places based on the four criteria established by MHT. MHT concurred with this finding as noted in Attachment 6 of the May 3, 2002 letter from SHA (page VIIA-53).

C. Natural Resources

1. Soils, Geology and Topography

Information on topography and geology within the project area was obtained from the Maryland Geological Survey (MGS), U.S. Geological Survey (USGS) topographic maps, and other published geological source documents. Information on soils was gathered from the Natural Resources Conservation Service's (NRCS) Soil Survey of Montgomery County and NRCS staff. Agriculturally important or ecologically sensitive soil types such as prime farmland, hydric and erodible soils were identified. Prime farmland soils are those classified as being particularly suited to agriculture due to their workability and potential for high yields. Hydric soils are those that have a high water table and typically support wetlands, while erodible soils are those that are particularly prone to erosive forces and may be made more vulnerable by construction. Additional information on topographic relief, presence of bedrock outcrops and location of active farmland was collected during field reconnaissance of the project area.

The MD 28/MD 97 project area is located entirely within the Piedmont physiographic province, which is characterized by rolling topography. The site is located on a ridgeline that runs in a north-south direction beneath MD 97, forming the drainage divide between Northwest Branch and Rock Creek. Elevations in the project area range from approximately 460 feet to 500 feet above mean sea level. The topography in the project area is primarily governed by the underlying geologic formation, which according to the *Geologic Map of Maryland* (1968) is Norbeck Quartz Diorite. This igneous paleozoic formation ranges from weakly-foliated quartz diorite to strongly gneissic and schistose rock with recrystallized or igneous textures.

Soil map units within the project area and their properties are listed in Table IV-4 and are shown in Figure IV-5. Six primary soil types have been identified in the project area, including Elioak, Glenville, Baile and Glenelg silt loams and Chrome/Conowingo soils.

**TABLE IV-4
SOIL MAP UNITS AND PROPERTIES**

Map Symbol	Map Unit	PF*	HEL**	Hydric
2B	Glenelg silt loam, 3-8% slopes	Yes	Potentially	No
4B	Eliok silt loam, 3-8% slopes	Yes	Potentially	No
5A	Glenville silt loam, 0-3% slopes	No	No	No
6A	Baile silt loam, 0-3% slopes	No	Potentially	Yes
35B	Chrome & Conowingo, 3-8% slopes	No	Potentially	No

Notes: * PF = Prime Farmland

**HEL = Highly Erodible Land

Glenelg silt loam is a very deep, well-drained soil typically found on broad ridge tops and side slopes in uplands. In the project area, Glenelg soils are found along MD 97, south of the interchange. Permeability of this soil type is moderate and available water capacity is high. It has a moderate potential for frost action, which can result in damage to roadway pavement if a

coarse-grained subgrade or base material is not used. This soil type has been identified as potentially erodible and a prime farmland soil by NRCS.

Glenville silt loam is primarily found in the northern portion of the project area where the unit crosses MD 97. It occurs in the uplands surrounding the tributary to Manor Run and behind the commercial area in the northwest corner of the interchange. This soil type is very deep and moderately well-drained to somewhat poorly drained. It is typically found in low upland areas and along drainage ways. Permeability of Glenville silt loam is slow and water tables can be found as high as six inches below the surface in late winter and early spring. The soil has a high potential for frost action, which along with the high water table can make special measures necessary for road construction on this soil type.

The northeast quadrant of the project area is dominated by Elioak silt loam, a deep well-drained soil typically found on ridge tops and upland side slopes. This soil has moderate permeability and a moderate potential for frost action. This soil type has been identified as a prime farmland soil by NRCS and is potentially highly erodible.

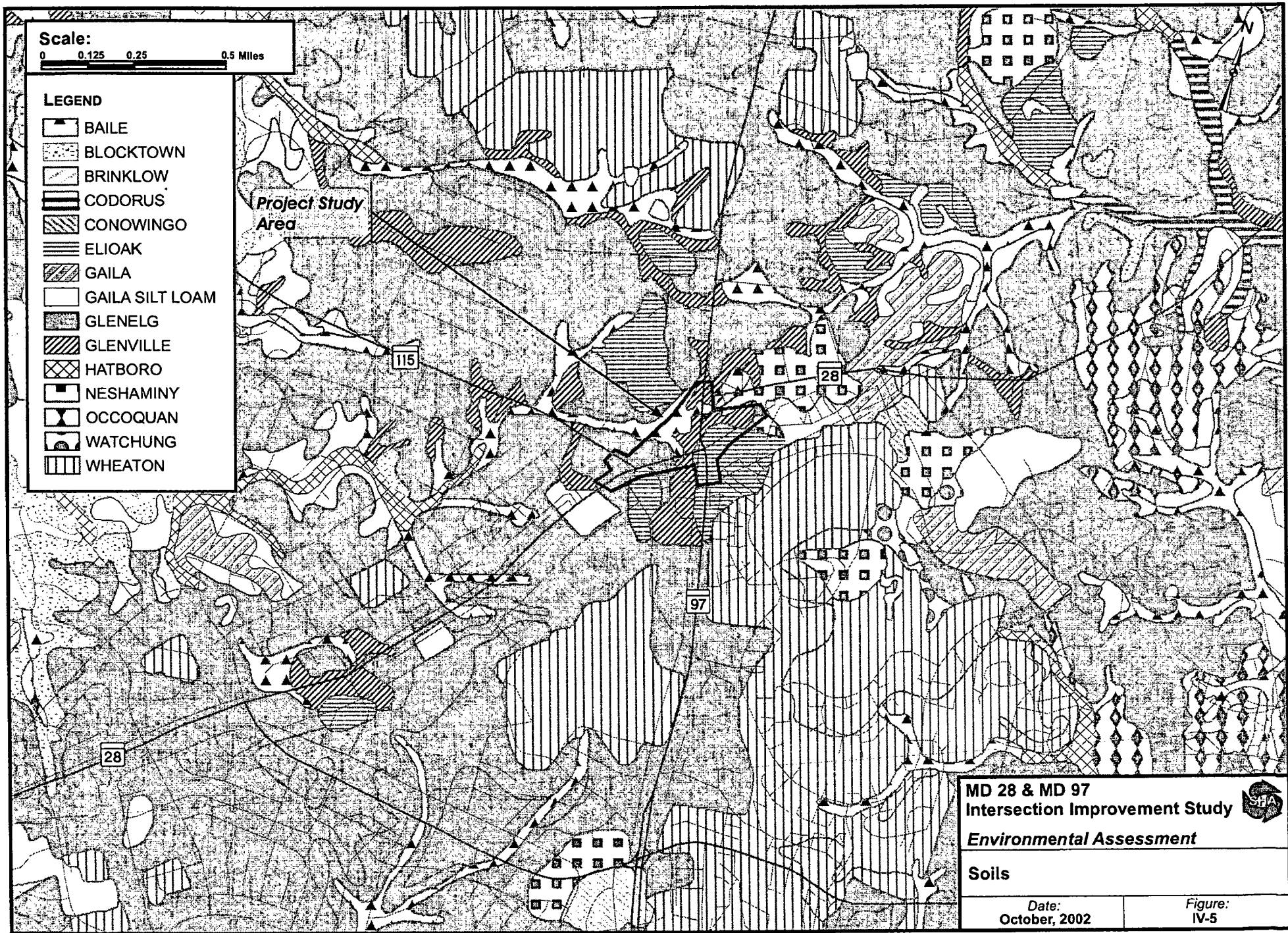
Baile silt loam is very deep and poorly drained. This soil type is located in the northern portion of the project area along the headwaters of Manor Run where it crosses MD 97. Baile soils are typically found along drainage ways and in depressional areas and usually have a water table within six inches of the surface from winter through spring. These soils have slow permeability and high potential for frost action. In addition, they are potentially highly erodible and are listed as hydric soils by the NRCS.

Chrome and Conowingo soils are found in a single map unit in the far eastern portion of the project area, where Norbeck Avenue intersects MD 28. This map unit is made up of a moderately deep, well-drained Chrome soil and a deep or very deep moderately well-drained Conowingo soil. Approximately 50% of the unit is Chrome soil, 30% is Conowingo, and 20% is other soil types. Permeability of the map unit is moderate in the Chrome soil and slow in the Conowingo soil. Both soil types have limitations for road construction including susceptibility to frost action in Conowingo soils and a relatively shallow depth to bedrock of 20 to 40 inches in the Chrome soils. The map unit is also identified as potentially erodible by NRCS.

Prime Farmland and Statewide Important Farmland Soils

Prime Farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is also available for these uses. The land does not have to be currently used as cropland, but can be pastureland, forestland, or other land that is not open water or built-up land. Prime Farmland soils typically have an adequate and dependable water supply, a favorable temperature and growing season, acceptable acidity or alkalinity, acceptable salt content, and few or no rocks. They are permeable to water and air, not excessively erodible or saturated with water for a long period of time, and do not flood frequently or are protected from flooding. As mentioned above, Glenelg silt loam and Eliok silt loam are designated as prime farmland soils.


The Farmland Protection Policy Act (FPPA), as amended in 1984 and 1994 is administered in accord with state and local government, and private programs and policies to



Scale:
 0 0.125 0.25 0.5 Miles

- LEGEND**
- BAILE
 - BLOCKTOWN
 - BRINKLOW
 - CODORUS
 - CONOWINGO
 - ELIOAK
 - GAILA
 - GAILA SILT LOAM
 - GLENELG
 - GLENVILLE
 - HATBORO
 - NESHAMINY
 - OCOCOQUAN
 - WATCHUNG
 - WHEATON

Project Study Area

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Soils

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protect farmland, in part through the protection of prime farmland soils. Although prime farmland soils do not have to be actively farmed to qualify for protection, urban areas and areas planned for development overlying prime farmland soils are excluded from consideration under the FPPA. The areas of soil designated as prime farmland within the project area are either already developed or slated for development in the near future. Consequently, coordination under the FPPA is not anticipated for this project.

2. Surface Water and Water Quality

Information on surface waters and water quality was gathered from federal, state and local sources. USGS topographical maps and the NRCS Soil Survey for Montgomery County were used to identify potential surface waters. Watershed boundaries were taken from statewide watershed maps generated by the Maryland Department of Natural Resources (DNR). Published data from the DNR and the Montgomery County Department of Environmental Protection (DEP) were reviewed to obtain information on surface water quality within and adjacent to the project area. Information was also obtained from natural environmental technical reports of previous studies within the vicinity of the MD 28/MD 97 Intersection.

The project area is located on a ridge line that forms the drainage divide between Rock Creek, a tributary of the Potomac River, and Northwest Branch, a tributary of the Anacostia River. Both watersheds are part of the Potomac River Metropolitan Washington sub-basin. Figure IV-6 shows the watershed boundaries and stream network in relation to the project area. The portions of Rock Creek, Northwest Branch and their tributaries that receive drainage from the project area are classified as Recreational Trout Waters (Class IV) by the State of Maryland. Class IV Waters are defined as "cold or warm waters which have the potential for or are capable of holding or supporting adult trout for put-and-take fishing and are managed as a special fishery by periodic stocking and seasonal catching" (COMAR 26.08.02.01). To support this use, the state has issued specific water quality standards for Class IV waters as shown in Table IV-5.

**TABLE IV-5
STATE WATER QUALITY STANDARDS FOR CLASS IV WATERS**

PH	Temp (°F)	Dissolved Oxygen (mg/l)	Turbidity (FTU)	Fecal Coliform (mpn/100 ml)
6.5 - 8.5	Not to exceed 75°	Not less than 5.0	Not to exceed 150 FTU at any one time	Not to exceed a log mean of 200 per 100/ml

Because the project lies on a drainage divide, surface water resources are limited within the project area. The only stream identified is the very uppermost headwaters of Manor Run, a tributary to the North Branch of Rock Creek. This stream originates at an in-line stormwater management pond on the east side of MD 97, north of the MD 28 intersection. The stream flows west beneath MD 97 and then turns in a southwesterly direction to flow beneath Thistlebridge Drive and out of the project area.

No data was available from the DNR regarding water quality within Manor Run itself, however, the *Maryland Water Quality Inventory, 1997-1999* (DNR 2000) reports that monitored

Rock Creek tributaries were not fully supporting of all designated aquatic life uses. Urban runoff and stream alterations are listed as likely causes of stream impairment. Lake Frank, which is on the North Branch of Rock Creek, just downstream of the confluence with Manor Run, is listed as eutrophic and was found to be only partially supporting of aquatic life uses due to excess nutrients from runoff that produce seasonally low oxygen levels. The DEP has conducted extensive monitoring in the county as part of their *Countywide Stream Protection Strategy* (DEP 1996). This report rated conditions for aquatic life within the stream as poor, citing problems with in-stream habitat as a contributing factor. Stream conditions within the North Branch of Rock Creek were rated as good.

Although there are no tributaries to Northwest Branch that flow through the project area, the land in the southeast quadrant eventually drains to Bel Pre Creek, which begins in Leisure World and joins Northwest Branch just north of Randolph Road. The 1996 DEP report stated that stream conditions in Bel Pre Creek were poor, largely due to flashy flows from stormwater runoff that have destabilized the stream. In a water quality sampling program conducted in 1996, water quality at stations on the North Branch of Rock Creek and Bel Pre Creek were found to be within state standards.

No lakes or ponds are located within the project area, except for several stormwater management ponds adjacent to MD 97 and MD 28.

The subject waterways are not designated as Scenic or Wild Rivers, according to the Maryland Rivers Study – Tributaries of the Chesapeake Bay (prepared by the National Park Service (NPS) and the DNR, 1988).

3. Groundwater

Information on groundwater within the project area was collected from resources published by the DNR, Maryland Geological Survey and the U.S. Geological Survey. Additional information was gathered from personal communications with MDE on water supply and from technical reports prepared for other projects within the vicinity of the MD 28/MD 97 intersection.

The availability of groundwater is largely controlled by the geology of an area. As discussed earlier in this document, the MD 28/MD 97 intersection is located within the Piedmont Physiographic Province, which can be subdivided topographically into lowland and upland areas. These areas are underlain by dense, almost impermeable bedrock that yields water primarily from secondary porosity and permeability provided by fractures. Aquifer recharge areas are highly variable in the Piedmont Province because it is determined by local precipitation and runoff, which are influenced by topographic relief and the capacity of the land surface to accept infiltrating water. Groundwater throughout the Piedmont occurs primarily under water table conditions (unconfined) with the depth to water averaging approximately thirty feet below the land surface (DNR 1982).

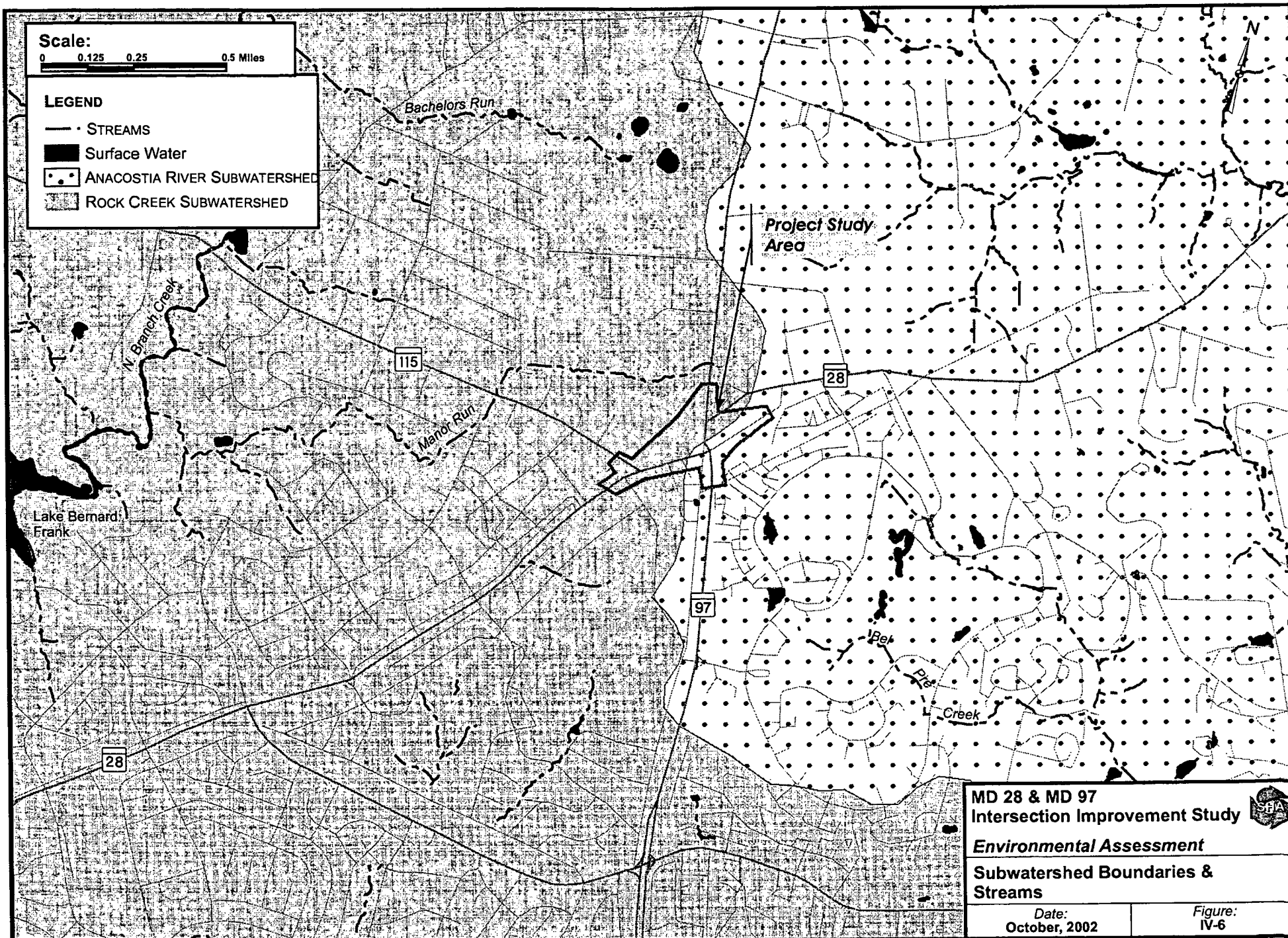
An aquifer is a geologic formation such as fractured rock or coarse sand, which possesses the porosity required to store and transmit water in usable quantities. The Piedmont Province is

Scale:

0 0.125 0.25 0.5 Miles

LEGEND

- · — STREAMS
- Surface Water
- ANACOSTIA RIVER SUBWATERSHED
- ▨ ROCK CREEK SUBWATERSHED



MD 28 & MD 97
Intersection Improvement Study



Environmental Assessment

**Subwatershed Boundaries &
Streams**

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Figure:
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underlain by three principal types of bedrock aquifers: crystalline rock, aquifers in early Mesozoic basin, and carbonate-rock aquifers. Crystalline rock, which is the formation that underlies the MD 28/MD 97 project area typically has the most limited yields of the Piedmont aquifers with well yields ranging from one to 200 gallons per minute.

Because of the limited groundwater supplies and the density of development in this portion of the county, the project area is served entirely by public water supplies from surface water uses. Information obtained from MDE indicated that there are no private wells within the project area. According to data gathered from other studies, groundwater withdrawals that do occur in the area are generally for commercial/industrial use, primarily irrigation of local golf courses and nurseries.

In addition to water stored in the bedrock fractures, Piedmont groundwater is also stored in the overburden (saprolite) layer that is made up of materials weathered from the underlying bedrock. Because saprolite has a high porosity relative to the bedrock, thick saprolite layers are important to local groundwater, which provides stream baseflows. Relative saprolite thickness was previously mapped as part of a previous transportation study to determine the relative potential for groundwater recharge, storage, and release. In general, the thickest areas were found to be inter-stream areas while the valleys are underlain by thin saprolite. Because the project area lies on an inter-stream ridge with a greater depth to bedrock, potential for groundwater storage is relatively high. Based on this previous mapping, the areas south of MD 28 are designated as having good potential, while the areas to the north of MD 28 have fair potential for groundwater storage.

4. Floodplains

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Program, there are no regulated 100-year floodplains within the project area.

5. Terrestrial and Aquatic Environment

Areas of forest cover were initially identified using the tree line shown on project mapping. The extent of cover was then verified in the field. Forest characteristics such as dominant tree species, size, successional stage and presence of invasive species were noted. Large trees were measured and trees with a diameter at breast height (dbh) greater than 30 inches or 75% of the state champion of that species were identified as significant trees and mapped. Existing habitats and their ability to support wildlife were assessed in the field by a Wildlife Biologist. Direct observations of species as well as signs of species (scat, burrows, tracks, etc.) were recorded. Other sources of information for potential species occurrences within the project area include the Maryland and DC Breeding Bird Atlas (Maryland Ornithological Society 1999), Mammals of the Carolinas, Virginia, and Maryland (Webster et al. 1985), Mammals of Maryland (Paradiso 1969), A Field Guide to Reptiles and Amphibians: Eastern and Central North America (Conant and Collins 1998), and Distributional Survey (Amphibia/Reptilia): Maryland and the District of Columbia (Harris 1975).

MD 28 forms a dividing line between the older more urbanized portions of the MD 97 corridor to the south and the less densely developed areas to the north, which are currently converting from rural to suburban land uses. Because of this development pattern, natural areas and associated wildlife habitat are limited in the southern portion of the project area. Habitats to the north of MD 28 are more extensive, but are still largely disturbed by the more recent suburban development. Habitats within the project area can be divided into four main categories: forests; wooded hedgerows; residential yards/landscaped edges and aquatic.

The entire project area falls within the Tulip Poplar Forest Association, which is typically dominated by tulip poplar and other upland hardwood trees. Wooded areas south of MD 28 primarily consist of narrow forested hedgerows ranging in depth from thirty to fifty feet along both sides of MD 97. East of the MD 28/MD 97 intersection, on the south side of MD 28 there is a more substantial forested strip with a width of 75 to 150 feet. The narrow hedgerows are dominated by black locust, tulip poplar, oaks and ash in the 6-12 inch size class, and have a high percentage of invasive vines. A few areas bordering Leisure World also have planted landscape trees such as white pine adjacent to the more natural forested strips.

The majority of the forested area east of MD 97 along the south side of MD 28 is dominated by early successional locust, Virginia pine and fruit trees in the 2-6 inch size class. There is, however, one portion where the hedgerow widens to almost 200 feet and is a more mature forest. Tulip poplar, red maple and locust in the 10-16 inch size class dominate this section. One large tree was identified in the southern portion of the project area. This thirty-nine inch diameter at breast height (dbh) white oak is located approximately 350 feet west of Norbeck Boulevard, but is in poor health with significant crown die-back.

The largest forested area north of MD 28 is located west of MD 97 on either side of Thistlebridge Drive. A substantial portion of this forest has been protected from recent development due to the presence of nontidal wetlands. Other portions of this forest were set aside during the development process for The Preserve as park property that has yet to be developed by the M-NCPPC. The portion of this forest that is wetland is early successional and is dominated by red maple and sweet gum in the 2 to 10-inch size class. The upland portion is dominated by tulip poplar and red maple in the 6 to 12-inch size class.

Forests in the northeast quadrant of the project area are varied. There are a number of residential yards along the north side of MD 28 that are partially forested and some abandoned residential properties that have reverted to forest. These areas are dominated by tulip poplar, green ash, elm and red maple in the 8 to 16-inch size class. Due to past land uses, this forest has numerous open areas from old structures or abandoned roads and a number of pockets of Virginia pine in the otherwise hardwood dominated forest.

Along MD 97, only a narrow hedgerow remains as a buffer between the roadway and other land uses. Trees in this narrow strip are generally more mature than in other areas of the project area and consist primarily of tulip poplar and oaks in the 12 to 18-inch size class. Nine significant trees were identified in the northeast quadrant of the project area. These include four 30-inch dbh tulip poplars, one 30-inch dbh green ash and four 30-inch white oaks. The tulip poplars are located in a patch of woodland between MD 28, the park and ride lot and the access

road to the Golden Bear Golf Center. The green ash is located on the northeast corner of the MD 28/MD 97 intersection and the oaks are on the hillside above MD 97 on the Golf Center property. Tree diameters on the Golf Center property were estimated due to lack of property access.

In addition to forests, terrestrial habitat is also provided in the project area by the residential yards and landscaped/maintained areas adjacent to roadways. These areas are dominated by mowed grass with individual groupings of trees and/or shrubs.

Although limited, habitat for aquatic species occurs within the wetlands and the intermittent stream system identified in the project area.

Table IV-6 through Table IV-8 provide a list of the birds, mammals, and amphibians/reptiles, respectively, observed or expected within the project area. The most productive habitat within the project area is found within the larger forested areas north of MD 28 that are connected by continuous corridors to other natural areas. These areas would be expected to provide food and cover for numerous bird species and common mammals and reptile species such as white-tailed deer, woodchuck, opossum, raccoon, gray squirrel, mice, vole, black rate snake, and garter snake. As a relatively large forested patch in a rapidly developing area, these forests may also supply important stopover habitat for neotropical migratory birds and other forest interior dwelling species.

The forested hedgerows provide patches of habitat within otherwise inhospitable environments for most wildlife species. As such, they can act as an important source of temporary food and forage for individuals moving between larger areas of habitat and can also provide more permanent habitat for species tolerant to human activities and disturbed environments. Residential yards and landscaped areas provide similar functions to hedgerows, but to a lesser degree as they are typically relatively monotypic environments, with a lack of varied cover and food types.

The wetlands and stream identified in the project area would be expected to support a number of reptiles and amphibians as well as providing important drinking water sources for terrestrial species. The portion of Manor Run within the project area is the upper-most headwaters of the stream, which is intermittent and very shallow with very few pools of adequate size to support even small fish species. Consequently, no fish species would be expected to occur in the project area. The project area does, however, drain to two stream systems, North Branch of Rock Creek and Northwest Branch that are stocked trout waters. The perennial portions of the systems downstream of the project area also support a warm water fish species.

6. Wetlands

Prior to field investigation, possible wetland areas were located using National Wetland Inventory (NWI) maps prepared by the U.S. Fish and Wildlife Service, Soil Survey maps for Montgomery County (Sheet 20), and project maps provided by SHA. Potential wetlands were identified in areas with hydric soils, along drainage ways, and in topographic lows.

The project area was field investigated on July 5th and 9th, 2001 to identify and flag the boundaries of wetlands or other Waters of the U.S. within the designated project area. Wetland boundaries were marked in the field with pink "SHA wetland" survey ribbon. The approximate locations of wetlands are shown on the alternatives mapping in Chapter III (Figures III-1 through III-10).

Wetlands were identified in accordance with the 1987 Corps of Engineers Wetland Delineation Manual, (Environmental Laboratory, Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Miss.). This approach is based on three parameters including hydrology, soils and vegetation. Soil color was identified using a Munsell Color Chart. A preliminary assessment of wetland function based on best professional judgment was made for each wetland.

All wetlands found were classified according to A Classification of Wetland and Deep-Water Habitats in the United States (Cowardin, et al., 1979). The wetland indicator status of the observed vegetation was identified using the National List of Plant Species that Occur in Wetlands: Region 1 – Northeast (U.S. Fish and Wildlife Service, St. Petersburg, FL).

Subsequent to these wetland field investigations, on August 31, 2001, a U.S. Army Corps of Engineers (USACOE) Jurisdictional Determination (JD) field view was conducted to verify the delineated wetland boundaries. The wetlands and Waters of the U.S. described below reflect the results of this determination. Minutes of the JD field review are contained in Chapter VI of this document.

Wetlands and other Waters of the U.S. are regulated under Sections 401 and 404 of the Clean Water Act and under the State of Maryland Nontidal Wetlands Protection Act. Four nontidal wetlands (W2, W3, W4, and W5) were identified as being under the jurisdiction of the USACOE and/or the Maryland Department of the Environment within the project area. Because the project area is dominated by transportation facilities and suburban land uses, most of the natural drainage patterns have been altered or bisected by development. Three of the four wetlands identified (W2, W3, and W4) are associated with the headwaters of Manor Run. The remaining wetland (W5) is an isolated depressional area that detains surface flows from the adjacent roadway. Initially, an additional wetland was identified but it was not considered jurisdictional by the USACOE, and therefore no longer considered part of this study. The wetlands are described in detail below and summarized in Table IV-6.

Wetland 2 This wetland area is a stormwater management pond located along MD 97 approximately 1,100 feet north of the intersection. The wetland receives overland flows from the Golf Center to the east and MD 97 to the west. This stormwater management pond appears to have been constructed in the headwaters of an intermittent stream that flows under MD 97 into Wetland 4 (Manor Run). This system is classified as a palustrine emergent wetland with a permanently saturated, impounded water regime (PEM1Hh). During the site visit the wetland was inundated with approximately one foot of water. The dominant vegetation in the wetland consists of broad-leaf cattail (*Typha latifolia*) and narrow-leaf cattail (*Typha angustifolia*). Soils in the wetland are mapped as Elioak silt loam, which is not listed as hydric by the NRCS. The

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soils displayed characteristics of disturbance, with some hydric development in the surface layer of soil.

Wetland 3 This wetland is located in the northern portion of the project area on the Golf Center property, adjacent to MD 97. This site was evaluated from the SHA right-of-way due to a lack of property access. This wetland is classified as a palustrine forested wetland with a temporarily saturated water regime (PFO1A). Upon observation, the wetland displayed drainage patterns and saturation in the upper 12 inches of soil. The dominant species in the canopy is green ash (*Fraxinus pennsylvanica*). The dominant vegetation in the understory is multiflora rose (*Rosa multiflora*), southern arrowwood (*Viburnum dentatum*) and goldenrod (*Solidago sp.*). No soil sample was taken at this location during the site visit, but the soils are mapped as Glenville silt loam. This soil is not listed as hydric by the NRCS, but has the potential for inclusions of Baile silt loam, a hydric soil.

The USACOE also took jurisdiction over an ephemeral channel between Wetland 2 and Wetland 3, along MD 97. This narrow roadside ditch carries wet-weather flows from Wetland 3 to Wetland 2 and is considered Waters of the U.S. by the USACOE.

Wetland 4 This wetland is the most extensive system within the project area. This wetland is located on the western side of MD 97 just north of Thistlebridge Drive and consists of a stream with adjacent vegetated wetlands. The stream, which is the headwaters of Manor Run, a tributary of Rock Creek, is classified as an intermittent riverine system with a gravel streambed (R4SB1). The stream begins at a culvert under MD 97 and flows westward, carrying flows from adjacent wetlands and Wetland 2, the stormwater management pond east of the roadway. During the site visit, the stream banks displayed instability evidenced by undercut banks lacking vegetation and active erosion scars along both sides of the stream. In-stream habitat is characterized by a lack of deep pools and moderate silt deposition, making it a poorly suited habitat for aquatic organisms.

The vegetated wetlands associated with the stream include a palustrine emergent wetland with a temporary water regime (PEM1A) to the north and a palustrine forested wetland (PFO1A) south of the stream. The emergent portion of the wetland is located in an area that has been disturbed by the construction of The Preserve subdivision. The vegetation in this portion of the wetland is dominated by Canada rush (*Juncus canadensis*), soft rush (*Juncus effusus*), panic grass (*Dichanthelium sp.*) and sedge (*Carex sp.*). Hydrology was indicated by drainage patterns and water-stained leaves. Soils in the wetland are mapped as Baile silt loam, which is listed as a hydric soil by the NRCS. Soils in the test plot (TP-5) had a layer of silt loam with a matrix of 10YR4/3 to a depth of ten inches. From ten to sixteen inches the profile remained a silt loam with a matrix of 2.5Y7/2 and mottles of 7.5YR5.8. Below sixteen inches the profile changed to a clay loam with a matrix of 2.5Y7/2 and mottles of 7.5YR5/8. Concretions were observed below ten inches, confirming a positive hydric soil indicator.

The palustrine forested wetland is extensive and appears to be driven by groundwater seeps that break out of the gentle hillside above the stream. The canopy is dominated by green ash (*Fraxinus pennsylvanica*) and red maple (*Acer rubrum*). The shrub layer is dominated by southern arrowwood (*Viburnum dentatum*), while the herbaceous layer is dominated by Nepal microstegium (*Eulalia veminea*) and rice-cut grass (*Leersia oryzoides*). The wetland hydrology

was confirmed by drainage patterns and water-stained leaves. Soils in this area of the wetland are mapped as Glenville silt loam, which is not hydric, but is listed as having the potential for hydric inclusions by the NRCS. Soils from the test plot (TP-4) had a layer of silt loam with a matrix of 10YR 4/2 to eight inches. From eight to fifteen inches the profile changed to a clay loam with a matrix of 2.5Y5/2 and 10YR5/8 mottles. Below fifteen inches the profile changed to a silty clay loam with a matrix of 2.5Y5/2 and 10YR5/8 mottles, confirming a positive hydric soil indicator.

Wetland 5 This wetland is located east of the MD 28/MD 97 intersection, along the southern half of MD 28. This is an isolated wetland that detains runoff from MD 28 in an enclosed depressional area. Because the area is isolated, this wetland is not considered jurisdictional by the U.S. Army Corps of Engineers (USACOE). However, Maryland Department of the Environment will take jurisdiction if USACOE does not to regulate any impacts to the wetland.

The soils in this wetland are disturbed and have produced a perched water table that is supported by a thick clay layer. The periodic inundation of the site has created a palustrine forested wetland with a temporarily saturated water regime (PFO1A). Saturation in the upper 12 inches of soil, drift lines, sediment deposits, drainage patterns and water-stained leaves all provide confirmation of wetland hydrology. The dominant vegetation in the canopy is American elm (*Ulmus americana*), pin oak (*Quercus palustris*), and green ash (*Fraxinus pennsylvanica*). The understory is dominated by poison ivy (*Toxicodendron radicans*), Canada rush (*Juncus canadensis*) and sedge (*Carex sp.*).

Soils in the wetland are mapped as Chrome and Conowingo silt loam, which is not listed as hydric by the NRCS. Soil samples from the test plot (TP-7) had a layer of silt loam with a matrix of 2.5Y5/2 and mottles of 7.5R4/6 to eight inches. From eight to twelve inches the profile changed to clay with a matrix of 2.5Y5/1, mottles of 7.5YR4/4 and undecomposed organic matter. Below twelve inches the profile remains a mottled clay with colors of 10YR3/6 and 10YR1/6. The soils are disturbed but the area is developing a hydric surface layer and normal wetland conditions.

**TABLE IV-6
WETLAND SUMMARY TABLE**

Wetland Number	Class	Hydrology	Dominant Vegetation		Soils
			Common Name	Scientific Name	
W2	PEM1Hh	Saturated Inundated	Broad-leaf cattail Narrow-leaf cattail	<i>Typha latifolia</i> <i>Typha angustifolia</i>	EliOak silt loam
W3	PFO1A	Saturated Drainage patterns	Green ash Multiflora rose Southern arrowwood Goldenrod	<i>Fraxinus pennsylvanica</i> <i>Rosa multiflora</i> <i>Viburnum dentatum</i> <i>Solidago</i> sp.	Glenville silt loam
W4	R4SB1	Intermittent stream	N/A	N/A	N/A
	PFO1A	Drainage patterns Water-stained leaves	Red maple Green ash Southern arrowwood Rice-cut grass Nepal microstegium	<i>Acer rubrum</i> <i>Fraxinus pennsylvanica</i> <i>Viburnum dentatum</i> <i>Leersia oryzoides</i> <i>Eulalia viminea</i>	Glenville silt loam Matrix: 2.5Y5/2 Mottles: 10YR5/8
	PEM1A	Drainage patterns	Soft rush Canada rush Panic grass Sedge	<i>Juncus effusus</i> <i>Juncus canadensis</i> <i>Dichanthelium</i> sp. <i>Carex</i> sp.	Baile silt loam Matrix: 2.5Y7/2 Mottles: 7.5YR5/8
W5	PFO1A	Inundated Drift lines Sediment deposits Drainage patterns Water-stained leaves	American elm Poison ivy Pin oak Green ash Multiflora rose Canada rush Sedge	<i>Ulmus americana</i> <i>Toxicodendron radicans</i> <i>Quercus palustris</i> <i>Fraxinus pennsylvanica</i> <i>Rosa multiflora</i> <i>Juncus canadensis</i> <i>Carex</i> sp.	Chrome and Conowingo silt loam Matrix: 2.5Y5/2 Mottles: 7.5YR4/4

A listing, maintained by the DNR-Nontidal Wetlands Division, of areas designated as Nontidal Wetlands of Special State Concern was checked to determine if such wetlands exist within the project area. None were identified within or near the project area.

7. Threatened, Endangered and Species of Special Concern

Coordination with the U.S. Fish and Wildlife Service and the DNR indicates that no federal or state listed threatened or endangered plant or animal species are known to exist with the project area. The DNR Wildlife and Heritage Division's Natural Heritage database of historical records for species of concern has identified three plant species of special concern that are known to occur within the vicinity of the project area. The following three species could occur within the vicinity of the project area if appropriate wooded habitat exists:

- One-Sided Pyrola (*Ortrhilia secunda*)
- Greenish-flowered Pyrola (*Pyrola virens*)
- Narrow-leaved Horse Gentian (*Triosteum angustifolium*)

D. Hazardous Materials / Waste Sites

A hazardous materials/waste site investigation was performed in February, 2002, in conformance with American Society for Testing and Materials (ASTM) E1527-00 guidelines to identify the presence or likely presence of any hazardous substance or petroleum product releases related to underground storage tanks or other hazardous materials. These investigations were done as part of a Phase I Environmental Assessment, which identified known or potential recognized environmental conditions within the project area.

To perform the investigations and analyses of the known and potentially contaminant sources, a visual reconnaissance of the project area, review of historical documents, and research within federal and state regulatory records were undertaken. For the purposes of these investigations, the project area includes the properties within the proposed right-of-way for the intersection improvement build alternatives and along adjacent properties.

Visual observations of the subject rights-of-way (MD 28 and MD 97) and adjacent public easements indicated no evidence of significant environmental impairment.

- Underground Storage Tank (UST) Systems and Pipelines - no vent pipes, pump dispensers, or other structural evidence of underground fuel tanks were observed during the site walkover.
- Aboveground Storage Tank (AST) Systems - No evidence of aboveground fuel tanks was observed during the site walkover.
- Transformers and Other PCB-Containing Equipment - no electrical transformers, hydraulic lifts, or other electronic and hydraulic equipment known or likely to contain polychlorinated biphenyls (PCBs) were observed within the project area.
- Evidence of Chemical Releases and Waste Storage Areas - no areas of dead or dying vegetation, leachate seepage, migration or run-on of seepage, discolored or visibly polluted surface water, significant discoloration or staining of exterior surfaces, discernible, unusual, or strong/pungent or noxious odors, discarded large machinery or electrical equipment, lagoons, or cisterns were observed during the site visit.

Potential Sites of Concern

Three properties in immediate proximity to the MD 28/MD 97 intersection were identified as potential sites of environmental concern as a result of prior or current operations. The site conditions are described as follows:

Norbeck Sales, 15520 Georgia Avenue, is a former junkyard and auto sales lot located approximately 500 feet north of the MD 28, along the service road (MD 655) immediately west of MD 97. Today, this site is occupied by Tire Depot Inc., and two other businesses operating out of rental trailers. Between the 1950's and the mid-1990s, the Norbeck Sales site was operated as a vehicle salvage yard. Salvageable parts, including gasoline tanks, the body, and batteries, were removed and stockpiled on the site. Near surface soil contamination identified by

previous Phase I and II assessments appears to have originated from salvage operations (i.e. battery, gasoline, and motor oil removal from vehicles), and from a former small onsite underground storage tank. Lead and petroleum were detected as the primary contaminants of concern in limited analysis of soils within 12 feet of ground surface, and in sediment in the onsite pond. A maximum total lead concentration of 540 parts per million (ppm) was detected in a pond sediment sample on the Norbeck Sales site. The contamination appeared to be localized and confined laterally to site boundaries. Circa 1995, the front portion of the Norbeck property began operation as a used auto lot. No visible remnants of the former junkyard operation, such as vehicles, vehicle parts, or surface staining, were observed after 2000.

L.W. White and Son, Inc. (referenced earlier as the White's Hardware Store and Residences) is located at 15508 Georgia Avenue on the northwest corner of the MD 28/MD 97 intersection. According to MDE records obtained via a Freedom of Information Act request, an Amoco service station formerly existed on/within the White's Hardware Store and Residences. Specific dates for the operation of the Amoco station are not known, however, documentation has indicated that in 1917 large additions were made to the building on the complex to prepare for the servicing of automobiles. In 1989, nine small underground tanks ranging in capacity from 275-gallons to 550-gallons remained on the site. The contents included heating oil, motor oil, kerosene, and gasoline. It is unclear from the MDE documents if the tanks were left from the former Amoco station at the site, or if all of the tanks were associated with the White's Hardware Store. A November 1989 soil investigation identified the presence of petroleum contamination in the vicinity of tanks along the south side of the property. Total petroleum hydrocarbon concentrations in shallow soil ranged from 8 to 670 ppm in the vicinity of the L.W. White tanks.

In 1995, eleven steel underground storage tanks (USTs) were removed from the White property; at the time, only 3 of the 11 tanks were in service. The USTs were each estimated to be 45 years old and ranged in capacity from 110 gallons to 550 gallons. Field screening of soil in the tank excavations indicated total volatile organics' concentrations (measured with a photoionization detector) ranging from 10 ppm to 500 ppm. MDE's inspector observed no free product in the tank excavations or corrosion pitting of the tanks. No over excavation or ongoing remediation was required by MDE in 1995. No USTs are currently registered in the MDE database for the White property, according to the environmental database search.

The Mobil station (also referred to as the Norbeck Service Center) is situated on the southwest corner of the MD 28/MD 97 intersection. Prior to the Mobil/Norbeck Service Center, a Phillips 66 service station operated at the referenced site. As with any vehicular service station, there is the potential for improper disposal of hazardous materials.

A December 1986 tightness test on the former tank systems at the Mobil site failed. In 1989, three 10,000-gallon, double-walled steel USTs were put into service to replace six 23-year old USTs. The upper five feet in the tank excavations exhibited a strong gasoline odor, according to the MDE field inspector's report. The odors dissipated at a depth of 11 feet below ground surface. An unspecified volume of contaminated soil was hauled offsite at the time of the 1989 UST removals. In 1995, 1/2-inch of gasoline was measured in a tankfield monitoring well by MDE during a routine site inspection. Subsequent minor releases have occurred and been documented at the Mobil station since 1995. No open case files, i.e. pending notices of violation, ongoing investigation, or remediation, are currently documented in the MDE database for the

Norbeck Service Center property, according to the environmental database search (see Chapter V, Section F).

Historical Review

Historical aerial photographs from the Maryland Geological Survey Library were used to ascertain the project area's previous surface features. U. S. Geological Survey 7.5-minute series topographic maps prepared in 1928, 1956, 1971, and 1979 were also reviewed.

The 1928 topographic map indicates a former surface mining operation in the vicinity of the MD 28/MD 97 intersection. Small structures adjacent to the west side of Georgia Avenue are evident on the 1928 map, including the Norbeck School on the roadway that is now MD 115. Subsequent mapping showed a substation southwest of the subject intersection. The 1938 aerial photo suggests that the immediate intersection area and its adjacent properties were primarily barren and used as agricultural land. Georgia Avenue (existing MD 655) and Norbeck Road (existing MD 28) had been constructed prior to this photo. The alignment of the referenced roads west of Georgia Avenue generally corresponds to how they exist today. No large aboveground storage tanks or other anomalous surface features are evident in the site area on the 1938 aerial photo.

The east side of Georgia Avenue (existing MD 655) north and south of Norbeck Road was densely wooded in the 1958 aerial photo. Spotty residential development is apparent southwest of the MD 28/MD 97 intersection. Structures are configured on the L.W. White property and Norbeck Sales site northwest of the intersection as they appear today. Properties north of the intersection appeared to be agricultural. Some residential development occurred in the site area between 1938 and 1958. A cemetery was mapped northwest of the intersection on the 1956 topographic quadrangle.

Georgia Avenue south of Norbeck Road (existing MD 97) and Norbeck Road east of Georgia Avenue (existing MD 28) appeared to be undergoing construction in the 1979 aerial photo. A large portion of the Leisure World community had been constructed. The remainder of the site area appeared otherwise substantially unchanged.

By 1995, the aerial photo reveals that both Georgia Avenue and Norbeck Road had been significantly widened between 1979 and 1995. By 1995, the surrounding area had largely been developed as it exists today. The existing park and ride lot on the northeast corner of the intersection was established after 1995.

Database Review

Table IV-7 indicates the results of a search performed in accordance with the prescribed ASTM distances using the following environmental database listings.

**TABLE IV-7
DATABASE RESULTS**

Database Name	Database Contents	Search Distance from MD 28/MD 97	Results
Federal EPA National Priorities List	uncontrolled or abandoned hazardous waste sites	1.25 miles	No sites listed
Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS)	known or suspected uncontrolled or abandoned hazardous waste sites	0.75 mile	No sites listed
No Further Remedial Action Planned (NFRAP)	known or suspected hazardous waste sites at which no further remedial action is deemed necessary	0.25 mile	No sites listed
Resource Conservation and Recovery Information System (RCRIS)	licensed facilities which treat, store, or dispose of hazardous wastes	1.0 mile	No sites listed
RCRIS - Large and Small Quantity Generators	Generator locations	0.5 mile	No sites listed
EPA Corrective Action Report System (CORRACTS)	hazardous waste handlers with RCRA corrective action activity	1.25 miles	No sites listed
Emergency Response Notification System (ERNS)	sudden and/or accidental releases of hazardous substances and petroleum	0.05 mile	No sites listed
Maryland Department of the Environment (MDE) Notice of Potential Hazardous Waste Sites		0.75 mile	No sites listed
MDE Registered Underground Storage Tank (UST) Listing		0.5 mile	10 sites listed
MDE Listing of Active Recovery Sites	leaking underground storage tanks (LUST's)	0.75 mile	19 sites listed (<i>see description</i>)
MDE Listing of Solid Waste Sites		0.75 mile	No sites listed
MDE Listing of Oil Control Program Cases		0.5 mile	No sites listed
MDE Listing of Voluntary Cleanup Program Applicant sites	Brownfield sites	0.5 mile	No sites listed

The MDE listing of Active Recovery Sites with leaking underground storage tanks (LUST) was updated in November 2001, and revealed 19 LUST sites within 0.75 miles of the MD 28/MD 97 intersection. The nearest LUST sites were identified as the L.W. White property and the Mobil station on the respective northwest and southwest corners of the subject intersection. Coding of the agency site identification on the database listing indicates that the releases occurred circa 1990. Three additional LUST sites were identified within the area potentially impacted by the build alternatives; Norbeck Park (4101 Muncaster Mill Road), Albert Young Residence (4115 Muncaster Mill Road), and Small's Nursery (Georgia Avenue).

It appears from the database listing that the LUST status of the five sites identified above resulted from removal of underground storage tanks. Probable soil contamination was documented in the tank excavation and either removed or deemed to be not a significant concern. The database listing indicates that all of the 19 LUST sites are closed case files, which suggests that no imminent danger to human health or the environment was perceived by MDE. However, the possibility of residual soil and/or groundwater contamination exists at the LUST sites. No ongoing investigations other than routine compliance inspections or long-term remedial actions are occurring at these referenced sites.

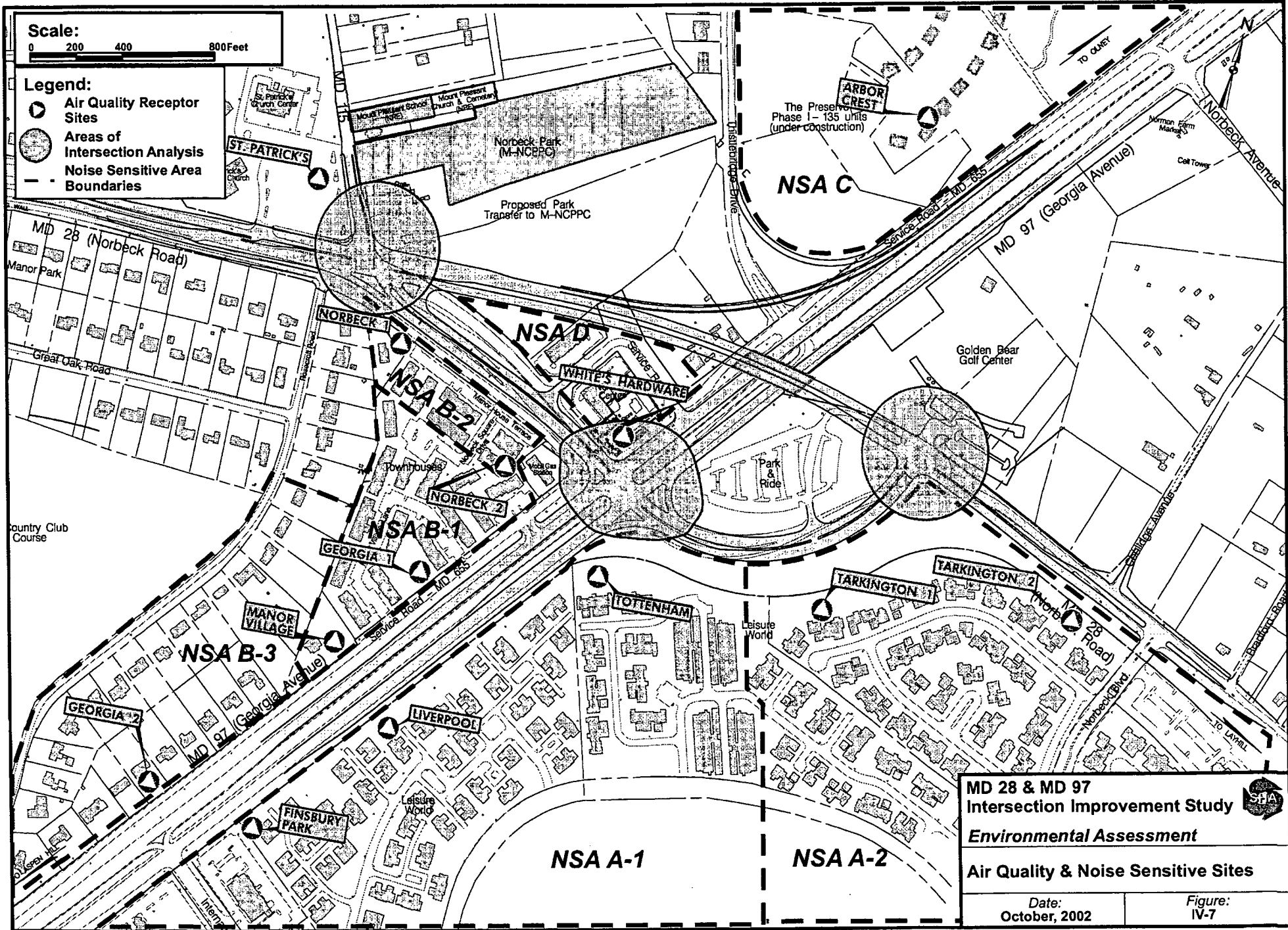
Where such sites are impacted by new construction (i.e. excavation or other intrusive activity), appropriate handling and disposal of affected media may need to be implemented. Further sampling and analysis may be warranted to ascertain appropriate handling and disposal procedures for known or suspected contaminated soil or groundwater.


In addition to localized petroleum contamination, near surface lead contamination was detected in soils on the Norbeck Sales property.

E. Existing Air Quality

The project area is located in Montgomery County, Maryland. This county is not designated as non-attainment for carbon monoxide (CO), Nitrogen Dioxide (NO₂), Sulfur Dioxide (SO₂), Lead (Pb) or particulate matter (PM₁₀), but is designated as a serious non-attainment area for ozone (O₃). Since the project area is designated non-attainment for ozone, the 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 local CO impact of the proposed project. The location of air quality sensitive receptors used in the analysis, and the build alternate(s) each receptor is used to analyze, is shown on Table IV-8 and Figure IV-7. A copy of the Air Quality Technical Analysis report is available at the State Highway Administration, 707 North Calvert Street, Baltimore, Maryland 21202.



**MD 28 & MD 97
 Intersection Improvement Study** 
Environmental Assessment
Air Quality & Noise Sensitive Sites

Date: October, 2002
 Figure: IV-7

**TABLE IV-8
LOCATION OF AIR RECEPTORS**

Receptor	Address/Location	Description
Finsbury Park	3120 Finsbury Park Road	Duplex Residence
Liverpool	3702 / 3703 Liverpool Place	Duplex Residence
Tottenham	15220 Tottenham Terrace	Duplex Residence
Tarkington 1	3625 Tarkington Lane	Single Family Residence
Tarkington 2	3535 Tarkington Lane	Single Family Residence
Georgia 1	15300 Georgia Avenue	Townhouse
Manor Village	15300 Manor Village Lane	Townhouse
Norbeck 1	15426 Norbeck Road	Townhouse
Norbeck 2	15400 Norbeck Road	Townhouse
Georgia 2	15120 Georgia Avenue	Single Family Residence
Arbor Crest	3901 Arbor Crest Way	Single Family Residence
White's Hardware	15508 Georgia Avenue	White's Hardware Store and Residences (Historic Site)
St. Patrick's	4101 Norbeck Road	St. Patrick's Church
INT-MD 115	MD 28/MD 115 Intersection	Matrix of 15-17 receptors
INT-MD 97	MD 28/MD 97 Intersection	Matrix of 17-18 receptors
INT-MD 97 SB Ramps	MD 28/MD 97 SB Ramps	Matrix of 14 receptors
INT-MD 97 NB Ramps	MD 28/Relocated MD 28 Intersection	Matrix of 13-14 receptors

F. Existing Noise Conditions

The Federal Highway Administration (FHWA) has established procedures and criteria to determine and evaluate impacts associated with vehicular use of roadways. The primary problems associated with highway noise are activity interference and general annoyances. Therefore, it is the goal of abatement programs to minimize these impacts to exterior land uses.

The decibel is the basic unit of sound measurement. Decibels (dB) are units that represent relative acoustic energy intensities. Because the range of hearing is so wide, the numbers necessary to define these levels must represent huge variations in energy. To compensate for this wide range of numbers, a base 10 logarithmic scale is used to make the numbers more "normal".

Traffic noise is the sound generated by automobiles and trucks on streets and highways. The sound generated is composed of tire, engine, and exhaust noise. People respond differently to energy in varying acoustic frequency ranges. Sounds heard in the environment usually consist of a range of frequencies, each at a different level. The method of correlating human response to equivalent sound pressure levels at different frequencies is called "weighting". The weighting system used to correlate human hearing to frequency response is the "A-weighting scale" and the

resultant sound pressure is called the "A-weighted sound pressure level" (dBA). This is generally used in assessing community noise exposure because this scale closely approximates the frequency response of the human ear. In order to give a sense of perspective to the noise levels discussed, a quiet rural night would register about 40 dBA, a quiet suburban night about 60 dBA, a noisy day about 80 dBA, a gas lawnmower at 100 feet about 70 dBA, and a diesel truck at 50 feet about 85 dBA. Under typical field conditions, noise changes of 2 to 3 dBA are barely perceptible, while a change of 5 dBA is readily noticeable. A 10-dBA increase in noise level is judged by most people as a doubling of sound loudness.

The A-weighted equivalent sound level (L_{eq}) is the descriptor used most frequently in highway noise analyses. The L_{eq} is the equivalent steady state sound level which represents the mean energy or sound intensity level for a given time period.

Noise abatement criteria for various land uses have been established by the Federal Highway Administration (FHWA) in 23 CFR, Part 772. The noise abatement criterion for land uses occurring in this project area, Category B and Category C, are 67 dBA L_{eq} and 72 dBA L_{eq} respectively. Future year (2020) noise levels for the project area were predicted using the Federal Highway Administration Traffic Noise Prediction Model.

According to the procedures described in 23 CFR, Part 772, Table I, noise impacts occur when predicted traffic noise levels for the design year approach or exceed the noise abatement criterion prescribed for a particular land use category, or when the predicted noise levels are substantially higher than the existing ambient noise levels. The SHA and FHWA define approach as 66 dBA and use a 10-dBA increase to define a substantial increase. This analysis was completed in accordance with federal procedures and evaluated in accordance with SHA's *Sound Barrier Policy*. (May, 1998)

Field measurements were performed in accordance with the procedures outlined in the Federal Highway Administration document *Measurement of Highway-Related Noise (FHWA-PD-96-046)* using ANSI Type 2 integrating sound level meters (Metrosonics Model db-3100) in February 2002. In accordance with a FHWA memorandum dated April 23, 1986, "When making measurements of existing noise, we recommend traffic counts also be made (autos, medium trucks, heavy trucks). The existing measured and calculated noise levels at the site should be compared to verify the accuracy of the FHWA model." Therefore, where appropriate, classified traffic counts were taken at receptor sites to provide the data for this calibration.

As shown in Table IV-9 and indicated on Figure IV-7, there are twenty (20) receptor sites located within seven (7) Noise Sensitive Areas (NSA) characterized by noise levels at specific locations within each NSA. The NSAs are residential areas. These sites were selected to represent the existing noise environment in areas where noise impacts may occur (see Chapter V, Section H, for a detailed explanation of approved SHA noise criteria).

The ambient noise levels shown in Table IV-9, as recorded over 20-minute periods, represent a generalized view of current noise levels. Measurements were taken between 7:00 AM and 9:00 PM on weekdays to determine what a typical daytime noise level is at these sites. The monitored data were normalized for peak hour traffic and background events, where appropriate.

It should be noted that, in addition to noise generated by traffic, the ambient measurements include background noise such as wind, rustling leaves, and aircraft/helicopter flyovers. However, when there is significant traffic, the contribution of background noise to the ambient level is usually negligible. Background noise that could be considered excessive is noted at the time of measurement and results in the retaking of a measurement, if the model cannot be calibrated.

A list of the NSAs along with the receptor sites and the results of the ambient noise-monitoring program are presented in Table IV-9 and shown in Figure IV-7. Monitored ambient levels ranged from 52 to 67 dBA.

**TABLE IV-9
EXISTING NOISE LEVELS**

NSA	SITE	ADDRESS	DESCRIPTION	AMBIENT MEASUREMENT		MONITORED L_{eq} (dBA)*
				DATE	TIME	
A-1	R1	3120 Finsbury Park Road	Double Family Residence	2/8/02	10:45 AM	65
	R2	3702/3703 end cul-de-sac at Liverpool Place Drive	Double Family Residence	2/8/02	10:45 AM	61
	R3	15220 Tottenham Terrace Drive	Double Family Residence	2/8/02	10:45 AM	63
	R4	15401 Bassett Lane	1 st floor of condominium	2/8/02	10:45 AM	57
A-2	R5	3625 Tarkington Lane	Single Family Residence	2/8/02	2:05 PM	52
	R6	3535 Tarkington Lane	Single Family Residence	2/8/02	2:05 PM	52
	R7	3501 Tarkington Lane	Single Family Residence	2/8/02	2:05 PM	55
B-1	R8	15300 Georgia Avenue (MD 97)	1 st floor of townhouse	2/12/02	12:35 PM	64
	R9	15421 Manor Village Lane	1 st floor of townhouse	2/12/02	12:35 PM	65
	R10	15300 Manor Village Lane	1 st floor of townhouse	2/12/02	2:15 PM	67
B-2	R11	15426 Norbeck Road (MD 28)	1 st floor of townhouse	2/12/02	10:20 AM	60
	R12	15410 Norbeck Road (MD 28)	1 st floor of townhouse	2/12/02	12:35 PM	58
	R13	15400 Norbeck Road (MD 28)	1 st floor of townhouse	2/12/02	12:35 PM	59
B-3	R14	15120 Georgia Avenue (MD 97)	Single Family Residence	2/12/02	2:15 PM	65
	R15	15004 Georgia Avenue (MD 97)	Single Family Residence	2/12/02	2:15 PM	65
	R16	15105 Rosecroft Road	Single Family Residence	2/12/02	2:15 PM	62
C	R17	3901 Arbor Crest Way	Single Family Residence	2/12/02	10:20 AM	60
	R18	3915 Arbor Crest Way	Single Family Residence	2/12/02	10:20 AM	57
	R19	15600 Thistlebridge Drive	Single Family Residence	2/12/02	10:20 AM	55
D	R20	White's Service Shed	Commercial building	2/8/02	3:23 PM	62

V. ENVIRONMENTAL CONSEQUENCES

This chapter describes the social-economic and natural environmental consequences of the alternatives under consideration, as well as avoidance and minimization of these impacts. Mitigation measures are also discussed where appropriate. The extent of the impacts discussed in this chapter will be refined during the final engineering phase of the project, should a build alternative be selected.

A. Social Impacts

This section considers the potential social effects that may result from the selection of one of the build alternatives currently being considered as part of the MD 28/MD 97 intersection improvement study.

1. Displacements

a. Description of Displacements and Relocations

The No-Build alternative (Alternative 1) will not require any displacements or acquisition of right-of-way from the properties within the project area.

Business displacements would occur with all of the build alternatives under consideration. No residential displacements are anticipated. Table V-1 summarizes the right-of-way requirements for each alternative being considered, based on preliminary estimates of the business and residential properties that could potentially be physically affected by that alternative.

**TABLE V-1
PROPERTY IMPACTS**

	Alternative									
	1	2	3	3, w/Opt. 4	3-Mod	4	5	6	6-Mod	7
Residential Displacements	0	0	0	0	0	0	0	0	0	0
Business Displacements	0	1	5	5	5	1	1	4	4	3
Displacements (total)	0	1	5	5	5	1	1	4	4	3
Properties Affected (total)	0	26	26	27	24	28	18	28	26	22
Right-Of-Way Required (acres)	0	3.6	10.6	11.2	7.6	3.8	1.8	9.9	8.3	8.9

The proposed build alternatives will require up to five commercial or retail business displacements, all located west of MD 97, primarily within the northwest quadrant of the existing MD 28/MD 97 intersection.

Alternatives 2, 4 and 5 would potentially require only one business displacement, the Mobil service station, located in the southwest quadrant of the MD 28/ MD 97 intersection. All three alternatives will require several acres of right-of-way from the properties adjacent to MD 28, MD 97 and the service roads. These alternatives include the addition of lanes to existing MD 28 west of its intersection with MD 97. Widening would occur to the south to avoid impacts to the historic White's Hardware Store and Residences. As a result of this, the Mobil service station is impacted enough to warrant a possible displacement. The proposed right-of-way would directly impact one of the pump islands, would displace several parking spaces and may leave insufficient room for vehicles to access the remaining pumps and store/garage. Alternative 2 would require approximately 3.6 acres of right-of-way spanning 26 properties, Alternative 4 would require approximately 3.8 acres impacting 28 properties and Alternative 5, which consists of at-grade widening to the existing MD 28/MD 97 intersection, would require 1.8 acres of right-of-way, spanning 18 properties.

Alternative 3 and all of its associated options will require five commercial displacements each. Alternative 6 and 6-Modified will require four commercial displacements each. Alternative 7 only requires three commercial displacements. These businesses are located either within the Norbeck Center or fronting the service road (MD 655) on the western side of MD 97. All of these anticipated displacements are a direct result of the proposed relocation of MD 28 to the north and are not a result of the improvements to MD 97 or existing MD 28.

The parcel of land along the western side of the service road (MD 655) between Thistlebridge Drive and the Norbeck Center entrance is under one ownership. This site is referred to as the Norbeck Sales Property based on the Phase I Environmental Site Assessment summarized in Chapter IV. The owner currently leases a tire sales and towing business (BZ Enterprises), but also rents out a trailer on the premises, which houses offices for both Sherwin Williams Paint, Inc. and RW Enterprises (operating a weekend flea-market). All three businesses located on the site will be relocated if any of the alternatives that relocate MD 28 to the north are chosen. Within Norbeck Center, up to two business displacements are proposed within the rear building of the Center; Thai Tavern, a restaurant located at the very northern end of this building and V-Nails, a beauty and cosmetic business located adjacent to Thai Tavern. Under Alternative 3 and all of its associated options the proposed right-of-way line for relocated MD 28 is shown to directly impact Thai Tavern, V-Nails, and up to 8 existing parking spaces. Under Alternative 6 and 6-Modified the proposed right-of-way line for relocated MD 28 is shown to directly impact only Thai Tavern and up to 5 existing parking spaces. The other three businesses within this building could remain open as long as a new exterior wall is built between V-Nails and its adjacent business to the south, a laundromat/cleaners. Alternative 7 would not displace any businesses within the Norbeck Center plaza.

b. Relocation Process

Relocation of any individuals, families, or businesses displaced by this project would be accomplished in accordance with the Uniform Relocation Assistance and Land Acquisition Policies of 1970 as amended by the Surface Transportation and Uniform Relocation and Assistance Act of 1987, and would be executed in a timely and humane fashion. In the event comparable replacement housing is not available for displaced persons, or available replacement housing is beyond their financial means, replacement "housing as a last resort" will be utilized to accomplish the re-housing.

2. Environmental Justice

Executive Order (EO) 12898 "Federal Actions to Address Environmental Justice in the Minority and Low-Income Populations" was signed on February 11, 1994. The EO requires the assessment of disproportionately high and adverse human health and environmental impacts on minority and low-income populations resulting from proposed federal actions. The EO reaffirms the provisions of Title VI of the Civil Rights Act of 1964 and related statutes, emphasizing the incorporation of those provisions with existing planning and environmental processes.

The EO adds low-income to the list of populations that should be investigated to ensure that they are not excluded from the benefits of or subject to discrimination caused by these federal programs, policies and activities. EO 12898 also requires that each study team develop its own unique public outreach program that specifically addresses the individual community needs within that study area. Specifically for this project, no special meetings have been held with minority or low-income communities since none were identified within the project area. However, all of the potentially affected communities have been notified by mail with regards to the updated status of the MD 28/MD 97 Intersection Improvement Study.

The percentage of minority populations in each of the census tracts (ranging from 16.3% to 27%) as well as in the total project area (20.6%) is substantially lower than that in Montgomery County (30.4%) overall. Therefore, none of the project areas' census tracts contain a "meaningfully greater" percentage of minority populations than the average percentage in Montgomery County. Based on these percentages of low-income populations and minority populations in the project area, as reflected in the income and race data taken from the 2000 Census information, there is no evidence that low-income, minority, or elderly populations will be disproportionately affected by any of the build alternatives being considered as part of the MD 28/MD 97 Intersection Improvement Study.

Summary of SHA's Equal Opportunity Program/Title VI Statement.

It is the policy of the Maryland State Highway Administration to ensure compliance with the provisions of Title VI of the Civil Rights Act of 1964 and related civil rights laws and regulations which prohibit discrimination on the grounds of race, color, sex, national origin, age, religion, physical or mental disability or sexual orientation in all State Highway Administration projects funded in whole or in part by the Federal Highway Administration. Title VI Statement requires federal agencies to ensure that their programs, policies and activities do not have the

effect of excluding populations from the benefits of, or subject persons and populations to discrimination based on race color or origin. The State Highway Administration will not discriminate in highway planning, design, or construction, the acquisition of right-of-way, or the provision of relocation advisory assistance. This policy has been incorporated into all levels of the highway planning process to ensure that proper consideration may be given to the social, economic and environmental effects of all highway projects. Alleged discriminatory actions should be addressed to the Equal Opportunity Section of the Maryland State Highway Administration for investigation.

3. Effects on Neighborhoods and Communities

The impacts of roadway projects on community cohesion can include the taking of land, homes and/or businesses; physical or psychological barriers dividing an existing community, or disruption of access within a community. The proposed roadway improvements shown in Alternatives 3, 6 and 7, and all of their respective options would require the acquisition of up to five businesses within the northwest quadrant of the intersection, but this would not divide any neighborhoods or communities. The widening of both MD 28 and MD 97 shown in all of the build alternatives will take place either within existing right-of-way or sections of right-of-way within the adjacent parcels along the roadway, but will not divide any neighborhoods. Therefore, no change in neighborhood cohesion will result. However, these improvements will alter the access to some of the neighborhoods that currently have direct access to and from MD 97, specifically The Preserve housing development. Current access for residents of The Preserve is via Thistlebridge Drive and its intersection with MD 97. Except for Alternative 5, left turns onto northbound MD 97 will be prohibited. Alternatives 3 and 6 show this existing connection to MD 97 closed off, with Thistlebridge Drive relocated to the north to connect to MD 97. Alternative 7 provides an additional means of access for the Preserve by providing a direct connection between Thistlebridge Drive and Relocated MD 28. Adjacent communities may also be affected, to some extent, by construction noise and fugitive dust and loss of minimal land and woodland buffer within the required right-of-way.

Access to Manor Park is affected by Alternatives 3, 3-Modified, 6, 6-Modified and 7 since the current access point across from MD 115 will be closed. To compensate for this, the access point to MD 28 across from Hannan's Way will be adjusted to accommodate two-way traffic along the existing MD 28 service road.

Traffic patterns for the area residents will be changed by all build alternates, with the exception of Alternative 5, through the introduction of movements associated with a grade-separated interchange. All of the build alternatives introduce a continuous median along MD 97, which would restrict crossing movements and left-turns onto MD 97. Vehicles may be required to execute U-turns to access points on the opposite side of the road. Alternatives 2, 4, and 5 will require parking reconfiguration for one townhouse unit located along Manor House Terrace. While there would be an initial adjustment to these changed traffic patterns, the long term benefits of improved traffic flow as well as the potential reduction of accident rates would outweigh any inconveniences.

The No-Build Alternative does not address the need for additional capacity and as such will add to traffic congestion and the lengthening of peak periods, thereby worsening travel time and safety for local trips and through commuters utilizing both MD 28 and MD 97.

Proposed capacity and safety improvements will provide an overall benefit to the surrounding communities. Elderly and disabled persons within the project area should benefit the greatest from the proposed sidewalk and crosswalk improvements. Transit services operating within the project area, supporting the elderly and disabled, will also benefit positively from the proposed improvements to the intersection due to reduced traffic congestion and the related access improvements.

4. Effects to Community Facilities and Services

Access to community facilities and services within or near the project area would be generally improved as a result of all the build alternatives. The positive impacts of the build alternatives on accessibility to services and facilities from within or outside of the project area include improved levels of service, decreased congestion, new turning lanes and a general improvement in the traffic operations. Alternative 5 would improve the traffic operations and overall safety but would only increase capacity slightly. The other alternatives would separate through movements from local movements and provide additional capacity to the project area, primarily to MD 28, therefore improving mobility and decreasing travel time delay.

a. Schools

There are no public or private schools located within the project area, therefore no direct school impacts are anticipated. However, construction is underway for a parochial school within the Saint Patrick’s Church property. The nearest existing school is Flower Valley Elementary School located within the Flower Valley Community, immediately west of the project area.

The proposed safety and capacity improvements should improve the project area community’s access to the existing schools. Any proposed roadway construction will have no direct impact to school facilities or properties, however, there could be some delays and detours into the Flower Valley community during the construction phase if a build alternative is chosen.

b. Churches and Places of Worship

Saint Patrick’s Church, located in the northwest quadrant of the MD 115/MD 28 intersection, will be slightly impacted as a result of all of the build alternatives, with the exception of Alternative 5. Some minor land acquisition, up to 0.3 acre, will be required. One parking space displacement is anticipated as a result of Alternatives 3, 3-Modified, 3 (with Option 4), 6 and 6-Modified. In preliminary designs, 31 spaces were projected to be displaced, but a minor adjustment of the MD 28 (relocated) centerline and the expansion of a proposed retaining wall along the church property reduced potential parking impacts to just one space. Alternatives 2 and 4 would require approximately 0.1 acre of right-of-way, but would not impact any of the existing parking spaces within the church property. There are currently two access

points to the property from MD 115 and one from MD 28. Based on Alternatives 3, 3-Modified, 6 and 6-Modified, the access point along MD 115 closest to MD 28 would be closed due to the proposed median island separating eastbound and westbound traffic. The final status of these access points would be investigated further as the study progresses.

The Waves of Glory Worship Center is located along the north and east side of MD 115 adjacent to Norbeck Park. The church is also referred to as the former Mount Pleasant Church, which is a National Register Eligible site and is therefore protected from impacts by federal and state laws. No impacts to this property are anticipated.

c. Parks and Recreation Facilities

The only park and recreation facility within the project area is Norbeck Park, located along MD 115. None of the alternatives being analyzed for this project will impact or require right-of-way from the Park, however, the current turning movements/access point to the parking area may have to be altered or relocated if Alternatives 3, 3 (with Option 4), 6 or 6 - Modified are chosen. The current design of the alternatives includes a raised median along MD 115 and is shown to extend westward past the current access point. A shifting of the access point has been discussed and is to be incorporated into the Maryland-National Capital Park and Planning Commission's (M-NCPPC) proposed plans to expand Norbeck Park, regardless of the outcome of our study.

Since plans have been approved to expand Norbeck Park, extensive coordination has occurred between SHA and the M-NCPPC regarding the future location of the proposed public facilities, in order to prevent future impacts. Agreements are to be drafted which would alter the location of these proposed facilities, in order to co-exist with any of the potential build alternatives. Correspondence regarding this issue is included in Chapter VI (Comments and Coordination), pages VIB-10 through VIB-15; specifically within the last paragraph on page VIB-14.

d. Health Care Facilities

There are no public health care facilities located within the project area. The proposed safety and capacity improvements shown in the build alternatives should improve the project area residents' access to the regional health care facilities, the closest of which is Montgomery General Hospital in Olney.

e. Libraries

There are no public libraries located within the project area. The proposed safety and capacity improvements shown in the build alternatives should improve the project area residents' access to public libraries within the east-central Montgomery County region. The closest public libraries are located along Aspen Hill Road and within the town of Olney.

f. Access for Emergency Vehicles

Besides emergency services provided within Rossmoor's Leisure World Community, there are no emergency services based within the project area. The proposed safety and capacity improvements associated with all build alternatives will provide emergency services with improved access to the project area. The improved accessibility to the communities within the project area should result in reduced emergency service response times. The addition of lanes to increase the capacity of the roadway and the removal of the existing signal configuration at the MD 28/MD 97 intersection would allow traffic to flow more freely and provide more room for emergency vehicles to pass. Under the No-Build Alternative, traffic would not move as freely and there would be less room for emergency vehicles to pass.

Any police or fire vehicles attempting to access the project area may need to cross the proposed medians along both MD 28 and MD 97 (shown in build alternative). To alleviate any access conflicts, proposed accommodations will be designed as the project progresses to include one-way turnarounds and designated crossings specifically marked for emergency vehicles only. Travel distances and times into The Preserve could be increased under Alternates 3 and 6, due to the possible relocation of Thistlebridge Drive. Continued coordination will occur between SHA and the Montgomery County Fire Company staff and the Montgomery County Police Department, as the study progresses.

g. Pedestrians and Bicycles

Existing sidewalks near Norbeck Center will be improved and new sidewalks will be added along the outside shoulder of southbound MD 97 and westbound MD 28 as part of all the build alternatives. Furthermore, a pedestrian and bicycle trail will be added along the western side of MD 97 and continuing along the northern side of MD 28, for Alternatives 2, 3-Modified, 4, 5 and 6-Modified. In Alternatives 3, 3 (with Option 4), and 6, the trail is shown at the toe of the fill slope along the western side of Ramp A from MD 97 southbound to the MD 28/MD 115 intersection.

B. Economic Impacts

1. Effects on Regional Business

The No-Build Alternative will not address the growing needs of the county, and, in particular, the project area. This alternative is anticipated to have a negative impact on the businesses throughout the region, as additional traffic congestion and reduced safety will deter additional residential and business activity. Businesses attracted to the region will select locations where access is or will be available.

All build alternatives provide some form of relief to traffic congestion by improving mainline levels of service. These alternatives will alleviate congestion on both MD 28 and MD 97 thereby reducing travel time to and from the project area businesses.

2. Effects on Local Business

The alternatives being considered will impact local businesses directly and indirectly. As previously mentioned in this chapter, up to six businesses within the northwest and southwest quadrants of the MD 28/MD 97 intersection may be displaced and possibly relocated. The businesses include a service station, a restaurant, a beauty shop, an auto parts business, a small wholesale paint business and a flea market. All of these businesses provide commodities and goods to the community either directly or indirectly. The services that these businesses offer can be obtained elsewhere within the immediate region, but not within the project area. This would cause motorists to travel outside of the project area, thereby altering consumer travel patterns. None of the identified relocations impact a non-profit organization.

Primarily, access impacts to businesses within the project area will be limited to construction related delays such as detours, temporary closures and associated congestion. These delays could last for up to two years. Transportation improvements can influence levels of accessibility by altering travel times and effectively making a location further from its current market. Several of the build alternatives contain traffic movements that will be circuitous for local consumers to access businesses adjacent to the intersection. Motorists may be required to travel up to an additional half-mile, depending on the alternative, in order to access an existing business within the vicinity of the MD 28/MD 97. This may cause a demand decrease to those businesses that rely on the 'impulse' or 'drive-by' customer or rely heavily on visibility. However, it is not anticipated that these impacts would cause businesses to close.

For example, all build alternatives, excluding Alternatives 5 and 7, reduce the number of access points to Norbeck Center. This occurs due to the reconstruction of the existing service road (MD 655) and the consolidation of access to White's Hardware Store and Residences. This may also limit discretionary travel into the businesses within the northwest quadrant.

White's Hardware Store customers currently park within unstriped paved areas on the service road adjacent to the north and east sides of the store. A bicycle/pedestrian trail, included in Alternatives 2, 4, and 7 would eliminate the parking area on the east side of the store, which accommodates 5 or 6 vehicles, and is within right-of-way owned by SHA. Most of the store's patrons currently park within the paved area on the north side of the store, which is not impacted and provides parking for up to 25 vehicles. Coordination with the owner of the store indicates that this area provides sufficient parking to compensate for any loss of parking along the east side of the store.

Alternatives 2, 4 and 5 realign MD 28 east of the MD 97 intersection by moving the highway centerline further south, away from the Golden Bear Golf Center. Negative impacts upon patronage, due to reduced visibility of the center from the road may occur, albeit minor. Additionally, Alternative 4, which places MD 28 below grade adjacent to the center, would further reduce the center's visibility, and Alternative 7 requires the relocation of the access point a few hundred yards to the east.

Widening of MD 28 west of the intersection results in minor right-of-way incursions upon the Flower Valley Veterinary Clinic that is not expected to reduce the available space for customer parking at the facility.

Table V-2 compares the affected commercial businesses within the project area. Land areas required from the businesses for right-of-way acquisition are presented.

3. Effects on the Tax Base

The No-Build Alternate would not impact the local or regional tax base. The alternatives which propose MD 28 be relocated to the north (Alternatives 3, 3-Modified, 6, 6-Modified and 7), will require between 3 and 5 commercial displacements. These businesses are located either within the Norbeck Center or fronting the service road (MD 655) on the western side of MD 97. The total amount of right-of-way potentially required from the businesses impacted by these alternatives is 3.9 acres. Alternatives 2, 4 and 5 may require only the displacement of the Mobil Service Station. As a result of these displacements, any immediate impacts on the regional tax base or economy will be minimal. In the near-term there will be some initial revenue reduction and a net-decrease in tax base, but over the long-term, the local tax base should recover or possibly increase as re-development occurs in or near the project area.

The removal of strips of right of way or parking from the non-displaced businesses could somewhat decrease the assessed value of these impacted properties. The result of this will be a minimal loss in annual property taxes. This amount would be extremely minimal when compared to the millions of dollars of revenue generated annually by property taxes in the county.

C. Land Use Impacts

1. Existing and Future Land Use

The Montgomery County land use vision identified in the Transportation Policy Report II (TPR II), "establishes a priority to protect and enhance existing communities and open space resources." The TPR II proposes a land use direction and a transportation network to carry out the vision of the General Plan for Montgomery County. The Montgomery County Planning Board proposes "coordinated planning of road and transit service with land use to maximize the benefits of serving and coordinating development with public investments in transportation. The land use vision emphasizes transit-oriented development, enhancing existing neighborhoods, and improving corridor character. To implement these goals, the TPR II recommends several initiatives including, "improving the visual and functional qualities of arterials and address traffic congestion of the older commercial strips."

Existing plans recognize the planned Georgia Avenue Busway along the MD 97 corridor, and the former Inter-County Connector project crossing MD 97 immediately north of the project impact area. As a result of these projects, planned changes in land use may still occur in the vicinity of the project.

**Table V-2
Affected Commercial Businesses**

Property/Business(es)	Location	Alternative 2	Alternative 3 (all options)	Alternative 4	Alternative 5	Alternative 6 and 6-Modified	Alternative 7
Norbeck Sales Property - BZ Enterprises, Sherwin Williams Sales, RW Enterprises	west of MD 97, 300 -400 feet north of MD 28. Access is via the service road (MD 655)	No displacements minimal parking impacts 0.07 acre ROW impacts access will not change	3 displacements 2.34 acres total ROW purchase	No displacements minimal parking impacts 0.07 acre ROW impacts access will not change	No displacements no parking impacts no ROW impacts access will not change	3 displacements 2.34 acres total ROW purchase	3 displacements 2.34 acres total ROW purchase
Whites Hardware Store	Whites Hardware Store Complex, adjacent to MD28/MD 97 intersection (northwest quadrant)	No displacements 5-6 parking space impacts no ROW impacts access points will be reduced	No displacements no parking impacts no ROW impacts access will not change	No displacements 5-6 parking space impacts no ROW impacts access points reduced	No displacements no parking impacts no ROW impacts access will not change	No displacements no parking impacts no ROW impacts access will not change	No displacements no parking impacts no ROW impacts access will not change
Norbeck Center - Thai Tavern, V-Nails	northwest quadrant of MD 28/MD 97 intersection, behind White's Hardware, rear building	No displacements no parking impacts no ROW impacts access will not change	2 displacements 8 parking space impacts 0.21 acre ROW impacts	No displacements no parking impacts no ROW impacts access will not change	No displacements no parking impacts no ROW impacts access will not change	One displacement (Thai Tavern) 5 parking space impacts 0.11 acre ROW impacts	No displacements no parking impacts no ROW impacts additional access point
Norbeck Center (remaining businesses and parking)	northwest quadrant of MD28/MD 97 intersection, behind White's Hardware Store Complex	No displacements no parking impacts no ROW impacts access will not change	No displacements possible parking configuration impacts no ROW impacts access will not change	No displacements no parking impacts no ROW impacts access will not change	No displacements no parking impacts no ROW impacts access will not change	No displacements possible parking configuration impacts no ROW impacts access will not change	No displacements possible parking configuration impacts no ROW impacts new access
Mobil Service Station	Adjacent to MD28/MD97 intersection, southwest quadrant	One displacement 0.11 acre ROW impacts	No displacements no parking impacts no ROW impacts access will change	One displacement 0.13 acre ROW impacts	One displacement 0.11 acre ROW impacts	No displacements no parking impacts no ROW impacts access will change	No displacements no parking impacts no ROW impacts no access to ex. MD 28
Flower Valley Veterinary Clinic	north side of MD 28, 1/4 mile east of MD 97	No displacements no parking impacts no ROW impacts access will not change	No displacements no parking impacts no ROW impacts access may change	No displacements no parking impacts no ROW impacts access will not change	No displacements no parking impacts no ROW impacts access will not change	No displacements no parking impacts no ROW impacts access may change	No displacements no parking impacts no ROW impacts access may change
Golden Bear Golf Center	north side of MD 28, 1/4 mile east of MD 97	No displacements no parking impacts 0.77 acre ROW impacts access will not change	No displacements no parking impacts 1.14 acre ROW impacts access will change	No displacements no parking impacts 0.85 acre ROW impacts access will not change	No displacements no parking impacts 0.40 acre ROW impacts access will not change	No displacements minimal parking impacts 1.52 acre ROW impacts access will change	No displacements minimal parking impacts 1.28 acre ROW impacts access will change
Totals		1 displacement 2 additional businesses with parking impacts 0.99 acre ROW impacts	5 displacements no additional businesses with parking impacts 3.69 acres ROW impacts	1 displacement 2 additional businesses with parking impacts 1.08 acre ROW impacts	1 displacement no additional businesses with parking impacts 0.51 acre ROW impacts	4 displacements 1 additional business with parking impacts 3.97 acres ROW impacts	3 displacements 1 additional business with parking impacts 3.62 acres ROW impacts

Aspen Hill Master Plan

The most recent Aspen Hill Master Plan was approved and adopted in April 1994. The planning area boundary for Aspen Hill and vicinity are: Muncaster Mill and Norbeck Road to the north, Rock Creek Regional Park in the west, Henson State Park to the south and Northwest Park to the east. The plan reinforces the primarily suburban and residential character of the community by retaining its residential zoning with relatively few changes. The plan also seeks to increase opportunities for community interaction in order to reduce the social and sometimes physical isolation of various neighborhoods through both public investment and physical designs of private activity. While creating this plan, other planning initiatives were incorporated such as the visions from the Economic Development, Resource Protection, and Planning Act of 1992 (the Planning Act) and the 1993 General Plan Refinement which provides clear guidance regarding the general pattern of development in Montgomery County, while retaining enough flexibility to respond to unforeseeable circumstances as they arise.

The Aspen Hill community is a maturing suburb that has a large built out residential area with a wide range of residential densities and a large employment area. Based on these factors, the current land use patterns project that they will remain the same, as relatively few acres are available for future development. The land use objectives obtained from the Master Plan indicate: encourage the protection, enhancement and continuation of current land use patterns; protect and reinforce the integrity of existing residential neighborhoods; and preserve and increase the housing resources in support of Montgomery County housing policies.

According to the 2000 census information, population trends in Aspen Hill have decreased from 54,612 in 1990 to 50,228 in 2000. An increase in persons 65 or older from 1990 to 2000 has developed. This can probably be attributed to the overall aging population as well as the expansion of facilities within the Leisure World community.

In the Aspen Hill Master Plan, future land use discussed significant parcels or areas that are recommended for a change in zoning and points out issues that should be investigated at a later time. The plan also supports the retention and reconfirmation of existing public facility sites in the area and existing zoning for the developed, underdeveloped and undeveloped land, except for those sites recommended for a change in this plan. Generally, these changes are in the types of zoning for the area and reflect the desire for infill development.

Olney and Vicinity Master Plan

The 1980 Olney Master Plan proposes "a residential satellite community surrounded by open space." The Plan also proposes a program to "preserve prime farmland and a Town Center Urban Design to strengthen community identity." To retain Olney's semi-rural atmosphere, single-family homes are the predominant housing type proposed in the Plan. In the vicinity of the MD 28/MD 97 intersection, the future land use element recommends residential densities of 1-acre lots west of Georgia Avenue and 2-acre lots east of Georgia Avenue. The Olney Master Plan recommends that residential, not commercial, uses be located along MD 97 north of MD 28. However, due to the moratorium placed on the Olney and Aspen Hill Planning Areas, limiting new residential development, consideration of local, retail commercial land uses may be warranted.

The build alternatives proposed in this study facilitate traffic movements to alleviate traffic congestion and improve safety along two primary arterial roadways, in accordance with the goals of the county land use vision. The 1980 Olney Master Plan identifies the completion of the intersection improvements. The TPR II documentation includes an interchange at MD 28/ MD 97 in its final transportation recommendations.

2. Compliance with Smart Growth Initiatives

In 1992, the State of Maryland adopted the Economic Growth, Resource Protection and Planning Act that established a series of "visions" for Maryland's future. Under the act, the visions must be implemented within the context of a local comprehensive plan. Some of the visions contained within the act are relevant to the MD 28/MD 97 Intersection improvements and include: concentration of development within suitable areas; protection of sensitive areas; conservation of resources; and encouragement of economic growth within the study area.

The intent of the Smart Growth Area Act (October, 1997) is to direct State funding for growth-related projects to areas designated by local jurisdictions as Priority Funding Areas (PFAs). PFA's consist of existing communities and other locally designated areas as determined by local jurisdictions in accordance with "smart growth" guidelines. Smart Growth seeks to guide development to existing towns, neighborhoods, and business areas by directing State infrastructure improvements into these places. Table V-3 indicates the location of the PFA boundary within the vicinity of the MD 28/MD 97 intersection. In total, there are ten alternatives that are under consideration for this intersection improvement study and approximately 95% of the impacted areas for all the alternatives are within the PFA. Therefore, the study improvements are considered within the county designated PFA boundary.

3. Aesthetics and Visual Character

The proposed alternatives for intersection improvements include raised intersections with bridges and walls, relocated roads and ramps, the removal of forest/tree masses, additional lanes for vehicular traffic, pedestrian walkways and ramps, reforestation/afforestation, and street trees.

Raised intersections with bridges and associated abutment walls would potentially have the greatest impact to the visual quality of the project area because they tend to be more visible than at-grade roads and intersections. However, with careful consideration of design details such as the materials used in the construction of walls and abutments associated with the bridges, an attractive, functional and safe environment may be achieved for both pedestrians and motorists alike. The alternatives with raised intersections and bridges (all build alternatives except Alternative 5) allows for improved movements of vehicles and pedestrians through the area since there is a separation of the travel lanes.

When roads, ramps and intersections are relocated (Alternatives 3, 3-4, 3-Modified and 6), potential impacts to the visual quality are high, especially if they include the removal of forested areas or tree masses. In this case, it is important to keep impacts to the existing features, especially vegetation, to a minimum. If possible, the replacement of forest should be considered, along with supplemental landscaping where appropriate.

Where vegetation currently provides a visual buffer between roads and residential areas, the potential impact to visual quality is significant because not only do pedestrians and motorists using the highway and sidewalks see into the residential communities, but the highway and sidewalks also become visible to community residents. Therefore, it is important to consider the replacement of buffers between the proposed road improvements and existing residential communities where possible. Such buffer replacement may include plantings, berms, and/or walls.

Enhancements of existing features, associated with all of the build alternatives, will result in a higher visual quality for the project area. Enhancements may take the form of improved pedestrian and vehicular circulation, supplemental landscape plantings, design details that allow for easier and more effective maintenance of the area, and design details that enhance the aesthetics of the area, such as lighting, signage, and replacement of cracked pavement and sidewalks. Ensuring that all existing and proposed pedestrian traffic areas are compliant with the Americans with Disabilities Act (ADA), which is another important consideration that may result in improved visual quality, could involve grade changes, supplemental lighting, improved intersection crossings with ramps, and additional signage or warning features. Providing improved access to existing commercial and residential areas, along with the existing park and ride lot, would also be an important feature to consider and may also result in improved visual quality for the project area.

Where impacts to the existing features of the project area are carefully considered and minimized, and where enhancements to those features are proposed, high visual quality of the project may be anticipated. As construction occurs, measures taken to avoid unnecessary impacts to the existing features are particularly important. Proposed features such as design details focusing on improved pedestrian and vehicular circulation throughout the project area, high aesthetic quality of built features and landscape areas, and the maintenance or enhancement of buffers between the highways and adjacent uses, may also allow for high visual quality within the project area. Finally, high visual quality may be achieved when the proposed highway improvements are integrated well into the existing features of the project area.

D. Effects on Cultural Resources

A letter was sent from SHA to the State Historic Preservation Officer (SHPO) on May 3, 2002, regarding the determination of effect that Alternatives 1 through 6 would have on significant cultural resources within the Area of Potential Effect for this project. (see Chapter VI, 'Comments and Coordination', pages VIA-44 through VIA-52). Concurrence from the SHPO was received on July 29, 2002. The effect determination rendered by the SHPO is reflected in the Effects Table (on page VIA-51) and is summarized as follows:

- Alternative 1 (No-Build) – No Properties Affected.
- Alternatives 4 and 5 - No Adverse Effect (NAE). The Mt. Pleasant Church and Cemetery and the Mt. Pleasant School/Norbeck School are not impacted. The characteristics that qualify White's Hardware for inclusion in the NRHP are related to its function as a roadside convenience. Due to the minimal changes introduced into

the viewshed and traditional at-grade relationship with MD 28 the SHPO concurred in a NAE determination. However, the SHPO noted that the inclusion of a retaining wall, which is being considered with Alternative 4, may ultimately result in an Adverse Effect determination.

- Alternatives 2, 3, and 6 – Adverse Effect. Alternatives 2, 3, and 6 impact one or more of the three properties adversely due to the introduction of elevated grade separations in the vicinity of White’s Hardware, which surround the historic property with roadway alterations on three sides (Alternatives 2 and 3), or reconfiguration of the MD 115/MD 28 intersection in the vicinity of the Mt. Pleasant Church and Cemetery and the Mt. Pleasant School/Norbeck School, which includes the new Thistlebridge Drive Access, and introduces new retaining walls (Alternatives 3 and 6). As these alternatives propose new elements, which alter the viewshed from these resources, the SHPO determined that the effect would be adverse.
- Alternative 7 – Adverse Effect. A letter was sent to the SHPO on September 12, 2002 requesting an Adverse Effect determination for newly developed Alternative 7. Concurrence was received on October 8, 2002 (see page VIA-57). Similar to Alternative 6, Alternative 7 proposes reconfiguring the MD 115/MD 28 intersection in the vicinity of the Mt. Pleasant Church and Cemetery and the Mt. Pleasant School/Norbeck School, and almost completely surrounds White’s Hardware by transportation facilities, isolating it from previously connected properties to the north.

Alternatives 2, 4, and 7 require right-of-way for a bikeway from a small portion of the unstriped parking area, which accommodates 5 or 6 vehicles between the service road and White’s Hardware Store. Most of the store’s patrons currently park within the paved area on the north side of the store, which is not being impacted. The affected parking area is located outside of the historic boundary of the property, and within SHA right-of-way.

Based on an assessment of high archeological potential by SHA cultural resources staff, a Phase I Archeological Identification survey was conducted for this project. The results of the survey are documented in *Archeological and Historical Investigations for Improvements to the Intersection of Maryland Routes 28 and 97, Montgomery County, Maryland*. One historic archeological site (18MO566) was identified and interpreted as a low-density scatter of domestic refuse dating primarily to the later 19th and early 20th centuries. Given the site’s limited research potential and lack of integrity, 18MO566 is not eligible for listing on the National Register of Historic Places under Criterion D. No significant archeological deposits were identified within the APE in the vicinity of the Mount Pleasant School/Norbeck School. The Mount Pleasant Church and Cemetery and its historically associated lots where archeological deposits are likely would be avoided by this undertaking. No National Register eligible archeological resources were identified and no further archeological investigations are recommended.

Prior road and parking lot construction around White’s Hardware Store and Residences suggest that any surviving archeological resources are located immediately adjacent to the extant structures, which will be avoided by all alternates under consideration. Consequently, the project will have no impacts on significant archeological resources.

E. Natural Environment

The assessment of natural environmental effects and impacts from each of the proposed project alternatives was based on the project team's interpretation of natural resources, as plotted upon 1"=100'-scale alternates mapping. The wetland limits were concurred upon by the agencies following the Jurisdictional Delineation Field Review (see Chapter VI, Comments and Coordination). For natural environmental constraints that occur within the existing right-of-way, impacts were assessed and calculated based on the addition of impervious cover, as well as on any construction activities that may occur between the edge of pavement and the existing right-of-way limits. The same holds true for any impacts between the existing right-of-way limits and the proposed right-of-way limits; however, these impacts may or may not include the addition of impervious cover.

1. Physiography/Topography and Geology

The MD 28/MD 97 intersection is located entirely within the Piedmont physiographic province, which is characterized by rolling topography. The site is located on a ridgeline that runs in a north-south direction beneath MD 97, forming the drainage divide between Northwest Branch and Rock Creek. Elevations in the project area range from approximately 460 feet to 500 feet above mean sea level. The topography in the project area is primarily governed by the underlying geologic formation, which according to the *Geologic Map of Maryland* (1968) is Norbeck Quartz Diorite. This igneous paleozoic formation ranges from weakly-foliated quartz diorite to strongly gneissic and schistose rock with recrystallized or igneous textures.

The No-Build Alternative will have no effect on the topography or geology of the project area. Effects from the build alternatives vary depending on the amount of cut or fill required to implement each alternative, however, all potential impacts are expected to be localized in nature.

Alternatives 2, 4 and 5 will have the least impact on topography within the project area. These alternatives will involve minor grading to accommodate realignment of the MD 28 approach to the intersection, access to and from side roads and widening of both MD 97 and MD 28. Alternatives 3, 3-Modified, 6,6-Modified, and 7 all involve creating a grade-separated intersection, which will require more substantial cut and fill operations. Alternatives 3 and 3-Modified raise MD 28 over MD 97 on retained fill with an open span over MD 97. Both alternatives require fill for the approaches along MD 28 as it nears the MD 97 overpass. If Thistlebridge Drive Access Option 4 is incorporated into Alternative 3, the associated ramp (Ramp A), which connects southbound MD 97 to westbound MD 28, would require a substantial amount of fill to allow for sufficient clearance over existing Thistlebridge Drive. Alternatives 6, 6-Modified and 7 lower the profile of MD 28 to pass beneath MD 97. While still changing localized topography, the effects of these alternatives would be less visually apparent than Alternatives 3 and 3-Modified.

Based on geotechnical studies performed for the project, no effects to the underlying geology of the intersection are expected from any of the alternatives.

2. Soils

Information on soils was gathered from the Natural Resources Conservation Service's (NRCS) Soil Survey of Montgomery County and NRCS staff. Agriculturally important or ecologically sensitive soil types such as prime farmland, hydric and erodible soils were identified. Soil map units in the project area are shown in the 'Existing Environment' chapter, Figure IV-6. Six primary soil types have been identified in the project area, including Elioak, Glenville, Baile and Glenelg silt loams and Chrome/Conowingo soils. Each soil type is summarized in Table IV-4.

All of the build alternatives will require disturbance of soils within the project area. Cut and/or fill operations would alter the natural soil profile, creating disturbed soils characteristics found in most urban settings. This effect would be greatest for the grade-separated alternatives on new location (Alternatives 3, 3-Modified, 6, 6-Modified and 7), which require the largest amount of soil disturbance. The greatest potential negative effect from soil disturbance is sedimentation of downstream receiving waters. With the exception of Glenville silt loam, all of the soils in the project area are designated by NRCS as potentially highly erodible. When exposed during construction, these soils have a high potential susceptibility to the erosive forces of wind and rain if not carefully managed. Soils washed from the project site can be delivered to streams within and down-gradient of the project site leading to destabilization of stream channels, potential for increased flooding and loss of aquatic habitat. Impacts from soil erosion will be minimized through implementation of an approved Erosion and Sediment Control plan in accordance with the *Maryland Standards and Specifications for Soil Erosion and Sediment Control*. Measures to control erosion would include: reduction of soil exposure time, vegetative stabilization of exposed soils, and use of standard structural controls such as silt fences and appropriately sized sediment traps and basins.

The areas of soil designated as prime farmland within the project area are either already developed or slated for development in the near future. Consequently, coordination under the FPPA is not anticipated for this project.

3. Water Resources

Surface Water

The No Build Alternative will not affect surface waters, whereas all of the build alternatives have the potential to affect surface waters. However, due to the limited resources in the project area, impacts are expected to be minimal. The only flowing waterway within the project area is the headwaters of Manor Run, which begins in the stormwater management pond designated as Wetland 2 and flows beneath MD 97 and through Wetland 4. An ephemeral channel, which is regulated by the USACE, also delivers wet-weather drainage from a wetland area north along MD 97.

No direct impacts to the stream channel are anticipated under Alternatives 2, 4 and 5. However, all of these alternatives will require the alteration of the in-line stormwater

management pond where the stream originates as well as the loss or relocation of the ephemeral channel along MD 97. A portion of the pond will be filled to allow for widening of MD 97; however, the pond will then be expanded southward to accommodate runoff from the existing and added impervious areas. The grade-separated alternatives would also encroach on the stormwater pond and ephemeral channel, but with the exception of Alternatives 3-Modified, 6-Modified and 7, would also impact the stream channel of Manor Run. The greatest potential for impacts to Manor Run would occur with the use of Thistlebridge Options 4, applied to Alternative 3, which encroaches on the channel along MD 97. Alternatives 3-Modified and 6-Modified avoid any impacts to the stream channel by eliminating Ramp A and the need for a relocation of Thistlebridge Drive. The relocation of Thistlebridge Drive proposed under Alternative 7 avoids any impacts to the stream channel. The direct impacts of all of the alternatives on surface water resources are summarized in Table V-3 below.

**Table V-3
Summary of Direct Impacts to Surface Waters**

Wetland	Class	Non-relocated Alternatives			'MD28 Relocated' Alternatives			
		Alt. 2	Alt. 4	Alt. 5	Alt. 3/6	Alt. 3 Option 4	Alt. 3/ 6 Mod.	Alt. 7
In-line SWM Pond (W2)	POWHh	0.17 ac	0.16 ac	0.04 ac	0.07 ac	0.07 a.	0.07 ac	0.07 ac.
Ditch Between W2 & W3	Ephemeral	320 lf	320 lf	320 lf	320 lf	320 lf	320 lf	320 lf
Manor Run (W4)	R4SB2 Ephemeral	0.0 -	0.0 -	0.0 -	15 lf	90 lf 350 lf	0.0 -	0.0

Direct impacts to stream channels would require a Section 404 permit from the U.S. Army Corps of Engineers and a waterway construction permit from the Maryland Department of the Environment. Mitigation for stream channel impacts will be required and is typically provided in the form of water quality improvements such as stormwater retrofits, riparian plantings or stream restoration. Mitigation for impacts to ephemeral channels is not required. Mitigation planning will be fully coordinated with federal and state regulatory personnel and will be initiated in later design phases, following selection of a preferred alternative.

In addition to direct impacts, the build alternatives also have the potential to indirectly affect surface waters. All of the build alternatives will result in an increase in impervious surfaces within the project area. The conversion of open-space and forested areas to impervious areas would be expected to increase surface runoff and peak stormflows as well as introduce

sediment and other pollutants into waterways. Higher surface runoff and stormflows have been found to greatly decrease stream channel stability and base flows as well as increase water temperatures and in-stream erosion and sedimentation, all of which negatively affect water quality and aquatic habitat. Highway runoff may include pollutants such as heavy metals, inorganic salts, hydrocarbons, oil and grease, rubber particles and suspended solids that accumulate on roadways and are delivered to waterways during precipitation events. While many studies have found that highway runoff is not acutely toxic to aquatic organisms, some studies indicate a loss of community diversity and productivity as well as accumulation of contaminants in the tissue of aquatic species near discharge points (Buckler et al. 1999).

Table V-4 summarizes the additional area of impervious surface that would result from each alternative. As illustrated in the table, Alternative 7 would result in the highest amount of impervious surface, while Alternative 5 would result in the least. Of the grade-separated alternatives, Alternatives 3 and 6 Modified would result in the smallest increase in impervious surface.

**Table V-4
Additional Impervious Areas from Each Alternative**

	Non-relocated Alternatives			'MD 28 Relocated' Alternatives			
	Alt. 2	Alt. 4	Alt. 5	Alt.3/ 6	Alt. 3 Opt. 4	Alt. 3/6 Modified	Alt. 7
Acres of New Impervious Area	9.09	9.15	2.97	6.12	6.64	5.75	11.9

Additional adverse effects to surface water quality may occur during construction of a build alternative. Grading operations would expose soil to erosion during storm events, leading to sedimentation of project area waterways. Turbidity and increases in suspended solids in streams due to sedimentation can interfere with photosynthesis, smother fish eggs and other aquatic organisms and abrade fish gills (Barrett et al. 1993). Excess sediment deposited in area stream channels can also have an adverse effect on stream stability, leading to longer-term impacts on water quality and aquatic habitat that persist well beyond completion of construction.

Studies have shown that many of the adverse effects of highway runoff water quality can be minimized through the use of stormwater best management practices (BMPs). Detention and retention ponds provide both quantity and quality controls as they temporarily store runoff to allow for settling of suspended solids and retention of sediment and other runoff contaminants. Extended detention and retention ponds have been shown to be very effective in removing pollutants such as metals. Nutrient removal can be enhanced in stormwater management through the use of shallow marsh systems, with the greatest potential for pollutant removal in a wetland/pond combination.

A stormwater management plan would be developed in accordance with Maryland Department of the Environment (MDE) stormwater criteria to minimize adverse effects to water

resources. The plan would include measures to address both quantity and quality controls that capture and treat at least the first inch of runoff from a storm event, maintain groundwater recharge volume, have 24 hour retention of the one year storm event and prevent an increase in the frequency and magnitude of overbank flooding generated by the project. Water quality is further protected through the requirement to obtain a Section 401 water quality certification from MDE as part of the joint federal/state permit process for impacts to wetlands and waterways.

Adverse impacts to water quality during construction would be minimized through strict adherence to SHA erosion and sediment control procedures. Additional protection would be given to aquatic resources during construction through the strict observance of State mandated stream closures for Use IV streams. No in-stream work would be conducted in the headwaters of Manor Run from March 1 through May 31.

Groundwater

Information on groundwater within the project area was collected from resources published by the MDNR, Maryland Geological Survey and the U.S. Geological Survey. Additional information was gathered from personal communications with MDE on water supply and Natural Environmental Technical reports prepared for previous studies conducted within the vicinity of the MD 28/MD 97 intersection.

The No-build Alternative will not affect groundwater in the project area. Each of the build alternatives has the potential to affect groundwater in proportion to the conversion of existing pervious land cover (forest, open fields) to impervious surfaces for the interchange. Highway construction influences groundwater recharge by conversion of permeable surfaces to impermeable surfaces, increased stormwater runoff rates and potential introduction of highway derived stormwater contaminants to groundwater. It is not anticipated that any of the build alternatives would result in long-term adverse effects on groundwater. Although there is a potential for reduction in local water table recharge, the amount of impervious surfaces resulting from any of the build alternatives is negligible in relation to total recharge areas of the underlying aquifers. Stormwater management requirements mandate the control of post-construction stormwater to pre-construction pervious conditions through the use of measures that address both quantity and quality. In addition, underlying geology does not indicate a direct conduit of contaminants to groundwater supplies that could be present in known recharge or carbonate rock zones.

4. Floodplains

Location of 100-year floodplains was obtained from Federal Emergency Management, Flood Insurance Rate Maps for Montgomery County. There will be no impact to any 100-year floodplains within the MD 28/MD 97 project area, as no such areas were identified within the proposed project area.

5. Ecological Conditions

a. Wetlands

The No-Build Alternative will not have an effect on project area wetlands and waters of the U.S.; however all of the build alternatives would affect wetlands or waters of the U.S. to some degree. Impacts to waters of the U.S. are detailed in the 'Water Resources' section of this chapter, as well as impacts to Surface Waters (see Table V-3). Impacts to vegetated wetlands resulting from each alternative are shown in Table V-5 below.

**Table V-5
Summary of Impacts to Vegetated Wetlands (Acres)**

Wetland Number	Wetland Class	Non-relocated Alternatives			'MD 28 Relocated' Alternatives			
		Alt. 2	Alt. 4	Alt. 5	Alt. 3/6	Alt. 3/6 Opt 4	Alt. 3/6 Modified	Alt. 7
W3*	PFO1A	0.06	0.06	-	0.01	0.01	0.01	0.01
W4	PFO1A	-	-	-	0.29	0.42	-	-
	PEM1A	-	-	-				
W5	PFO1A	0.11	0.11	0.11	0.07	0.07	0.07	0.07
Total	PFO1A	0.17	0.17	0.11	0.37	0.50	0.08	0.08
	PEM1A	-	-	-	-	0.06	-	-

**Note: Impacts to Wetland 3 (W3) are based on estimated boundary due to lack of property access.*

Under requirements of Section 404 of the Clean Water Act and the Maryland Nontidal Wetlands Protection Act, a Joint Federal/State permit is required for any impacts to nontidal wetlands resulting from the project. In accordance with federal and state regulations, efforts to avoid and minimize impacts to wetlands and other waters of the U.S. are on-going and would continue in later design phases. Avoidance and minimization measures employed to date have concentrated on reducing potential impacts to Wetland 4, the largest and least disturbed of the wetlands within the project area. Measures to reduce impacts to this area have included redesign of initial grade-separated alternatives and shifting of at-grade alternatives to avoid the wetland all together. Additional measures would be explored during later phases of the project when an alternative has been chosen and when more detailed design refinements can be employed to further minimize impacts.

All impacts to wetlands will be mitigated in accordance with state and federal regulations and guidance. Emergent wetlands are typically mitigated on a 1:1 replacement basis, while forested wetlands are mitigated on a 2:1 basis. Based on estimated acreage of impacts from the various build alternatives, between 0.22 acres and 1.06 acres of mitigation will be required if a build alternative is selected. Specific wetland mitigation sites have not yet been identified. Mitigation planning will be initiated during subsequent engineering phases of the project and will be fully coordinated with the USACOE and MDE.

b. Terrestrial and Wildlife Habitat

Terrestrial

The entire project area falls within the Tulip Poplar Forest Association, which is typically dominated by tulip poplar and other upland hardwood trees. Wooded areas south of MD 28 primarily consist of narrow forested hedgerows ranging in width from thirty to fifty feet along both sides of MD 97. East of the project intersection, on the south side of MD 28 there is a more substantial forested strip with a width of 75 to 150 feet. The narrow hedgerows are dominated by black locust, tulip poplar, oaks and ash in the 6-12 inch size class, and have a high percentage of invasive vines. A few areas bordering Leisure World also have planted landscape trees such as white pine adjacent to the more natural forested strips.

Construction of any of the build alternatives will result in the removal of vegetation within the project area. Potential impacts to forests from each of the proposed alternatives are summarized in Table V-6. Alternative 7 would have the least effect on forest resources since the alignment of MD 28 east of MD 97 follows the existing roadway more closely, while Alternative 3 with Thistlebridge Access Option 4 would have the greatest effect. Each of the alternatives would also impact significant trees as illustrated in the table.

**Table V-6
Summary of Forest Impacts**

	Non-relocated Alternatives			'MD 28 Relocated' Alternatives			
	Alt. 2	Alt. 4	Alt. 5	Alt. 3/6	Alt. 3 Option 4	Alt.3/6 Mod	Alt. 7
Forest Acres Impacted	11.4	11.4	8.9	11.7	11.9	9.6	8.4
Significant Trees	4	4	6	6	6	6	5

Although much of the forested areas impacted would be considered a forest edge community, these areas provide habitat value as well as a natural buffer between land uses within the corridor area. The build alternatives would also reduce other potential habitat areas through the conversion of grassed and landscaped areas to pavement.

All forest impacts will be mitigated in accordance with the Maryland Reforestation Law, which requires that cleared areas be replaced on a 1:1 basis. Prior to any clearing, project plans will be approved by the MDNR Regional Forester including required reforestation details. Potential reforestation areas will be identified on site where possible.

Wildlife

The undeveloped land within the project area provides habitat for a number of wildlife species. Construction of any of the build alternatives will diminish the quality of these habitats by reducing the overall habitat availability, fragmenting habitats and increasing noise levels. While highly mobile species such as most mammals and birds could escape direct impacts from clearing of forested areas, most displaced individuals would not be expected to survive as they would presumably be forced into already occupied and defended territories, and competition for resources and predation pressures would be high. Less mobile species, such as reptiles and amphibians, would be directly impacted by clearing and grubbing of forested areas. Additionally, widening of the roadways within the project area would increase the likelihood of wildlife/vehicle collisions. Most of the wildlife affected will be common species adapted to smaller woodlots and edges; however, impacts to the larger forested areas in the northwest quadrant may also diminish available habitat for more sensitive species that now use the area as stopover habitat in the rapidly developing environment surrounding the project area. Impacts to streams and wetlands would also be expected to affect aquatic species.

Impacts to terrestrial and aquatic wildlife can be diminished somewhat through the use of tree protection measures for areas not to be cleared during construction, limiting clearing where possible during the breeding season of most terrestrial vertebrates (May-August) and strict adherence to stream closure periods, stormwater management guidelines and sediment and erosion control plans.

c. Endangered and Threatened Species

Due to the developed nature of the project area and because there are no records in the project area, no impacts to rare, threatened or endangered species are anticipated from the project. However, due to the presence of species of concern in the vicinity of the project, a rare, threatened and endangered species survey may be required in later phases of the project to determine presence or absence of the subject species.

d. Unique, Sensitive and Aesthetic Areas

There would be no impact to this constraint, as no such areas were identified within or immediately adjacent to the study corridor.

F. Hazardous Materials / Waste Site Impacts

The build alternatives may involve encroachment on known or suspected contaminant sites, namely leaking underground storage tank (LUST) sites in the project area. These areas are within the southwest and northwest quadrants of the MD 28/MD 97 intersection where the Mobil service station and Whites Hardware Store Complex are located, respectively. The closed status of these LUST sites does not imply that there is no residual soil or groundwater contamination. Two feasible options outlined below are available to address potential contamination on the identified sites:

1. When the preferred design alternative is selected, it should be determined if the proposed alignment(s) will impact the contaminant sites identified in this report. Where encroachment on the LUST sites or other potential contaminant sites may occur, a focused Phase II assessment can be performed. The purpose of the Phase II assessment is to characterize subsurface conditions within the lateral and vertical limits of the planned excavations, which may include shallow or deep foundations, trenching, or other grading. This option can assist in the planning stages of the project to avoid potentially costly delays and overruns during construction.
2. Alternatively, further assessment of the impact of the LUST sites may be deferred until the construction phase of the project. Periodic monitoring in potential contaminant areas and development of environmental and worker protection plans prior to construction may be incorporated in the construction documents. The construction documents might also identify work practices to recognize the presence of petroleum contamination or require the contractor to engage an environmental consultant to perform monitoring and sampling where warranted.

Where such sites are impacted by new construction (i.e. excavation or other intrusive activity), appropriate handling and disposal of affected media may need to be implemented. Further sampling and analysis may be warranted to ascertain appropriate handling and disposal procedures for known or suspected contaminated soil or groundwater.

If Alternatives 2, 4 or 5 are chosen as the selected alternative, the Mobil service station would likely be displaced. If any of the other build alternatives are chosen, potentially 2,090 square feet of right-of-way would be taken, but the service station should remain operational. Concerning the White's Hardware Store and Residences, only the parking along the MD 97 side of the property would be impacted by Alternatives 2 and 4. If one of these alternatives is selected, only minimal ground disturbance would occur to the property in order to build the proposed sidewalk/bikeway.

G. Air Quality

1. Objectives and Type of Analysis

This analysis serves as support documentation for the project and has been prepared in accordance with the U.S. Environmental Protection Agency (EPA), Federal Highway Administration (FHWA), and Maryland State Highway Administration (SHA) guidelines. Carbon monoxide (CO) impacts are analyzed as the accepted indicator of vehicle-generated air pollution.

The EPA CAL3QHC dispersion model is used to predict carbon monoxide (CO) concentrations for air quality sensitive receptors for both the build year (2010) and design year (2020). The detailed analyses predict air quality impacts from CO vehicular emissions for both the No-Build Alternative and the Build Alternatives at each receptor location. Modeled 1-hour and 8-hour average CO concentrations are added to background CO concentrations for comparison to the State and National Ambient Air Quality Standards (S/NAAQS).

2. Construction Impacts

The construction phase of the proposed project has the potential to impact the local ambient air quality by generating fugitive dust through activities such as demolition and materials handling. The State Highway Administration has addressed this possibility by establishing "Standard Specifications for Construction and Materials" which specifies procedures to be followed by contractors involved in site work.

The Maryland Air and Radiation Management Administration of the Maryland Department of the Environment 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 and Radiation Management Administration found the specifications to be consistent with the requirements of these regulations. Therefore, during the construction period, all appropriate measures (Code of Maryland Regulations 26.11.06.03D) would be incorporated to minimize the impact of the proposed transportation improvements on the air quality of the area.

3. Receptor Site Locations

Sixteen (16) air quality receptors were initially used for the analyses. Thirteen (13) of these receptors were selected to represent air quality sensitive locations within the project area. The receptor sites chosen for these receptors are residences, historical sites, or places of worship. In addition, three (3)-signalized intersections were analyzed in the project area. At these intersections, a receptor was placed at the edge of right-of-way along roadways where queue lengths form. The CO concentration listed for the intersection is the maximum concentration from the receptors used to analyze the intersection.

The locations of the receptors are described in Section IV.E and shown in Figure IV-7.

4. Results of Microscale Analysis

A summary of the CO concentrations is shown in Tables V-9 and V-10. The receptors' concentrations for all alternatives are below the State and National Ambient Air Quality Standards in the one-hour and eight-hour analyses.

A relative comparison between the No-Build Alternative and the build alternatives shows CO concentrations generally decrease in 2010 and 2020. These decreases can be attributed to the reducing the number of queuing vehicles at the signalized intersections. There is an increase in the CO values at some receptors in both 2010 and 2020. These increases can be attributed to constructing roadways closer to these receptors.

5. Conformity with Regional Air Quality Planning

The MD 28/MD 97 intersection is located in Montgomery County, Maryland. This county is not designated as non-attainment for carbon monoxide (CO), Nitrogen Dioxide (NO₂), Sulfur Dioxide (SO₂), Lead (Pb) or particulate matter (PM₁₀), but is designated as a serious non-attainment area for ozone (O₃). Since the project is located in an ozone non-attainment area, conformity to the State Implementation Plans (SIP's) is determined through a regional air quality analysis performed on the Transportation Improvement Plan (TIP) and transportation plan. This project conforms to the SIP as it originates from a conforming TIP and transportation plan.

6. Analysis Input

a. Traffic Data

The traffic data used for this air quality analysis included average daily traffic volumes (ADTs), design hour volume (DHV), percent daily distributions (diurnal traffic curves), for all the alternatives. Traffic volumes, diurnal curves, and traffic speeds for the MD 28/MD 97 project were provided by the SHA. Free-flow traffic speeds were assumed for MD 115, Rosecraft Road and the interchange ramps. This data was compiled for each alternative and each year of study.

Two signalized intersections were included in the air quality analysis for Alternatives 1, 2, 4 and 5: MD 28/MD 115/Rosecraft Road and MD 28/MD 97. Alternatives 3 and 6 have three signalized intersections included in the air quality analysis: MD 115/Rosecraft Road, Existing MD 28/Relocated MD 28, MD 97/Existing MD 28 and Relocated MD 28/Existing MD 28. The signal timing was assumed to be optimized based on current and future traffic volumes.

b. Vehicular Emissions

Mobile source emission factors were obtained for use in the CO prediction models using the latest version of the (EPA) Mobile Source Emission Factors Model, MOBILE5b, released September 14, 1996. The emission rates of individual vehicles are influenced by factors such as ambient air temperature, engine temperature, operating mode, average speed, and maintenance.

The average emission rate for a fleet of vehicles operating on a highway is further influenced by the composition of the fleet, vehicle type, and vehicle age. The Metropolitan Washington Council of Governments (MWCOG) provided assumptions for these factors used in the MD 28/MD 97 Mobile5b models.

Vehicle CO emissions rates increase with decreasing ambient temperature. A minimum temperature of 33° F and a maximum temperature of 53° F were used to determine both one-hour and eight-hour impacts. Engine operating temperature is included in the emission rate calculation as the fraction of vehicles operating in the cold or hot modes. The Federal Test Procedure (FTP) operating mode (20.6% non-catalytic cold start vehicles, 27.3% catalytic hot start vehicles, and 20.6% catalytic cold start vehicles) was used to represent emissions from vehicles for MD 97/MD 28. Vehicle maintenance is factored into the emissions rate calculation as the rate of compliance with the Maryland Vehicle Emissions Inspection Program (VEIP). The vehicle mix, one set of trip length distributions and registration distributions by age was supplied by MWCOG and was used.

Assumptions for the fuel parameters used in Mobile5b were provided by MWCOG. Wintertime reformulated gasoline rules were assumed. MWCOG assumes no additional correction factors for humidity, air conditioner usage, and trailer towing. Refueling emission rates were not calculated.

c. Meteorological Factors

For direct comparison to the State and National Ambient Air Quality Standards, CO concentrations were estimated for worst-case one-hour and eight-hour periods. The meteorological conditions that would result in the maximum one-hour concentrations are (1) conditions of very light wind speeds (1.0 m/sec) and (2) very stable atmospheric conditions (Stability F). The wind direction that results in the maximum receptor concentration is dependent upon roadway/receptor geometry. In general, for receptors near free flow links, wind angles nearly parallel to the roadway yield the highest CO concentrations.

The worst case 1-hour average analyses conducted for this study were performed using the highest one-hour traffic volumes, Stability Class F, and a 1.0 m/sec. wind speed. Both a.m. and p.m. peaks were analyzed. The maximum one-hour CO impact was obtained for each air quality sensitive receptor by adding the background concentration to the one-hour CO receptor-specific concentration.

To estimate the maximum eight-hour average CO concentration, daily traffic distributions (diurnal curves) were used to breakdown the ADT's into hourly traffic volumes. Hourly time segments were analyzed to determine the receptor-specific CO concentrations. The worst consecutive eight hours were averaged and added to the background CO concentration to obtain the 8-hour average CO concentration.

d. CAL3QHC Analysis

The mathematical model used to estimate future air quality concentrations was the current version of the EPA's CAL3QHC dispersion model, released in June 1993. The CAL3QHC dispersion model is a microcomputer-based modeling methodology developed to predict the level of CO or other inert pollutant concentrations from motor vehicles traveling near roadway intersections. The CAL3QHC model is a consolidation of the CALINE3 line source dispersion model and an algorithm that internally estimates the length of the queues formed by idling vehicles at signalized intersections. Based on the assumption that vehicles at an intersection are either in motion or in an idling state, the program is designed to predict air pollution concentrations by combining the emissions from both moving and idling vehicles. By including emissions from idling vehicles, CAL3QHC represents a more reliable tool than CALINE3 alone for predicting CO concentrations near signalized intersections where idling vehicles interact with moving vehicles in complex configurations. Predictions of free flow traffic volumes using either CALINE3 or CAL3QHC would yield equivalent results.

The CAL3QHC program requires the roadways to be broken down into segments known as links. Links can be either free flow links (for vehicles moving at a constant velocity) or queue links (for idling vehicles). No-Build and the Build Alternates would contain both free-flow and queue links since five-signalized intersections already exist and a total of twelve-signalized intersections are proposed in the various Build Alternates. Each of these can be one of four types based on the roadway geometry (at-grade, fill, bridge, or depressed). All free flow and queue links used in this study are at-grade links. The required inputs for each link are the end points, traffic volume (vehicles/hour), and the emission factor (g/veh* mile for free flow links or g/veh*hour for queue links). Additional inputs for queue links only are the average cycle length (seconds), average red time length (seconds), clearance time lost (seconds), saturation flow rate (vehicles/hour), signal type (pre-timed actuated, or semi-actuated), and arrival rate (worst, below average, average, above average, or best profession). The saturation flow was assumed to be 1,600 vehicles/hour with all signals assumed to be pre-timed, with an average arrival rate, and a clearance lost time of 2.0 seconds.

A free flow link is defined as a straight segment of roadway having a constant width, height, traffic volume and speed, and vehicle emission factor. A change in any of these factors requires a new link to be coded. The width of a free flow link is the roadway width plus 10 feet on each side of the roadway to account for the dispersion of the plume generated by the wake of moving vehicles.

A queue link is defined as a straight segment of roadway with a constant width and emission source strength, on which vehicles are idling during the average red time length. The program calculated the length of the queue based on the traffic volume and the average red time length. The width of a queue link is the roadway width. In overcapacity situations, where the model predicted queue length exceeds the physical roadway configuration, the queue link was modeled as a free flow link using the following procedure outlined in the CAL3QHC user manual. The endpoints of the link were inputted to reflect the physical limits of the queue and an equivalent

vehicle per hour value with an emission factor of 100 g/veh*mile was used. This equivalent vehicle per hour value is obtained from the queue link output in the CAL3QHC output.

CAL3QHC also requires the input of meteorological factors. These factors are averaging time (minutes), surface roughness coefficient (cm), settling velocity (cm/s), deposition velocity (cm/s), wind speed (m/s), and mixing height (m). The values used for these factors were held constant throughout the analysis and are presented as follows:

**Table V-7
Meteorological Factors for Air Quality Analysis**

VARIABLE	VALUE
Averaging Time	60 minutes
Surface Roughness Coefficient	108 cm (Suburban)
Settling Velocity	0.0 cm/second
Deposition Velocity	0.0 cm/second
Mixing Height	1,000 meters
Scale Factor	0.3048 meters/foot
Source Height	0.0 feet

CAL3QHC calculates the CO concentration at each receptor for a given wind direction. The wind direction was varied through a full 360 degrees in five-degree increments in this study. The results for all wind directions for each receptor are placed in a matrix, and CAL3QHC determines the wind direction that caused the worst CO concentration at each receptor.

e. Background Levels

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

The background levels used were measured in 2001 at the Virginia Department of Environmental Quality monitoring station on Arlington Boulevard near Seven Corners in Fairfax County, as presented on the EPA AIRS Data Website. Data from this site was used because it most closely represents the suburban, residential, and commercial character of the study site.

**Table V-8
Background Levels**

Year	Background CO, PPM*	
	1 Hour	8 hour
2010	2.8	1.7
2020	2.8	1.7
* Parts Per Million		

Source: EPA's AIRS Data Website
United States Department of the Environment
Office of Air Quality Planning & Standards
Information Transfer & Program Integration Division
Information Transfer Group
Research Triangle Park, NC 27711
<http://www.epa.gov/airsdata>

Table V-9
MD 28/MD 97 Intersection
CO Concentration (ppm) in 2010

Receptor	No-Build		Alternative 2		Alternative 3		Alternative 3 Option 4		Alternative 4		Alternative 5		Alternative 6		Alternative 7	
	1-HR	8-HR	1-HR	8-HR	1-HR	8-HR	1-HR	8-HR	1-HR	8-HR	1-HR	8-HR	1-HR	8-HR	1-HR	8-HR
Finsbury Park	6.5	3.1	4.4	2.4	4.8	2.5	4.8	2.5	4.5	2.4	6.3	3.1	4.8	2.5	3.9	2.2
Liverpool	8.8	3.7	4.9	2.6	5.5	2.9	5.5	2.9	5.1	2.8	9.3	4.1	5.3	2.9	3.9	2.2
Tottenham	11.0	6.5	9.1	5.2	7.4	4.5	7.4	4.5	8.9	5.1	10.2	6.3	7.4	4.5	4.1	2.2
Tarkington 1	6.9	3.5	6.0	3.0	5.9	2.9	5.9	2.9	6.0	2.9	9.2	4.4	5.9	2.9	4.2	2.3
Tarkington 2	5.0	2.5	4.0	2.2	4.8	2.7	4.8	2.7	4.1	2.2	5.5	2.8	4.7	2.6	4.0	2.3
Georgia 1	7.9	3.9	5.2	2.8	6.0	3.2	6.0	3.2	5.8	3.1	7.5	4.3	6.0	3.2	3.9	2.1
Manor Village	6.8	3.2	4.4	2.4	5.1	2.7	5.1	2.7	4.8	2.6	6.4	3.4	5.1	2.7	3.6	2.1
Norbeck 1	6.8	3.4	6.2	3.4	7.0	3.9	7.0	3.9	6.0	3.3	9.2	4.2	7.0	3.9	4.7	2.8
Norbeck 2	10.5	5.2	10.4	5.1	8.2	4.0	8.2	4.0	8.8	4.0	15.3	6.9	8.2	4.0	5.1	2.5
Georgia 2	6.5	2.8	4.3	2.4	4.6	2.4	4.6	2.4	4.7	2.4	6.0	3.0	4.6	2.4	3.7	2.1
Arbor Crest	6.0	2.7	3.7	2.1	4.0	2.2	4.0	2.2	4.2	2.2	5.4	2.7	3.9	2.2	3.6	2.0
White's Hardware	9.9	7.0	7.1	4.1	8.4	5.1	8.4	5.1	10.6	6.3	11.3	7.5	8.4	5.1	4.6	2.4
St. Patrick's	10.1	5.2	9.7	5.1	10.7	6.4	10.7	6.4	10.1	5.3	12.5	6.1	10.7	6.4	8.5	4.6
INT-MD 115	10.1	5.5	10.6	5.6	12.2	6.4	12.2	6.4	10.1	5.3	12.5	6.1	12.2	6.4	8.8	5.2
INT-MD 97	12.2	7.0	10.4	5.1	11.6	5.7	11.6	5.7	10.6	6.3	15.3	7.9	11.6	5.7	-	-
INT-MD 97 SB Ramps	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.0	4.3
INT-MD 97 NB Ramps	-	-	-	-	9.0	5.4	9.0	5.4	-	-	-	-	9.2	5.8	10.5	6.1

NOTES: 1-hour average CO concentrations include a 2.8-ppm background concentration. Worst case (a.m. or p.m.) shown.
8-hour average concentrations include a 1.7-ppm background concentration.
The S/NAAQS for the 1-hour average is 35.0 ppm.
The S/NAAQS for the 8-hour average is 9.0 ppm.

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Table V-10
MD 28/MD 97 Intersection
CO Concentration (ppm) in 2020

Receptor	No-Build		Alternative 2		Alternative 3		Alternative 3 Option 4		Alternative 4		Alternative 5		Alternative 6		Alternative 7	
	1-HR	8-HR	1-HR	8-HR	1-HR	8-HR	1-HR	8-HR	1-HR	8-HR	1-HR	8-HR	1-HR	8-HR	1-HR	8-HR
Finsbury Park	8.8	3.2	4.6	2.5	5.5	2.8	5.5	2.8	4.7	2.5	7.7	3.3	5.5	3.1	4.0	2.3
Liverpool	9.7	3.9	5.1	2.8	6.6	3.3	6.6	3.3	5.4	3.0	9.9	4.4	6.4	3.5	4.1	2.3
Tottenham	11.0	6.8	9.1	5.4	7.6	4.7	7.6	4.7	9.1	5.4	13.2	6.7	7.6	4.7	4.3	2.3
Tarkington 1	7.8	4.0	7.3	3.4	6.4	3.1	6.4	3.1	7.1	3.3	9.9	4.6	6.4	3.3	5.4	2.7
Tarkington 2	5.0	2.7	4.4	2.3	4.8	2.7	4.8	2.7	4.3	2.3	6.2	2.9	4.7	2.9	4.1	2.3
Georgia 1	8.7	4.2	5.7	3.1	6.0	3.4	6.0	3.4	5.8	3.2	10.3	4.5	6.0	3.5	4.2	2.2
Manor Village	7.5	3.5	4.7	2.6	5.8	3.0	5.8	3.0	5.0	2.7	7.2	3.5	5.8	3.2	3.7	2.1
Norbeck 1	7.3	3.8	6.3	3.6	7.9	4.1	7.9	4.1	6.1	3.5	9.8	4.4	7.9	4.2	4.9	2.9
Norbeck 2	11.1	6.0	10.8	5.2	8.5	4.3	8.5	4.3	9.3	4.2	16.0	7.2	8.5	4.5	5.3	2.6
Georgia 2	6.9	3.0	4.5	2.4	5.1	2.6	5.1	2.6	5.1	2.5	6.8	3.1	5.1	3.1	3.8	2.1
Arbor Crest	6.2	2.9	3.8	2.1	4.2	2.3	4.2	2.3	4.3	2.3	7.1	2.9	4.2	2.6	3.9	2.1
White's Hardware	9.9	7.2	7.2	4.4	8.2	5.3	8.2	5.3	12.0	7.1	13.6	7.6	8.2	5.2	5.2	2.6
St. Patrick's	11.1	5.9	9.9	5.3	12.1	6.9	12.1	6.9	10.7	5.7	12.9	6.4	12.1	6.9	9.4	5.1
INT-MD 115	11.1	5.9	10.0	5.7	12.9	6.9	12.9	6.9	10.7	5.7	12.9	6.4	12.9	6.9	9.4	5.4
INT-MD 97	12.3	7.9	10.9	5.5	12.6	6.2	12.6	6.2	12.0	7.1	16.0	7.9	12.6	6.2	-	-
INT-MD 97 SB Ramps	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10.1	4.8
INT-MD 97 NB Ramps	-	-	-	-	9.4	5.7	9.4	5.7	-	-	-	-	9.7	6.2	10.5	6.2

NOTES: 1-hour average CO concentrations include a 2.8-ppm background concentration. Worst case (a.m. or p.m.) shown.
8-hour average concentrations include a 1.7-ppm background concentration.
The S/NAAQS for the 1-hour average is 35.0 ppm.
The S/NAAQS for the 8-hour average is 9.0 ppm.

H. Noise Impacts

1. Introduction

Twenty (20) receptor sites are located within the study area as indicated in Table IV-9 and shown on Figure IV-7. The sites are located in seven (7) Noise Study Areas (NSA's). Receptors were selected to represent the overall noise environment and to determine locations where residences could be impacted by traffic noise. A summary of impacts and mitigation measures is presented in this section.

This evaluation was completed in accordance with SHA's *Sound Barrier Policy*, dated May 11, 1998. This is a Type I noise project as defined in 23 CFR, Part 772. A Type I project provides evaluation of noise mitigation for projects that propose construction of a highway on new location or the physical alteration of an existing highway which significantly changes either the horizontal or vertical alignment or increases the number of through-traffic lanes.

2. Predicted Noise Levels

The Federal Highway Administration (FHWA) under the US Department of Transportation developed the method used to model and to predict noise levels in this study. The computer model, called the FHWA Traffic Noise Model (TNM), computes highway traffic noise levels at user-defined receivers, and aids in the design of highway noise barriers. TNM includes a database of speed-related noise emission levels for five vehicle types (automobiles, medium trucks, heavy trucks, buses, and motorcycles) under cruise (constant speed) conditions. An adjustment is first applied to account for the number of each vehicle type and its speed as defined by the user. In addition, TNM contains a database of emission levels that accounts for the effects of accelerating vehicles such as those affected by traffic control devices (stop signs, signals), tollbooths or on-ramps, and the effects of roadway upgrades. Sound propagation is computed taking into account the effects of atmospheric absorption, divergence (i.e., geometric spreading of sound energy over distance), intervening ground types and their acoustical characteristics, topography, man-made barriers, vegetation, and rows of buildings. To improve accuracy, all TNM databases and calculations are based on 1/3-octave band data, and then the results are recombined to give noise levels in the A-weighted broadband.

In this study, noise levels are presented in terms of the A-weighted equivalent sound level, abbreviated here as L_{eq} . L_{eq} is a single number representation of the actual fluctuating sound level that accounts for all the sound energy during a given period of time. The units of L_{eq} are A-weighted decibels, or dBA. The A-weighting means that the sound is measured by a method that approximates the response of the human ear, with de-emphasis of the low and very high frequencies and emphasis on the mid-frequency noise level range. In order to give a sense of perspective to the noise levels discussed; a quiet rural night would register about 40 dBA, a quiet suburban night about 60 dBA, a noisy day about 80 dBA, a gas lawn mower at 100 feet about 70 dBA and a diesel truck at 50 feet about 85 dBA. Under typical field conditions, noise level changes of 2-3 dBA are barely perceptible, while a change of 5 dBA is readily noticeable. A 10 dBA increase in noise levels is judged by most people as a doubling of sound loudness. Predicted noise levels for this project are

summarized in Tables V-12 and V-13. For the design year 2020, predicted noise levels range from 55 to 72 dBA for the build alternatives.

The noise levels given in this section are for the noisiest hour(s) of the day. This hour usually coincides with the peak traffic hour. The combination of 2020 peak hour traffic and associated travel speed resulted in the "worst- case" noise levels for this analysis.

3. Impact Assessment and Abatement Criteria

The effects of noise from each alternative are judged in accordance with FHWA's activity/criteria relationship published in *23 CFR, Part 772* and subsequent memoranda. The FHWA criteria, shown in Table V-11, are based on specific land uses and are used in determining the need for studying noise attenuation measures. Most locations within this study area are of land use Category B, which has a design noise level of 67 dBA (L_{eq}). Only one location (R20) has land use Category C with commercial use, which has a design noise level of 72 dBA (L_{eq}).

Since this is a Type I project, due to the potential modification of existing roadways and capacity increase, noise mitigation must be investigated. When mitigation is investigated, feasibility and reasonableness criteria established by State Highway Administration Sound Barrier Policy must be met in order for a barrier to be considered eligible for construction. These criteria are summarized below:

Feasibility Criteria

- Noise levels can be reduced by 7 - 10 dBA at receptors with the highest noise levels.
- Placement of barrier does not restrict vehicular or pedestrian access.
- Barrier does not cause any safety or maintenance problems.
- Barrier can be constructed given topography, drainage, utilities, etc.
- There are no non-highway noise sources that would reduce barrier effectiveness.

Reasonableness Criteria

- The majority of impacted receptors receive a 7 - 10 dBA noise reduction.
- At least 75% of the impacted residents approve of the proposed noise abatement.
- A 3 dBA or greater change in design year noise levels over design year no-build noise levels is expected to result from the proposed action, OR the cumulative effect of highway improvements on the design year noise levels at receptors that existed when prior improvements were made is equal to or greater than 3 dBA
- Build levels are equal to or greater than 72 dBA and there is any increase in noise levels between no-build and build alternatives
- The barrier can not have significant negative visual impact, such as a high barrier adjacent to residences.
- The cost of noise abatement is equal to or less than \$50,000 per residence benefited on a NSA basis. A barrier will also be considered reasonable if the cost per residence benefited for the NSA is less than \$100,000/residence and the cost per residence considering the entire project is less than \$50,000/residence.
- There are special section 4(f) circumstances (e.g., historical or cultural significance).

**TABLE V-11
FHWA NOISE ABATEMENT CRITERIA [HOURLY A-WEIGHTED SOUND LEVEL -
DECIBELS (DBA)]**

ACTIVITY CATEGORY	L _{eq}	DESCRIPTION OF ACTIVITY CATEGORY
A	57 dBA (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 its intended purpose.
B	67 dBA (exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 dBA (exterior)	Developed lands, properties, or activities not include in Categories A or B above.
D	None	Undeveloped lands.
E	52 dBA (interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

Source: 23 CFR, Part 772

4. Mitigation Measures

In acoustical analysis, various methods of noise abatement are possible: noise attenuation through a barrier or berm placed between the source and the receptor; traffic flow restrictions or controls; and attenuation of noise generated by the vehicles. The recommended mitigation measure for this study would be noise attenuation through a barrier. Tables V-12 and V-13 summarize the calculated sound levels used to evaluate whether noise mitigation is recommended for this study.

Several types of sound barriers, including reflective walls, absorptive walls and earth berms, can be used to reduce noise levels at sensitive receptors. When barriers are constructed, reflective walls are generally used. Absorptive walls can be used where reflective barriers would exacerbate noise levels on the opposite side of the roadway. This is generally the case when the roadway width to barrier height ratio is 10:1 or less.

**TABLE V-12: SUMMARY OF SOUND LEVELS (dBA)
DESIGN YEAR 2020**

RECEPTOR		SOUND LEVELS (dBA)															
		ALT. 3		ALT. 3 (opt.4)		ALT. 6		ALT. 7		ALT. 2		ALT. 4		ALT.5		NO-BUILD	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
NSA A-1	R1	67	68	67	68	67	68	67	68	65	67	67	69	69	70	69	71
	R2	65	66	65	66	65	66	63	65	60	62	65	70	67	68	68	68
	R3	66	67	66	67	66	67	66	67	62	64	64	64	66	67	67	68
	R4	61	62	61	62	60	60	60	60	63	63	62	63	64	64	62	63
NSA A-2	R5	62	63	62	63	63	64	64	64	63	64	63	63	64	64	62	62
	R6	65	65	65	66	66	66	64	65	65	65	65	65	65	65	62	62
	R7	65	66	65	66	66	66	64	65	65	65	65	65	66	66	64	64
NSA B-1	R8	71	71	71	71	72	71	71	70	68	68	68	69	72	71	72	71
	R9	72	72	72	72	72	72	71	71	66	65	67	67	72	71	72	72
	R10	72	71	72	71	72	71	70	69	66	65	69	69	72	71	72	71
NSA B-2	R11	68	69	68	69	68	69	65	65	69	69	69	69	69	69	69	69
	R12	65	66	65	66	65	66	66	66	67	67	66	67	69	69	66	66
	R13	64	65	64	64	64	64	67	67	68	68	67	68	69	69	67	67
NSA B-3	R14	69	69	69	69	69	69	67	67	67	67	67	67	69	69	67	67
	R15	70	70	71	70	71	70	70	69	70	68	70	69	70	70	69	69
	R16	70	69	70	69	70	69	70	69	70	69	70	69	70	69	70	69
NSA C	R17	62	61	60	58	62	61	64	63	62	61	61	61	62	62	62	62
	R18	59	59	58	58	59	59	58	59	59	59	59	59	58	59	59	59
	R19	55	55	56	56	55	55	58	58	57	56	56	55	57	56	58	58
NSA D	R20	69	69		69	69	68	68	68	69	68	67	68	70	69	71	70

**TABLE V-13: SUMMARY OF DIFFERENCE IN SOUND LEVELS (dBA)
FOR DESIGN YEAR 2020, NO-BUILD VERSUS BUILD OPTIONS**

RECEPTOR		2020 NO-BUILD SOUND LEVELS (dBA)		DIFFERENCE IN SOUND LEVELS (dBA) FOR DESIGN YEAR 2020, NO-BUILD VERSUS BUILD OPTIONS													
				ALT. 3A		ALT. 3B		ALT. 6		ALT. 7		ALT. 2		ALT. 4		ALT.5	
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
NSA A-1	R1	69	71	-2	-3	-2	-3	-2	-3	-2	-3	-4	-4	-2	-2	0	-1
	R2	68	68	-3	-2	-3	-2	-3	-2	-5	-3	-8	-6	-3	2	-1	0
	R3	67	68	-1	-1	-1	-1	-1	-1	-1	-1	-5	-4	-3	-4	-1	-1
	R4	62	63	-1	-1	-1	-1	-2	-3	-2	-3	1	0	0	0	2	1
NSA A-2	R5	62	62	0	1	0	1	1	2	2	2	1	2	1	1	2	2
	R6	62	62	3	3	3	4	4	4	2	3	3	3	3	3	3	3
	R7	64	64	1	2	1	2	2	2	0	1	1	1	1	1	2	2
NSA B-1	R8	72	71	-1	0	-1	0	0	0	-1	-1	-4	-3	-4	-2	0	0
	R9	72	72	0	0	0	0	0	0	-1	-1	-6	-7	-5	-5	0	-1
	R10	72	71	0	0	0	0	0	0	-2	-2	-6	-6	-3	-2	0	0
NSA B-2	R11	69	69	-1	0	-1	0	-1	0	-4	-4	0	0	0	0	0	0
	R12	66	66	-1	0	-1	0	-1	0	0	0	1	1	0	1	3	3
	R13	67	67	-3	-2	-3	-3	-3	-3	0	0	1	1	0	1	2	2
NSA B-3	R14	67	67	2	2	2	2	2	2	0	0	0	0	0	0	2	2
	R15	69	69	1	1	2	1	2	1	1	0	1	-1	1	0	1	1
	R16	70	69	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NSA C	R17	62	62	0	-1	-2	-4	0	-1	2	1	0	-1	-1	-1	0	0
	R18	59	59	0	0	-1	-1	0	0	-1	0	0	0	0	0	-1	0
	R19	58	58	-3	-3	-2	-2	-3	-3	0	0	-1	-2	-2	-3	-1	-2
NSA-D	R20	71	70	-2	-1	-2	-1	-3	-2	-3	-2	-2	-2	-4	-2	-1	-1

Following is a discussion of noise mitigation for each NSA.

Noise Sensitive Area A-1

Noise Sensitive Area A-1 consists of receptors R1, R2, R3, and R4 which represent a mix of semi-detached residences as well as apartment buildings located in the community of Leisure World. This area is east of MD 97 and south of MD 28.

As shown in Table V-13, none of the receptors in this NSA are projected to have a 3 dBA or greater change in design year noise levels over design year no-build noise levels for any of the alternatives. Therefore, it is not deemed reasonable to design a barrier. No barrier analysis was performed for NSA A-1.

Noise Sensitive Area A-2

Noise Sensitive Area A-2 consists of receptors R5, R6, and R7 which represent approximately 25 semi-detached residences located in the community of Leisure World. This area is east of MD 97 and south of MD 28. Receptor R6 is projected to have a 3 dBA or greater change in design year noise levels over design year no-build noise levels for all of the alternatives except for Alternative 7 (during the AM peak period only). Consequently, a barrier analysis was performed.

The barrier evaluated to mitigate noise impacts at NSA A-2 for each alternate would:

- Be constructed along eastbound MD 28
- Be approximately 944 feet long with an average height of 16 feet
- Reduce noise levels approximately 7-9 dB at impacted residences dependent upon which alternative is examined (See Table V-14)
- Incur a total cost of approximately \$250,000
- Incur a cost per benefited residence of approximately \$42,000

The barrier evaluated for NSA A-2 appears to meet the basic technical criteria and will be further investigated in the final design phase of the project, regardless of the alternative.

Noise Sensitive Area B-1

Noise Sensitive Area B-1 consists of receptors R8, R9, and R10 that represent approximately 48 townhomes along southbound MD 97. This area is west of MD 97 and south of MD 28.

As shown in Table V-13, none of the receptors in NSA B-1 are projected to have a 3 dBA or greater change in design year noise levels over design year no-build noise levels within any of the alternatives. This NSA fails to have reasonable criteria for the design of a barrier. Therefore no barrier analysis was performed for NSA B-1.

Noise Sensitive Area B-2

Noise Sensitive Area B-2 consists of receptors R11, R12, and R13 that represent approximately 33 townhomes along southbound MD 97. This area is west of MD 97 and south of MD 28. Receptor R12 is projected to have a 3 dBA change in design year noise levels over design year no-build noise levels for Alternative 5 only. Consequently, a barrier analysis was performed for Alternative 5 only.

The barrier evaluated to mitigate noise impacts at NSA B-2 for Alternative 5 would:

- Be constructed along eastbound MD 28
- Be approximately 944 feet long with an average height of 16 feet
- Reduce noise levels approximately 7-10 dB at impacted residences (See Table V-14)
- Incur a total cost of approximately \$333,100
- Incur a cost per benefited residence of approximately \$20,000

The barrier evaluated for NSA B-2 appears to meet the basic technical criteria and will be further investigated in the final design phase of the project should Alternative 5 be selected.

Noise Sensitive Area B-3

Noise Sensitive Area B-3 consists of receptors R14, R15, and R16 that represent approximately 11 single-family homes along southbound MD 97. This area is west of MD 97 and south of MD 28.

As shown in Table V-13, none of the receptors in NSA B-3 are projected to have a 3 dBA or greater change in design year noise levels over design year no-build noise levels within any of the alternatives. No barrier analysis was performed for NSA B-1 since this NSA failed to meet reasonableness criteria.

Noise Sensitive Area C

Noise Sensitive Area C consists of receptors R17, R18, and R19 that represent approximately eight single-family residences along Thistlebridge Drive and Arbor Crest Drive. This area is west of MD 97 and north of MD 28. Since there are no impacted residences, no barrier analysis was performed.

Noise Sensitive Area D

The evaluation of the impact for receptor R20, located near the White's Service Shed which is listed as a historical site, would be referred to the 72 dBA design noise level established by FHWA for land use Category C because its current use is as a commercial business. In accordance with this criteria, no impact was obtained at this receptor site for any of the alternatives for the design year 2020. Therefore, a barrier analysis was not performed.

**TABLE V-14
NOISE ANALYSIS SUMMARY FOR IMPACTED RECEPTORS**

Receptor	Alternative	2020 No-Build Noise Level (dBA)	2020 Build Noise Level (dBA)	Change Over 2020 No-Build Noise Level (dBA)	2020 Build Noise Level with Barrier (dBA)	Insertion Loss
NSA A-2						
R6	2	62	65	3	59	7
	3A	62	65	3	57	9
	3B	62	66	4	57	9
	4	62	65	3	59	7
	5	62	65	3	59	7
	6	62	66	4	57	9
NSA B-2						
R12	5	66	69	3	62	9

5. Construction Noise

Land uses that would be sensitive to vehicular noise would also be sensitive to construction noise. Although highway construction is a short-term phenomenon, it can cause significant noise impacts. Additionally, it is likely that some construction may occur at night to avoid severe traffic impacts. The extent and severity of the noise impact would depend upon the phase of construction and the noise characteristics of the construction equipment in use. Construction would have direct impact on receptors located close to the construction site and would have an indirect impact on receptors located near roadways whose traffic flow characteristics are altered due to rerouting from the construction site.

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

- Bulldozers and earthmovers
- Graders
- Front End Loaders
- Dumps and other diesel trucks
- Compressors

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

I. Secondary and Cumulative Effects Analyses

1. Introduction

In compliance with the National Environmental Policy Act (NEPA) and the Councils on Environmental Quality (CEQ) regulations (40CFR 1508.25(c)), the following analysis examines the secondary and cumulative effects on the environment, which may result from this project. The CEQ guidelines entitled "Considering Cumulative Effects under the National Environmental Policy Act" defines secondary and cumulative effects as follows:

Secondary or Indirect Effects: "Effects which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems." (40 CFR 1508.8)

Cumulative Impact: "Impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." (40 CFR 1508.7)

Each of the build alternatives under construction is addressed by this secondary and cumulative effects analysis (SCEA).

2. Scoping for the SCEA

a. Description of the Resources

The initial step in the SCEA process is to identify the resources for which secondary and cumulative effects are to be addressed. The list of resources is primarily based on resources directly and indirectly impacted by the build alternatives under consideration. Resources studied include: water resources, wetlands, terrestrial/wildlife resources, parklands, and historic resources.







b. Geographic Boundary

The geographic boundary for the analysis, referred to as the SCEA boundary is primarily based on the boundaries of the Transportation Analysis Zones (TAZ's) that surround the project area. The SCEA boundary and the boundaries of the Transportation Analysis Zones (TAZ's) are illustrated on Figure V-1. Additional resources and topics were considered in establishing the SCEA boundary, including: project area limits, census tracts and block groups (see Figure V-2), planning areas (see Figure II-1), sub-watersheds (see Figure V-3) and Priority Funding Areas (see Figure V-4).

Scale:

0 0.2 0.4 0.8 Miles

Legend

-  SCEA Boundary
-  TAZ 490
-  TAZ 496
-  TAZ 497
-  TAZ 588
-  TAZ 589

Project Study Area

588

589

490

496

497

97

115

28

182

97

28

MD 28 & MD 97
Intersection Improvement Study



Environmental Assessment

SCEA Boundary, TAZs &
Area of Traffic Influence

Date:
October, 2002

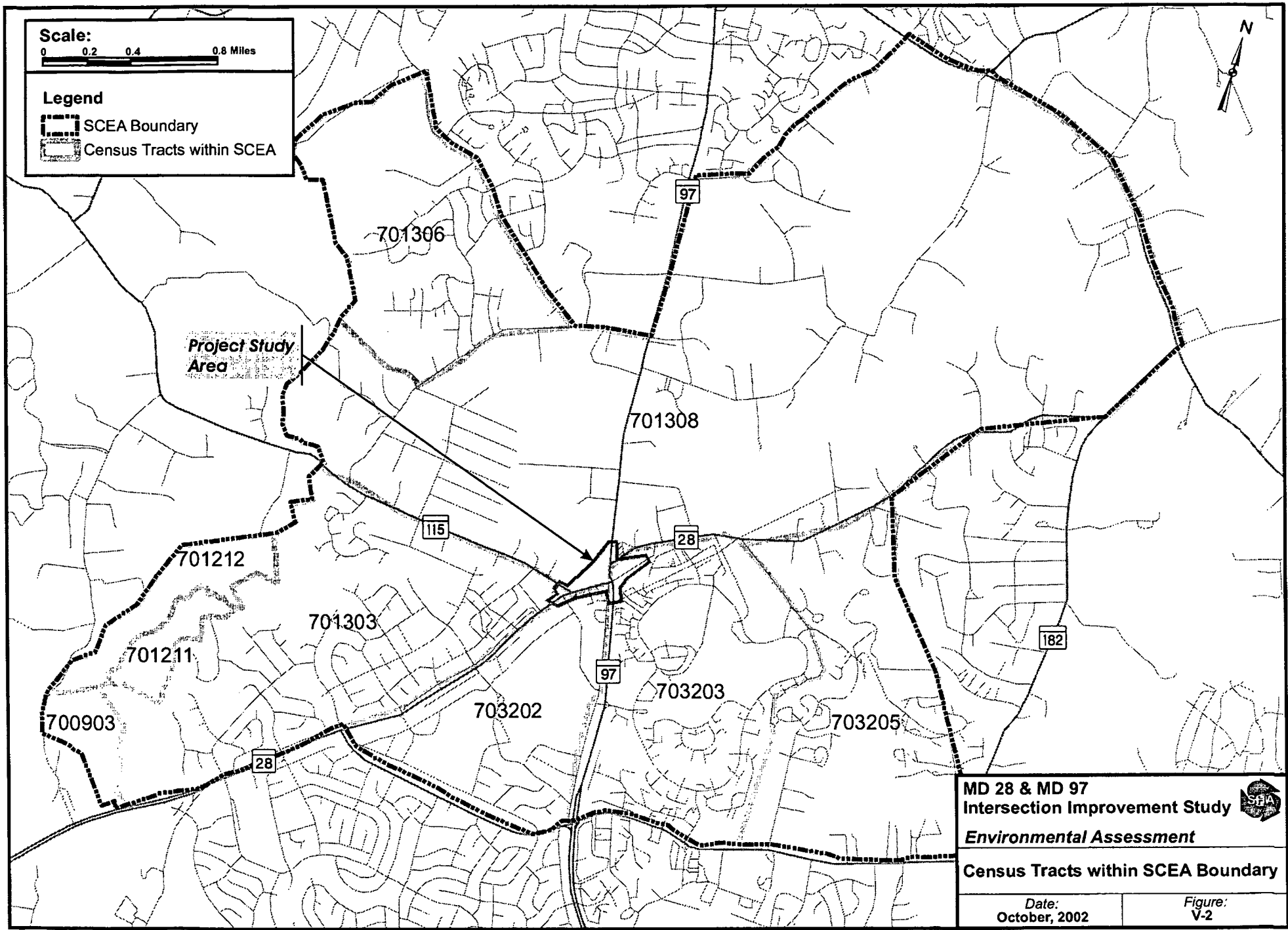
Figure:
V-1

158

Scale:
0 0.2 0.4 0.8 Miles

Legend

- SCEA Boundary
- Census Tracts within SCEA



MD 28 & MD 97
Intersection Improvement Study



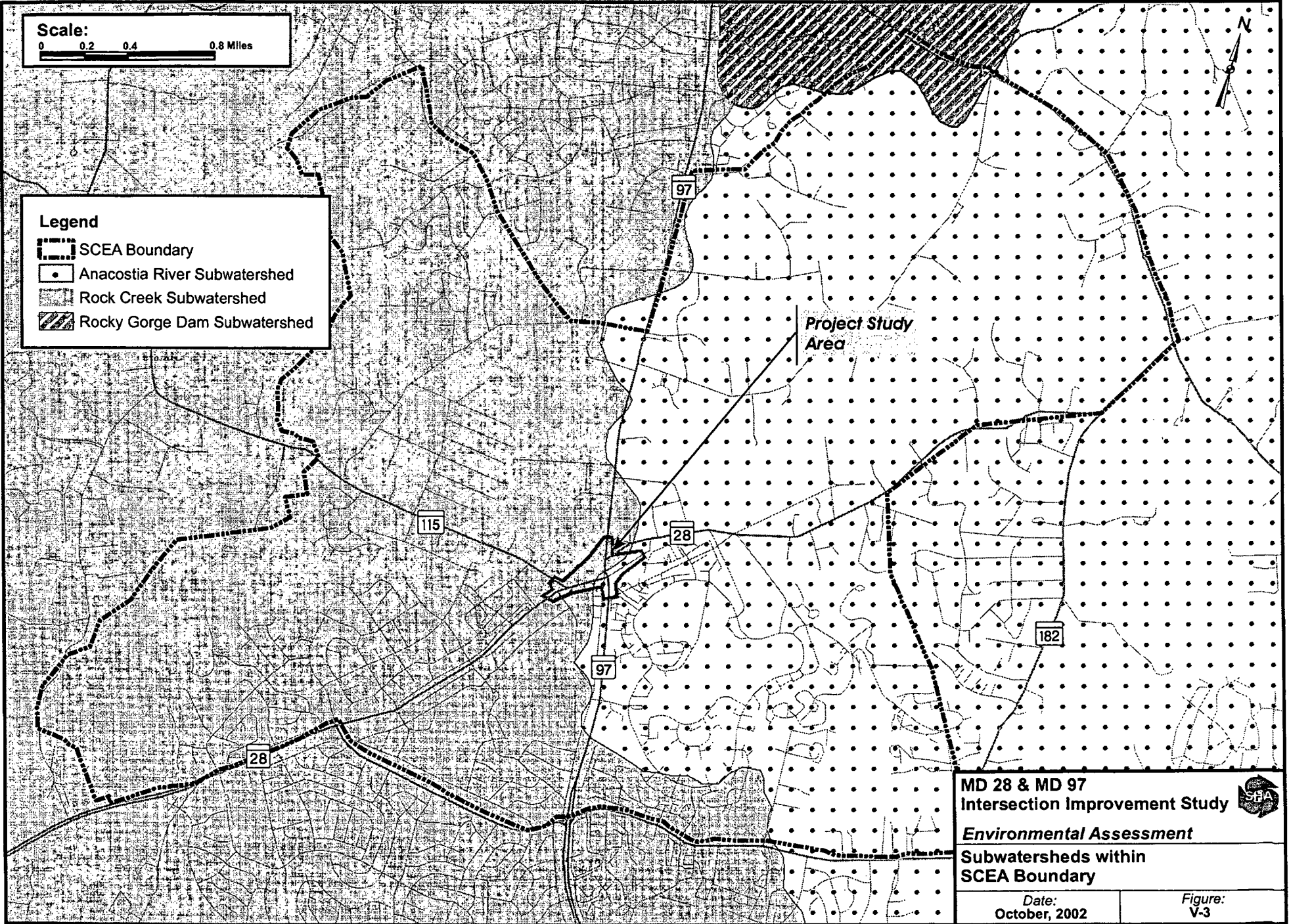
Environmental Assessment

Census Tracts within SCEA Boundary

Date:
October, 2002

Figure:
V-2

159



Scale:
 0 0.2 0.4 0.8 Miles

Legend

- SCEA Boundary
- Anacostia River Subwatershed
- Rock Creek Subwatershed
- Rocky Gorge Dam Subwatershed

MD 28 & MD 97
 Intersection Improvement Study

Environmental Assessment

Subwatersheds within
 SCEA Boundary



Date:
 October, 2002

Figure:
 V-3

162

Scale:
0 0.2 0.4 0.8 Miles

Legend

-  SCEA Boundary
-  PFA within SCEA Boundary



Project Study Area

115

97

28

97

182

28

**MD 28 & MD 97
Intersection Improvement Study**



**Environmental Assessment
Priority Funding Areas within
the SCEA Boundary**

Date:
October, 2002

Figure:
V-4

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In addition, the SCEA boundary established for the MD 28 – Norbeck Road Extension (a separate SHA planning study) project limits were considered in determining the overall extent of the SCEA boundary for the MD 28/MD 97 Intersection Improvement Study as the two projects are in close proximity to each other.

The overall SCEA boundary is a synthesis of these resource and topic boundaries. The sub-watershed boundaries reviewed in determining the SCEA boundary encompassed areas much larger than the area of traffic influence. As direct impacts on streams and wetlands were determined to be minimal, sub-watershed boundaries did not influence the SCEA boundary. Instead, the most influential factor in determining the boundary was the area of traffic influence, which incorporates the boundaries of the five TAZ's that encompass the project area. There are some expansions beyond the area of traffic influence to include the entire boundaries of parks, communities, and other major features located within the larger vicinity of the project area.

The SCEA boundary lies within two Montgomery County planning areas – Aspen Hill Planning Area and Olney & Vicinity Planning Area. The SCEA boundary generally follows the description provided here:

Beginning at the southern extremity of the SCEA boundary, at MD 97, the SCEA boundary runs parallel to the right-of way of Bel Pre Road, westerly to MD 28 (Norbeck Road). It then parallels the right-of-way of MD 28 in a southwest direction to the western boundary of the Rock Creek Regional Park where it proceeds north following the perimeter of the Park until it intercepts Avery Road and continues north. When Avery Road meets the Rock Creek Regional Park boundary, the SCEA boundary follows the park boundary northeast. When the Park boundary heads in a more northerly direction, the SCEA boundary turns and meets and parallels the North Branch near the Meadowside Nature Center. The SCEA boundary follows the North Branch north to an unnamed tributary of North Branch near Norbeck Country Club. It then follows this unnamed tributary northeast to Cashell Road, at which point the SCEA boundary turns south parallel to the right-of way of Cashell Road. At Emory Road, the SCEA boundary turns east to MD 97 and follows MD 97 north to Old Baltimore Road. It follows Old Baltimore Road northeast to Olney-Sandy Spring Road where it turns southeast. The intersection of Old Baltimore Road and Olney-Sandy Spring Road is the northern most point of the SCEA boundary. The SCEA boundary follows Olney-Sandy Spring Road to MD 182 and follows MD 182 south to Norbeck Road. It then heads west along Norbeck Road to Twin Valley Court, where it turns south. The SCEA boundary follows this court to the end and continues southeasterly until it meets with MD 182 near the Oak Chapel United Methodist Church. At the intersection with Bel Pre Road, the SCEA boundary turns west along Bel Pre Road until it intersects with MD 97.

c. Temporal Boundary

As part of the scoping process, a time frame is defined for the analysis of secondary and cumulative effects. The following events were considered in establishing the time frame for the SCEA, which begins in 1970 and is projected to the design year of 2020.

Chronology of the Area

- Corroborative historical data indicate that land use in the site area was historically residential and agricultural prior to gradual commercial development that started at the southern portion of the SCEA boundary between 1928 and 1958. An aerial photograph dated 1938 shows that the area appeared to be largely agricultural.
- Although widened and upgraded throughout its history, the MD 28/MD 97 intersection was originally constructed prior to 1928, according to historical data resources.
- An aerial photograph from 1958 shows the east side of Georgia Avenue north and south of Norbeck Road was densely wooded and minimal residential development is apparent southwest of the MD 28/MD 97 intersection. Structures are configured on the L.W. White property and Norbeck Sales site northwest of the intersection as they appear today. Properties north of the intersection appeared to be agricultural. Some residential development occurred in the site area between 1938 and 1958.
- Leisure World, a large retirement community located in the southeast quadrant of the project area, opened in 1966.
- The late 1960s and early 1970s represent a time of explosive development both commercially and residentially within the southern and western portions of the project area and SCEA boundary area.
- Georgia Avenue (MD 97) is one of two major roadways that provide principal access to and through the Olney & Vicinity Planning Area. The 1980 Olney & Vicinity Master Plan recommended implementation plan includes the "completion of the Georgia Avenue/Norbeck Road intersection, as well as the widening of Georgia Avenue to four lanes from Norbeck Road to the Town Center. The widening of Georgia Avenue from two lanes to four lanes was completed in the early 1980's.
- An aerial photograph from 1979 shows that Georgia Avenue south of Norbeck Road and Norbeck Road east of Georgia Avenue appeared to be undergoing construction. The northwest quadrant of the Leisure World community was constructed between 1958 and 1979. The remainder of the site area appeared otherwise substantially unchanged.
- An aerial photograph from 1995 shows that both Georgia Avenue and Norbeck Road were significantly widened between 1979 and 1995. The existing park and ride lot on the northeast corner of the intersection was constructed after 1995. By 1995, the surrounding area had largely been developed as it exists today.
- U.S. Geological Survey 7.5-minute series topographic maps prepared in 1928, 1956, 1971, and 1979 were reviewed. The 1928 map indicates a former surface mining operation in the vicinity of the MD 28/MD 97 intersection. Small structures adjacent to the west side of Georgia Avenue are evident on the 1928 map. Subsequent mapping showed a substation southwest of the subject intersection. A cemetery was mapped

northwest of the intersection on the 1956 topographic quadrangle. The location of the Leisure World complex is quite evident on the 1979 map but appears much less developed on the 1971 map. The remainder of the corridor area appeared densely wooded on the 1956 map, but was less dense on the 1979 map. This timeframe information was included as it provides justification for why the 1970 temporal boundary was selected.

Major events that have occurred within the SCEA boundary include the following:

- Construction of Leisure World to nearly 'full build-out' in the early 1970's
- Conversion of the Brooke Manor Country Club property to a residential community in the early 1990's
- Norbeck Center commercial complex was constructed in the 1980's
- 1989 moratorium on new residential subdivisions in the Aspen Hill Planning Area
- 2001 moratorium on new residential subdivisions within the Olney & Vicinity Planning Area.

Countywide data from the US Census Bureau shows that the population in Montgomery County actually increased at the highest rate during the 1950's and 1960's. As summarized in Table V-15, the county experienced a 107.4 percent growth in population during the period 1950-1960 and a 53.3 percent growth during the period of 1960-1970.

Table V-15
Montgomery County Population Data, 1940 through 2020

Year	Montgomery County Population	% Change	Maryland Population	& Change
1940	83,912	<i>Not Available</i>	1,821,244	<i>N/A</i>
1950	164,401	95.5	2,343,001	28.6
1960	340,928	107.4	3,100,689	32.3
1970	522,809	53.3	3,922,399	26.5
1980	579,053	10.8	4,216,975	7.5
1990	757,027	30.7	4,781,468	13.4
2000	873,341	15.4	5,296,486	10.8
2010	975,000	12.1	<i>Not Available</i>	<i>Not Available</i>
2020	1,050,000	7.7	6,274,000	5.8

Source: US Census Bureau, 1990 Census

According to the recent release of Census 2000 Data, and analysis of the data by the Montgomery County Research and Technology Center, Montgomery County's population is forecast to reach 975,000 by 2010. The county is on track to pass the one million milestone by year 2020. A revised household forecast presented by the Research Center, shows the county's households increasing from about 323,000 in January 2000 to 370,000 in 2010, an increase of 47,000. This data shows household growth that is more than the county experienced during the 1990's when the county gained about 42,500 households. By 2020, the Research Center is

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forecasting 405,000 households. The county's housing market is expected to remain strong. After a slow down in the early to mid 1990s the housing market has improved.

While the percentage increase in Montgomery County's residential population during the 1950's and 1960's is large, the change in absolute numbers is fairly steady through the decades up until the 1980's. Unfortunately, historical population data was not available for the seven census tracts within the SCEA boundary. Master Plan information pertaining to the growth patterns was not readily available as well.

The historic temporal boundary for the analysis of secondary and cumulative effects was chosen to be 1970 due to the following reasons:

- The expansion of the Federal Government employment centers from Washington D.C. to Montgomery County in the 1960's and 1970's contributed towards the change in growth patterns, expanding residential housing into central and northern Montgomery County.
- Even though the residential construction within Leisure World began in 1966, it wasn't until the early 1970's that higher density housing and commercial aspects were introduced into the development.
- By the late 1970's, construction of the Norbeck Center had begun and population densities were increasing within the southern portion of the SCEA area due to the Manor Village community and other residences along the MD 28 corridor.

The future time frame is the year 2020, which is the design year for this project.

d. Analysis Methodology

A combination of assessment methodologies was used to assess secondary and cumulative effects. Consideration of the past and present land use as well as reasonably foreseeable future land use patterns influenced by the project, were incorporated.

A review of historical data and studies was used to establish a baseline condition. Available electronic mapping was used to develop the SCEA boundary and determine area characteristics. Trends analysis and overlays were the primary analysis tools applied. Past and present land use data and corresponding mapping were derived from information received from land use plans obtained from M-NCPPC and digital mapping from the Montgomery County Department of Public Works and Transportation. Planned future growth is projected by Montgomery County in its master planning process. A review of the community master plans for the two planning areas within the SCEA boundary, interviews with local planners, review of County Planning summaries from the County Planning Board website, and a review of individual development plans were completed to acquire an understanding of planned future changes within the SCEA boundary. Land use recommendations detailed in the master plans are either mandated by law or are strongly supported by the County Planning Board. Overall, the analysis relied on readily available data and provides a mixture of qualitative and quantitative findings.

e. **Other Projects Considered**

Planned or programmed projects located within the SCEA boundary have been identified to consider the impacts of these projects upon cumulative effects. This information is largely based on the Maryland State Highway Administration's (SHA) Consolidated Transportation Program (CTP) and Montgomery County's capital construction program. Existing information was used to identify projects and their descriptions. Direct impacts associated with these projects in combination with the impacts from the MD 28/MD 97 intersection improvements may result in cumulative effects within the SCEA boundary.

Development plans in the Aspen Hill and Olney & Vicinity Planning Areas were reviewed with staff at Montgomery County and at M-NCPPC. According to current data available through Montgomery County, maximum housing development densities were reached in 2001 within the southern portions of the Olney & Vicinity Planning Area and in 1989 for the Aspen Hill Planning Area. As a result, a moratorium is currently in place to restrict new residential subdivisions within the vicinity of the MD 28/MD 97 intersection.

While development proposals have been submitted to the county, the current moratorium on development in both planning areas precludes approval of the proposals. Details regarding the moratorium are presented in Section V.I.2.f. The current project, while increasing capacity at the MD 28/MD 97 intersection, is not anticipated to fulfill the moratorium's requirement for "adequate transportation network" to allow for development approvals.

The following roadway improvement projects that may potentially add to the cumulative effects within the SCEA boundary are discussed below and indicated on Figure V-5.

- Muncaster Mill Road (MD 115) Improvements: (Shown as project no. 1 in Figure V-5.) This project is included in the statewide CTP for \$6 million worth of improvements within the next six years. The goal is to improve the vertical grades, widen, and/or resurface significant portions of MD 115 between MD 28 and MD 124. No specific improvements have been designed and it has not been determined whether the county or SHA will take the lead on the design activities. The Advertisement Date is scheduled for April 15, 2003. Anticipated improvements within the SCEA boundary include resurfacing from Emory Lane to MD 28, profile adjustments in the vicinity of the Manor Run crossing, and some possible left-turn improvements or additions. Preliminary engineering plans have not been developed, but natural environmental impacts are anticipated to be minor.

MD 28/MD 198 Corridor Study: (Shown as project no. 2 in Figure V-5.) This ongoing project planning study is evaluating the accommodation of safe and efficient travel along the MD 28/MD 198 corridor between MD 97 and the US 29/I-95 Corridor. This project is led by SHA and is included in the statewide CTP Development and Evaluation Section. The Purpose and Need has recently been concurred upon by the regulatory agencies. A focus group comprised of local residents, business owners and community activists have been meeting regularly to review the preliminary alternatives. A Public Meeting/Workshop was held on June, 4, 2002, while a Public Hearing is scheduled for

fall of 2003. The key environmental issues involve the Upper Paint Branch Special Protection Area, and the anticipated right-of-way impacts to several residential properties associated with the build alternatives. The only Section 4(f) resource within the SCEA boundary that has the potential to be impacted is the East Norbeck Park, where approximately half an acre could be required. There are no anticipated impacts to historic properties within the SCEA boundary for the MD 28/MD 97 project but 4 historic properties (up to 2 acres) could be impacted between MD 650 and US 29, which is east of the SCEA boundary. Based on the preliminary alternatives developed, between one and two acres of wetlands may be affected by four of the alternatives, but all impacts are east of the SCEA boundary as well.

Norbeck Road Extension: (Shown as project no. 3 in Figure V-5.) This construction project, led by the Montgomery County DPW&T, is extending Norbeck Road (MD 28) from its current terminus at MD 182, eastward to MD 650. Construction is approximately nearly complete, with an anticipated final completion date of December 2002. There was one residential displacement, but a total of 18.9 acres of right-of-way was required from 26 properties. Other impacts included 5 stream crossings, 4.4 acres of wetlands affected, 39.9 acres of woodlands and a construction cost of approximately \$20 Million. However, none of these environmental impacts are within the MD 28/MD 97 project SCEA boundary.

- Layhill Road / Norwood Road Intersection Improvements: (Shown as project no. 4 in Figure V-5.) This intersection, located along the northeast portion of the SCEA boundary, was initially improved by the SHA in May 2001. The improvements included an extension of the turning lanes and widening of the approaches. Montgomery County DPW&T is currently in the process of designing plans which would widen the intersection further, concentrating on the northwest quadrant of the intersection where the Woodlawn Mansion property exists. It is premature to quantify the potential right-of-way impacts at this stage of the project. Quantification of environmental impacts was not available.

Georgia Avenue/Bel Pre Road Intersection Improvements: (Shown as project no. 5 in Figure V-5.) This project, led by the Montgomery County Department of Public Works and Transportation (DPW&T) is looking at improving the intersection by creating additional turn lanes. This intersection was originally studied as part of SHA's Congestion Relief Study (CRS). Construction began in 2001, and is scheduled for completion by the end of 2002. Right-of-way frontage was acquired from several business and residential properties. There were some utility relocations however, there were no residential or business displacements.

f. Land Use

Within the SCEA time frame (1970-2020), past, present and future land uses were identified. Information was obtained from the Montgomery County website and the land use portions of the two master plans for the two planning areas within the SCEA boundary, the 1980 Olney & Vicinity Master Plan and the 1994 Aspen Hill Master Plan. The year 1997 land use data

Scale:

0 0.2 0.4 0.8 Miles

Legend

 SCEA Boundary

- ① Muncaster Mill Improvements
- ② MD 28/MD 198 Improvements
- ③ Norbeck Road Extended
- ④ Layhill Road/Norwood Rd Improvements
- ⑤ Georgia Avenue/Bel Pre Road Improvements

Project Study Area

MD 28 & MD 97
Intersection Improvement Study



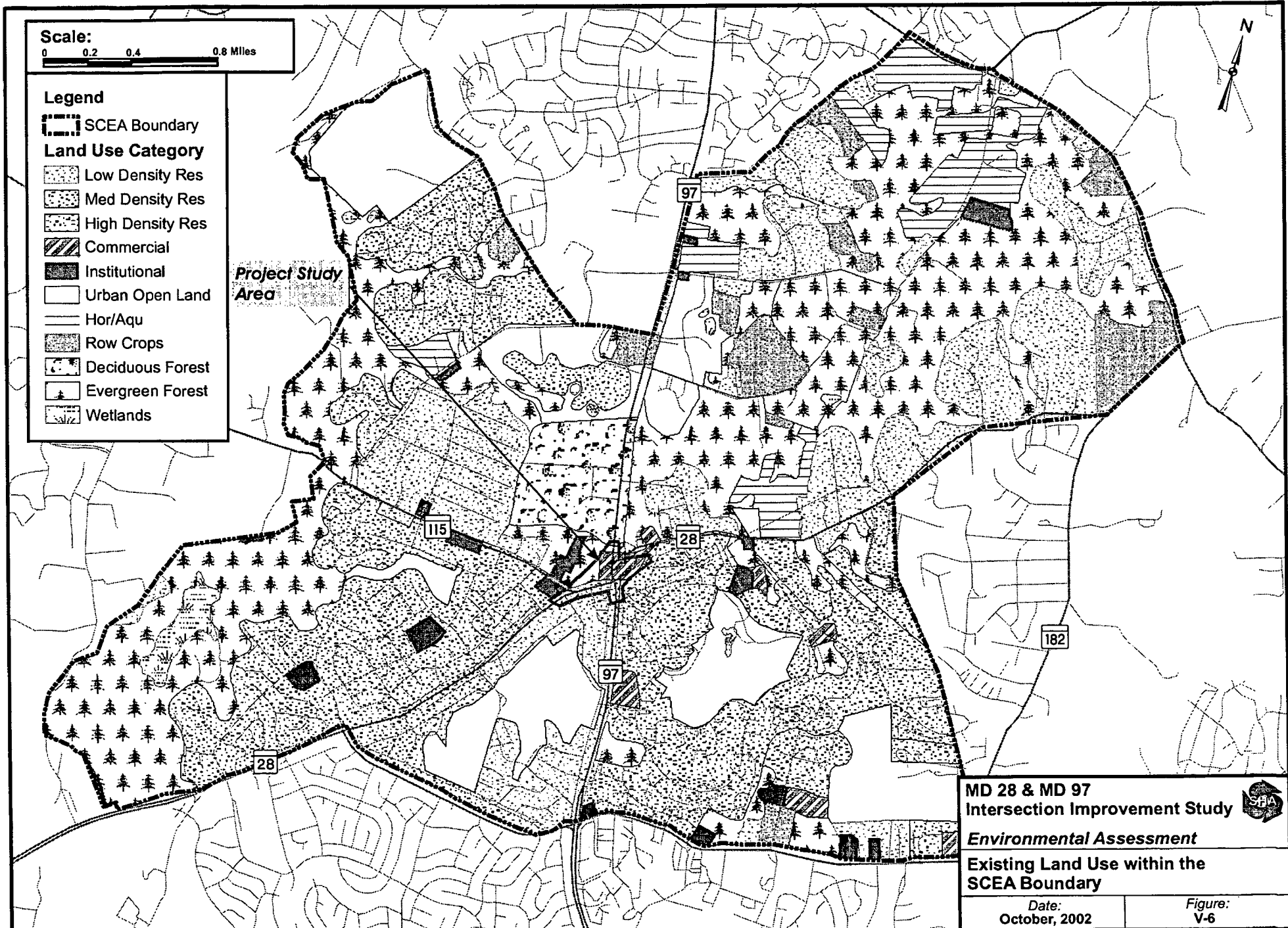
Environmental Assessment

Transportation Projects within
the SCEA Boundary

Date:
October, 2002

Figure:
V-5

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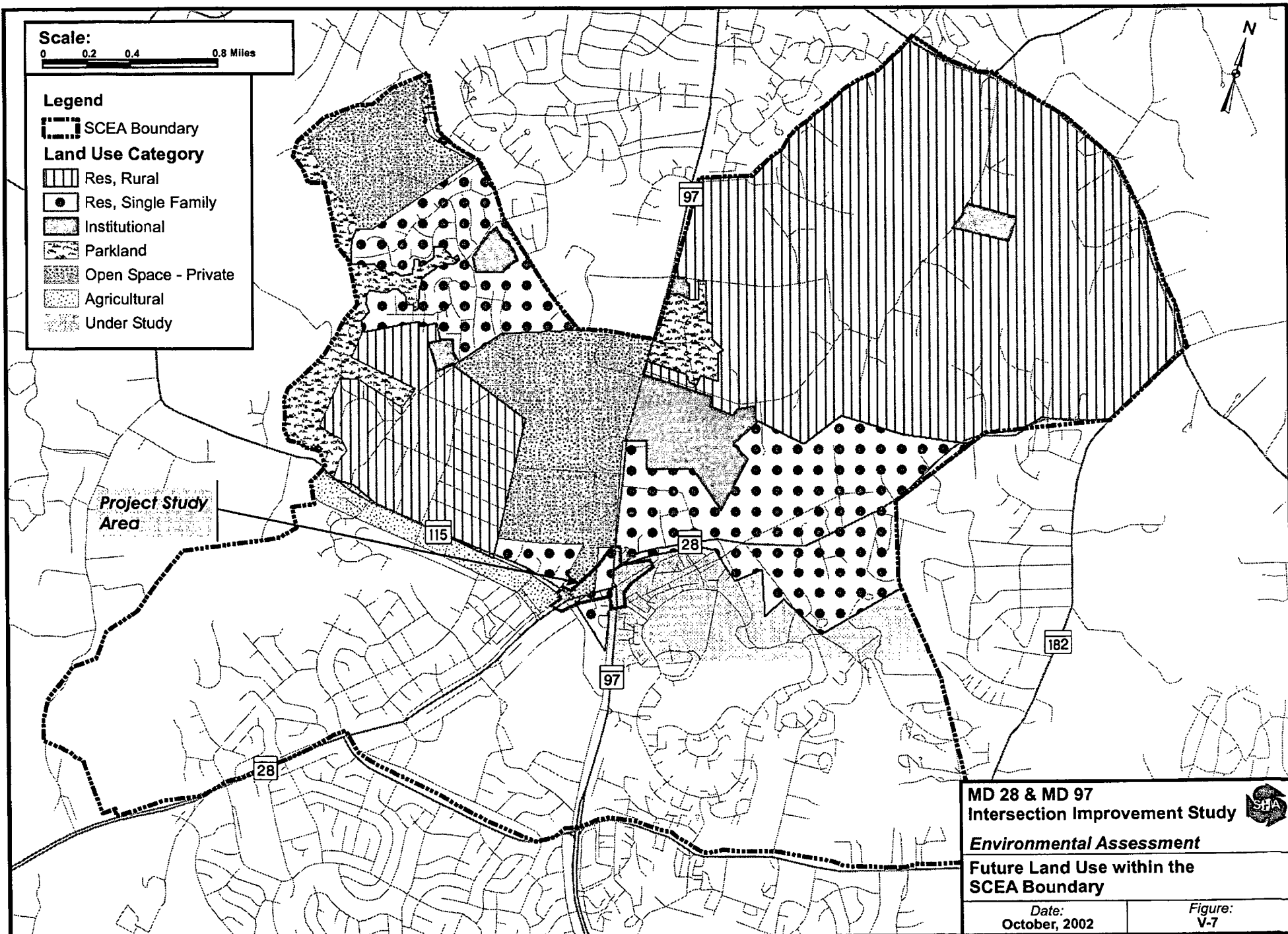
Scale:
 0 0.2 0.4 0.8 Miles

- Legend**
- SCEA Boundary
 - Land Use Category**
 - Low Density Res
 - Med Density Res
 - High Density Res
 - Commercial
 - Institutional
 - Urban Open Land
 - Hor/Aqu
 - Row Crops
 - Deciduous Forest
 - Evergreen Forest
 - Wetlands

Project Study Area

MD 28 & MD 97 Intersection Improvement Study	
Environmental Assessment	
Existing Land Use within the SCEA Boundary	
Date: October, 2002	Figure: V-6

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was used as a representation of the existing conditions. Information obtained from the master plans and Montgomery County sources, such as the Transportation Policy Report (February 2002) was used to depict the future time frame for the SCEA.

Land uses within the SCEA boundary are a combination of low-density residential, low to medium density residential and commercial uses as illustrated in Figure V-6 (Existing Land Uses) and Figure V-7 (Future Land Uses). The residential uses are located both north and south of MD 28, while the commercial use is located on the west side of MD 97. Figure IV-3 depicts the land use within the project area. The predominant land use in the Aspen Hill Planning Area is residential, ranging from detached homes on large and small lots to townhouses, garden apartments and high rise condominium/apartments. Within the project area, residential developments dominate the land use with Leisure World and Manor Village located in the southeast and southwest quadrants, respectively, of the MD 28/MD 97 intersection.

Residential development in the area also occurred in the southern portion of the Olney & Vicinity Planning Area, north of MD 28. Several large residential developments presently exist in the vicinity of the project area, and some expansion of these communities is expected. At the southern edge of the Olney & Vicinity Planning Area is the Norbeck community. The 1980 Olney & Vicinity Master Plan indicated that this community requested a separate master plan in anticipation of an important land use factor, the former Intercounty Connector (ICC). The 1980 Olney & Vicinity Master Plan discusses the potential development pressures within the Olney & Vicinity Planning Area that may occur if the former ICC were constructed. Demand for commercial uses near the proposed interchange and along Georgia Avenue is expected to occur. However, the former ICC roadway project is currently on hold and other capacity improvements, such as this MD 28/MD 97 intersection improvement, are being considered as an alternative to that project.

The Olney & Vicinity Master Plan recommends "that residential, not commercial, uses be located near the proposed interchange." However, according to current data available through Montgomery County, maximum housing development densities were reached in 2001 within the southern portions of the Olney & Vicinity Planning Area and in 1989 for the Aspen Hill Planning area. As a result, a moratorium is currently in place to restrict new residential subdivisions within the vicinity of the MD 28/MD 97 intersection.

Enacting a moratorium on development is guided by Montgomery County's Annual Growth Policy (AGP). Proposed developments are tested to determine the maximum amount of development that can be accommodated by the transportation network. There are two tests, the Policy Area Transportation Review (PATR) and the Local Area Transportation Review (LATR). The first, PATR determines a maximum amount of development for each subarea of the county. The LATR is a test of congestion at nearby intersections.

The moratorium is in place until a sufficient amount of capacity, as determined by the M-NCPPC, is added to the roadway network servicing the area. In general, according to the AGP, if a subdivision will cause an intersection to exceed its standard for level of service/traffic operations, the subdivision is responsible for making improvements to mitigate the adverse effects of the subdivision.

Adjacent to the MD 28/MD 97 intersection, recent subdivision development has occurred with the construction of "The Preserve," situated northwest of the intersection. Phase 1 of the development plan contains 135 single-family homes on approximately half-acre lots and a second phase of up to 45 additional homes has not been approved.

According to information contained in the Olney & Vicinity Master Plan, the amount of development that is dependent on improvements associated with the build alternatives under consideration represents a very small portion of the potential development within the master plan's portion of the project's SCEA boundary. The Aspen Hill Master Plan area within the project's SCEA boundary represents land that is essentially built-out. The majority of planned development can occur under the No Build (Alternative 1) scenario, which includes minor construction projects and developer-based improvements associated with new developments. Therefore, we anticipate there being little or no secondary impacts as a result of the improvements associated with the build alternatives.

Residential development in the area is subject to constraints due to the moratorium on new subdivisions in the vicinity of MD 28/MD 97. The improvements under consideration in this project have been proposed to alleviate traffic congestion, promote safety and enhance access for pedestrians and bicycles. The alternatives under consideration include at-grade improvements as well as, grade separation options that may also provide additional capacity for the local transportation network. While the Olney & Vicinity Master Plan supports only residential land uses, additional local, retail commercial land uses may result due to the additional roadway capacity provided by the improvements. The proposed transportation improvements will support additional employment in the area by relieving congestion and improving accessibility to adjacent land uses.

3. Secondary and Cumulative Effects Analysis

The following sections provide past trends and present conditions as a guide for assessing potential future resource effects as the result of the reasonably foreseeable future development projects.

a. Parklands and Recreation Areas

Within the SCEA boundary, there are an abundance of parklands and recreational areas offering a wide variety of recreational facilities, such as playgrounds, ball fields, tennis/volleyball/horseshoe courts, picnic areas, golf courses, swim centers and trails for hiking, roller blading or equestrian use. The parks, most of which are maintained by M-NCPPC, range from major stream valley parks to small neighborhood and local parks. Many of these facilities are open year-around, from sunrise to sunset to the public. A review of the park and recreational areas is provided in the following paragraphs. The park locations are shown on Figure V-8.

Aquarius Local Park - is located in the Aspen Hill neighborhood near Connecticut Avenue and Bel Pre Road. Based on the 1994 Aspen Hill Master Plan, this 11.21-acre park has not been developed.

East Norbeck Local Park - is located on the north side of MD 28 opposite Bailey's Lane in the Norbeck community. This 10-acre community park includes ball fields, tennis courts, multi-use courts, playground area, picnic shelter and a parking lot.

Flower Valley Neighborhood Park - is located in the Flower Valley and Norbeck Manor neighborhoods south of Muncaster Mill Road. A natural feature of the 17-acre park is a stream that connects to Rock Creek in nearby Rock Creek Regional Park. Recreational features of the park include a multi-use ballfield, playground, tennis courts, and picnic shelter.

Manor Park - is a 1.79-acre neighborhood conservation area. It is located on the south side of MD 28 adjacent to Carrollton Road in the Manor Park community. This park will remain undeveloped.

Norbeck/Muncaster Mill Park - is located on Muncaster Mill Road near Norbeck Road in the Norbeck Manor community. This 5.4-acre park has a basketball court and softball and soccer fields in addition to a recreational center for other activities.

North Branch Stream Valley Park - is an 858-acre, primarily wooded park with no existing facilities except some unpaved equestrian and hiking trails. It is situated in the Olney community and extends from MD 115 on the south to MD 108 on the north.

Olney Manor Recreational Park - is located at the intersections of Cashell Road, Emory Lane and Georgia Avenue in the Norbeck community. The facility has tennis courts, indoor racquetball courts, ball fields, multi-use courts, a pond, picnic area and an indoor swim center.

Rock Creek Regional Park - is a 1,778-acre park, located on Baltimore Road near MD 28 on the south to just south of MD 115 to the north. Public facilities within the park, include hiking, fishing, boating (canoes, rowboats, pedal boats), horseback riding, biking, picnicking, educational and interpretive programs, bird watching, cross country skiing, golf, tennis, exercise trails, running/jogging, roller blading, and an archery range. Other park features include a visitor's center and snack bar, picnic area, trails, playgrounds, and the Needwood Golf Course.

Golf Courses

Norbeck Country Club - is located on 198-acres on Cashell Road near the Hines Road intersection in the Olney area. This privately owned facility opened in 1954, has an 18-hole golf course, tennis courts, swimming pool and clubhouse.

Manor Country Club - is a 200-acre, privately owned facility built in 1922 in the Aspen Hill community between Norbeck Road, Bel Pre Road and Georgia Avenue. The amenities at this location include golf, tennis, swimming and health/fitness activities.

Trotters Glen Golf Course - is located on the east side of MD 97 near Emory Lane in the Olney section of Montgomery County. This publicly owned 18-hole golf course opened in 1993.

Argyle Country Club - is a privately owned club that houses an 18-hole golf course, tennis courts, swimming pool and clubhouse. This facility is located near the Bel Pre, Bonifant and Layhill Roads intersection in the Layhill area of Montgomery County.

Rossmoor Leisure World Country Club - is a part of a recreation-oriented senior community. This privately owned facility opened in 1992, has an 18-hole golf course as a part of the 600-acre complex. It is located on the east side of MD 97 in the Norbeck section of Montgomery County.

Secondary and cumulative impacts to parklands and recreation areas within the SCEA boundary associated from future development is estimated to be minimal since it would be extremely rare that development would be approved on existing parklands, recreation areas and golf courses. The use of land from a publicly owned park or recreational area as part of a federally funded transportation project would require a Section 4(f) evaluation to document that there are no feasible and prudent alternatives to the use of the land from the park, and that the project includes all possible planning to minimize harm to the park.

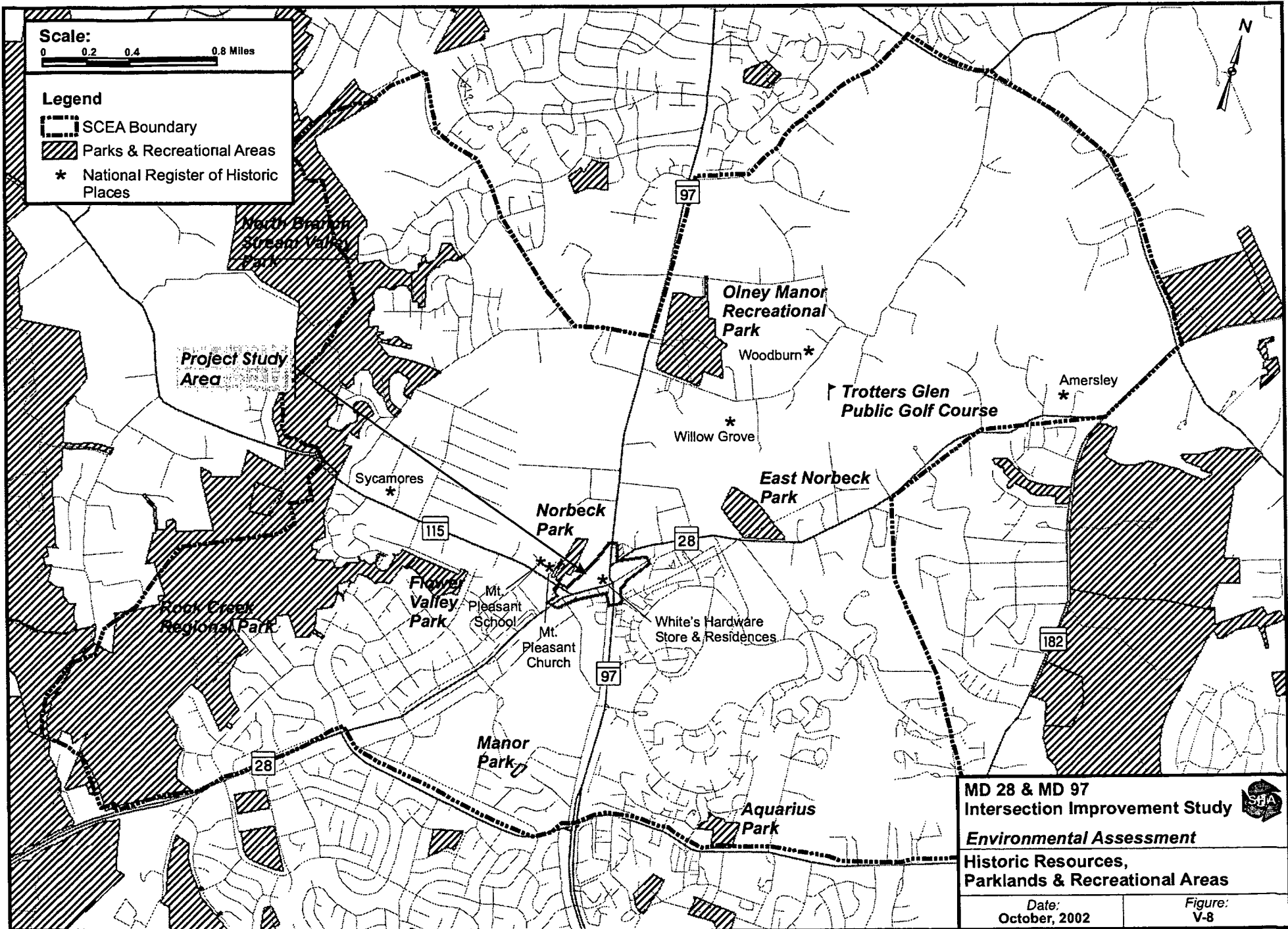
b. Historic Resources


An inventory of historic resources within the SCEA boundary was compiled based on SHA coordination with the Maryland Historical Trust. The inventory includes listing from the National Register of Historic Places (NRHP). A total of eight (8) historic resources (8-Eligible and 0-Listed) have been identified within the SCEA boundary (see Figure V-8). NHRP resources are listed below along with their corresponding MHIP number.

Mt. Pleasant School / Norbeck School (M:23-113-2) - This 0.5 acre site, located on the north side of MD 115 west of MD 28 was obtained by the the Montgomery County Board of School Commissioners in 1872 for the construction of a school for African-American students. The site is eligible for the National Register under Criterion A, as the site of one of the earliest African-American schools in the County.

Mt. Pleasant Church and Cemetery (M:23-113-1) - This 0.41 acre site, located on the north side of MD 115 west of MD 28, contains a church building constructed circa 1885 and a cemetery dating to circa 1900. The property is eligible for the National Register under Criterion A and C.

White's Hardware Store & Residences (M:23-113-4) - This complex of commercial and residential buildings is located on the northwest corner of Georgia Avenue and Norbeck Road. The hardware store is located at the corner, while two residences and two metal workshop buildings are located north of the store. The property, constructed circa 1880 and substantially enlarged in the twentieth century, is eligible for the National Register under Criterion A as an example of a late nineteenth century and early twentieth century commercial/residential complex.



**MD 28 & MD 97
 Intersection Improvement Study** 
Environmental Assessment
**Historic Resources,
 Parklands & Recreational Areas**

Date: October, 2002	Figure: V-8
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Sycamores (M:23-112) - Constructed in 1850, Sycamores is located on the west side of Sycamore Grove Court, north of Muncaster Mill Road. The property is eligible for the National Register under Criterion C. The main house is a good example of a mid-nineteenth century structure, which was updated in 1896 with features of the Second Empire Style.

Woodburn (M:23-116) - Located on the west side of Batchellor's Forest Road, Woodburn is eligible for the National Register under Criterion C. Constructed circa 1800 with modifications in 1884 and 1930, the period of significance for the property is circa 1800 to circa 1930, as the property is a good example of an early nineteenth century log structure.

Amersley (M:23-118) - Amersley is located on a two acre parcel on the west side of Whitehaven Road, within a modern subdivision. Constructed in 1886, the property is eligible for the National Register under Criterion C as a good example of a late nineteenth century vernacular farmhouse.

Willow Grove (M:23-115) - This 8.94 acre site, located south of Batchellor's Forest Road approximately 0.6 miles east of MD 97, is eligible for the National Register under Criterion C. Constructed in several phases circa 1830, Willow Grove is an intact vernacular farm complex, including a frame I-house, a barn, two stables, a garage and the ruins of other outbuildings.

Two of the build alternatives directly impact the White's Hardware Store property, but no other historic resources are impacted. Future development within the SCEA boundary could add to cumulative impacts to historic resources. However, this development would be within two planning areas consistent with the local master plans and thus, any impacts to historic resources would be expected to be minimal. All of the historic resources are within the Olney & Vicinity Planning area, which has entered into a housing moratorium in 2001. The Aspen Hill Planning area has been in a housing moratorium since 1989. As a result, all of the build alternatives are not expected to influence the loss of historic properties within the SCEA boundary or accelerate the loss of historic resources as a result of cumulative development.

c. Water Resources

The SCEA boundary falls into two watersheds: Rock Creek, a tributary to the Potomac River, and the Northwest Branch of the Anacostia River. The boundary between the two watersheds, as shown on Figure V-9, generally follows MD 97, with the west side of the SCEA boundary draining to Rock Creek, and the east side draining to Northwest Branch. Surface waters west of MD 97 include the North Branch of Rock Creek, Manor Run and unnamed tributaries to the North Branch of Rock Creek, Lake Bernard Frank, and Sycamore Creek, a tributary to Rock Creek itself. The east side of the SCEA boundary is drained by Batchellors Run, Buckhorn Branch, and the headwaters of Bel Pre Creek, all of which join the Northwest Branch soon after leaving the SCEA boundary.

The watershed areas included in the SCEA have historically been dominated by low-density land uses. Aerial photographs from the late 1950's show a primarily agricultural landscape. While the communities of Aspen Hill and Wheaton to the south were rapidly being developed into dense suburban communities, the SCEA boundary remained rural, with only a few residential areas, such as Manor Park and Sycamore Acres, encroaching into the farmland

and second growth forests. By the late 1960's to early 1970's, the southern portion of the SCEA boundary had begun the transition to the suburbanized landscape of today as Flower Valley, Manor Lake and the first phases of Leisure World were developed. During this period, the lower reaches of the North Branch of Rock Creek were dammed to create Lake Bernard Frank. The transition in the northern portion of the SCEA has been slower, however, a similar pattern has occurred in the last two decades, though densities remain notably lower than those in the south.

Although comprehensive data is not available for the SCEA boundary over the entire SCEA time frame, it can be assumed from observations in other developing watersheds that the change in land use also brought on a change in SCEA boundary streams. Prior to the late 1950's, it is likely that the majority of the streams were experiencing relatively high sediment and nutrient inputs from agricultural land uses, with the exception of Bel Pre Creek whose watershed was heavily forested. As the watersheds of these streams developed and became more impervious, nutrients and sediment may have been reduced, but storm flows increased causing stream bank and bed erosion. In the southern portion of the SCEA boundary, where much of the development occurred prior to stormwater management and other environmental regulations, the headwaters of some of the streams were piped and a large portion of stormwater flows remain untreated. Although a substantial portion of the SCEA boundary north of MD 28 has now been developed, these developments are not as dense and have occurred within the framework of current environmental regulations protecting streams and other natural resources.

Comprehensive sampling by the Montgomery County Department of Environmental Protection (MCDEP) in the late 1990's for their Countywide Stream Protection Strategy (SPS) illustrates the cumulative effect of land use changes in the SCEA boundary watersheds. In general, watersheds that have the highest level of development and impervious surfaces also have the poorest stream conditions. Table V-16 lists the Northwest Branch, Rock Creek, and North Branch Rock Creek subwatersheds within the SCEA boundary; their SPS stream condition rating and the estimated imperviousness of that watershed.

**Table V-16
SCEA boundary Stream Conditions**

Watershed	SPS Rating	Percent Watershed Impervious Area
Northwest Branch		
Batchellors Run	Good	7%
Batchellors Run East	Fair	6%
Buckhorn Branch	Poor	17%
Bel Pre Creek	Poor	23%
North Branch Rock Creek		
Lower Williamsburg Run	Fair	18.6%
Cherrywood Manor Trib.	Excellent	13.6%
Lower North Branch A	Fair	9.4%
Lower North Branch B	Excellent	9.3%
Lower North Branch C	Excellent	9.3%
Lake Frank East	Good	10.0%
Brooke Manor Trib.	Fair	7.0%
Manor Run	Poor	15.1%

Lower Rock Creek		
Sycamore Creek	Poor	22%

Source: MCDEP SPS, 1997 and Upper Rock Creek Master Plan Imperviousness Analysis

Note: Northwest Branch and Rock Creek data taken from SPS. Rock Creek data taken from more detailed environmental master planning study for the watershed. Existing percentages for Rock Creek watersheds are based on 1994 data to correlate most closely with timing of stream condition sampling.

As illustrated in this table, the watersheds in the southern portion of the SCEA boundary where development densities and impervious percentages are highest are in poor condition, while those with lower impervious percentages are generally in good to excellent condition. This close correlation between imperviousness and stream condition has been shown in numerous studies with significant stream degradation in areas with little or no stormwater controls typically occurring at 10-15% imperviousness. Other sources of degradation also exist in the SCEA boundary. Two of the stream segments, Batchellors Run East and Brooke Manor Tributary were found to have only fair conditions despite having relatively low impervious percentages. Degraded habitat, including sedimentation and bank erosion, were noted in both of these stream segments. County staff speculate that impacts could be related to past agricultural or recreation (Brooke Manor Golf Course) activities that caused sedimentation and/or excessive runoff.

Based on the most recent area master plans available, additional residential, commercial and industrial development is expected to be minimal within the SCEA boundary.

The conversion of open-space and forested areas to impervious areas or manipulated landscapes would be expected to increase surface runoff and peak storm flows as well as introduce sediment and other pollutants into waterways. Longer and higher peak flows can increase stream bank erosion, sedimentation, scouring, and loss of instream habitat. Streams may accelerate vertical migration (channel incision), which may in turn limit floodplain access for storm flows and drain floodplain wetlands (Schueler,1987). The conversion of natural vegetation to impervious cover also limits available recharge area for stream base flows and increases stream temperatures "as the input of cool baseflow is reduced relative to the amount of surface runoff" (MDEP SPS, 1998).

Table V-17 below shows current and impervious areas based on MCDEP's analysis of existing and proposed land use for the watersheds within the SCEA. Because percent impervious area of a watershed has been consistently shown to correlate closely with degree of stream degradation, the percent change is useful in predicting the magnitude of potential future impacts. In Northwest Branch, the greatest potential for change is in Buckhorn Branch. In Rock Creek, the greatest potential for change is in the Brooke Manor Tributary.

**Table V-17
SCEA boundary Streams - Percent Imperviousness**

Watershed	Percent Existing Imperviousness	Percent Projected Imperviousness	Percent Change
<i>Northwest Branch</i>			
Batchellors Run	7	10-15	3-8
Batchellors Run East	6	10-15	4-9
Buckhorn Branch	17	30-55	13-38
Bel Pre Creek	23	25-30	2-7
<i>North Branch Rock Creek</i>			
Lower Williamsburg Run	18.6	18.9	.3
Cherrywood Manor Trib.	13.6	16.7	3.1
Lower North Branch A	9.4	13.6	4.2
Lower North Branch B	9.3	13.5	4.2
Lower North Branch C	9.3	13.4	4.1
Lake Frank East	10	12.2	2.2
Brooke Manor Trib.	7.0	12.0	5.0
Manor Run	15.1	18.7	3.6
<i>Lower Rock Creek</i>			
Sycamore Creek	22	25-30	3-8

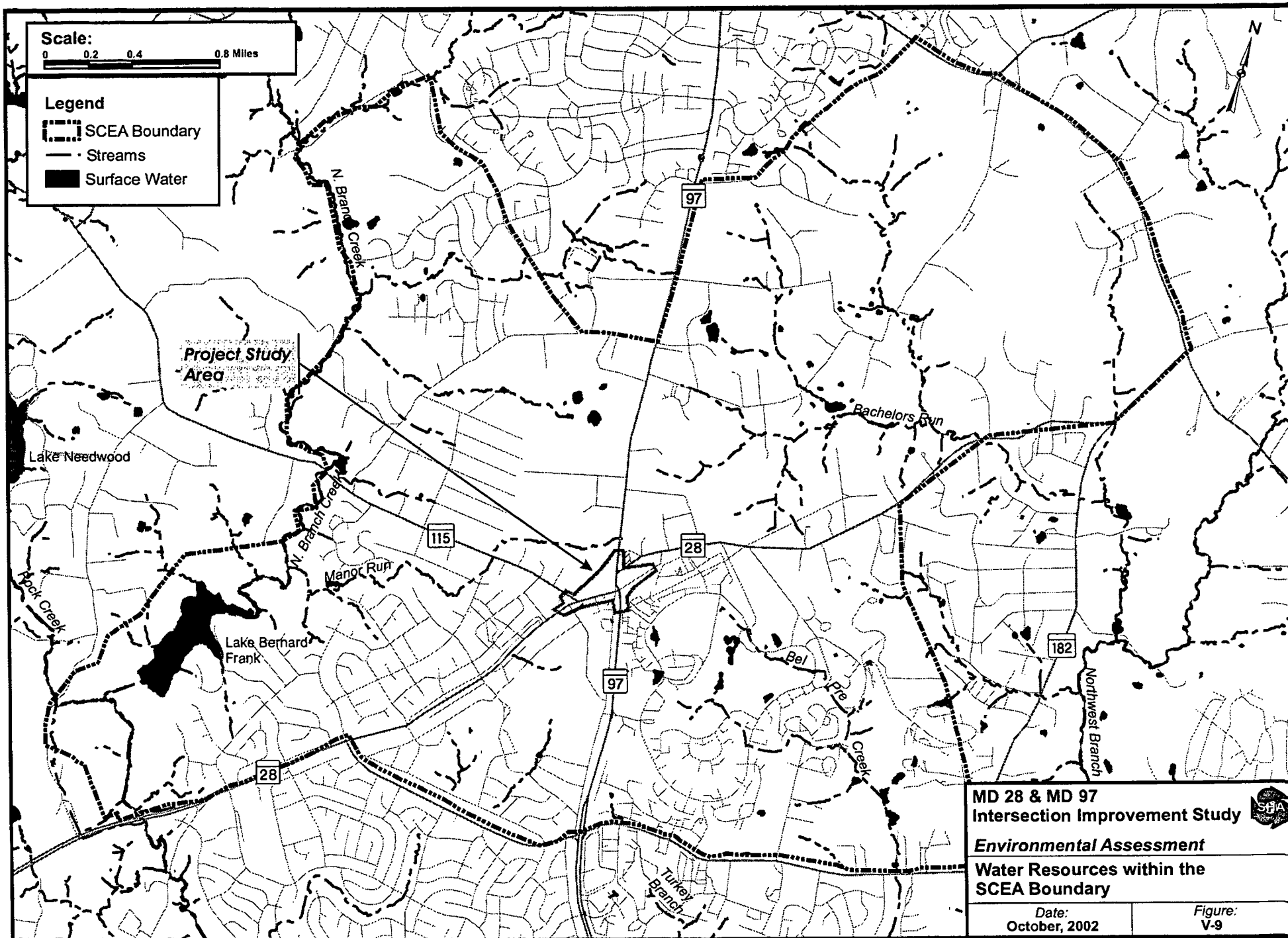
Source: MCDEP SPS, 1997 and Upper Rock Creek Master Plan Imperviousness Analysis


Note: Northwest Branch and Lower Rock Creek data taken from SPS. Rock Creek data taken from more detailed environmental master planning document for the watershed. Existing percentages for Rock Creek watersheds are based on 1994 data to correlate most closely with timing of stream condition sampling.

It should be noted, however, that due to the construction boom of the late 1990's, much of the development projected in the above estimates has already taken place since these projections were made. In addition, the estimates are based on maximum allowable build-out of land uses. This build-out is unlikely to occur, particularly in the southern portion of the watershed where a moratorium on residential development has been in place since 1989, and is not expected to be lifted in the near future.

Because the southern portion of the SCEA boundary has essentially already reached full build-out, and will primarily experience only smaller areas of redevelopment or infill development if the moratorium is lifted, the change to streams in this area are expected to be minimal. However, some impact could be expected, as County projections of future impervious area show an increase in all of these watersheds that would further reduce the remaining natural areas available to filter and infiltrate runoff.

In the northern portion of the SCEA boundary, there are considerably more areas available for new development that if developed would bring on a more substantial change in the watershed landscape. The area with the greatest potential for change is the northeast quadrant. This area is currently dominated by agriculture and forest, but is planned for rural residential in the future. Although densities would be expected to be low enough to avoid large-scale changes,



MD 28 & MD 97
 Intersection Improvement Study 
 Environmental Assessment
 Water Resources within the
 SCEA Boundary

Date:
 October, 2002

Figure:
 V-9

the addition of large-lot subdivisions could result in more runoff and clearing of forested areas that currently provide water quality benefits.

In addition to potential changes from planned development, a number of current and planned roadway improvement projects in and around the SCEA boundary could also contribute to water quality degradation. All of these projects are aimed at easing current congestion and would involve additional impervious surfaces to meet project goals, therefore increasing surface runoff to area streams.

Effects from planned development and future roadway improvements would be somewhat mitigated by required compliance with water quality protection regulations administered by Montgomery County and the Maryland Department of the Environment (MDE). County regulations require stream buffers, special management measures for development on erodible lands, and other conditions that help to reduce the impact of development on water resources. State and county regulations require reductions in runoff and pollutant loadings through the use of approved stormwater management and erosion and sediment control plans. Most categories of in-stream work are subject to review and permitting under Section 404 of the Clean Water Act and/or by MDE. Mitigation of any adverse effects is required, usually in the form of water quality improvement such as stormwater retrofits, riparian buffer creation/protection, and stream restoration. Additional potential for future water quality protection or even improvement also exists within the SCEA boundary. The county has developed a comprehensive Countywide Stream Protection Strategy that aims to protect the highest quality streams through close review of development projects and state-of-the-art best management practices (BMP's) and restore areas already degraded by implementing stormwater retrofits, stream stabilization and habitat improvements. However, many of these strategies are funding dependent, so protection and improvement is not guaranteed

The potential positive and negative effects to water quality anticipated from future land use projections would be expected to occur independent of the MD 28/MD 97 Intersection Improvements. While Alternatives 2, 3, 3-Modified, 4, 6, 6-Modified and 7 (the grade separated alternatives) may add capacity, the change is not expected to be substantial enough to alter projected development densities in the area or add enough capacity to lift the moratorium in the northern portion of the SCEA boundary. Until the actual magnitude of any additional capacity is known, a definitive conclusion on the impact of the project on the moratorium cannot be made. It should be noted, however, that even if the moratorium were lifted, it would soon be imposed again without the implementation of other transportation projects to add greater capacity. Secondary impacts are not anticipated from Alternative 5 (the at-grade alternative) since it is even less likely to add enough capacity to lift the moratorium.

The proposed build alternatives will directly impact up to 90 linear feet of stream channel and will create between 2.97 and 9.15 acres of new impervious surfaces within the SCEA watersheds. As discussed in Section V.E.3, Alternative 3 with Thistlebridge Drive Access Option 4 would have the greatest water quality impacts, while Alternative 5 would have the least. If a build alternative is selected, the direct impacts and runoff from impervious surfaces have the potential to cumulatively affect Manor Run and Bel Pre Creek. As previously discussed, both of these streams have been negatively impacted by past development activities.

In addition, impacts to wetlands and forests and the exposure of soils required for construction could reduce the nutrient uptake provided by vegetation and release sediment and contaminants into these waterways.

Potential negative water quality effects of the chosen build alternative will be minimized to the greatest extent possible. Approved sediment and erosion control plans will reduce potential sedimentation and stormwater management BMPs will be designed to reduce water quantity and quality impacts. Wetland permit, water quality certification, mitigation and reforestation requirements will further reduce the magnitude of these impacts. Cumulative impacts to water quality from the proposed project are expected to be minimal because:

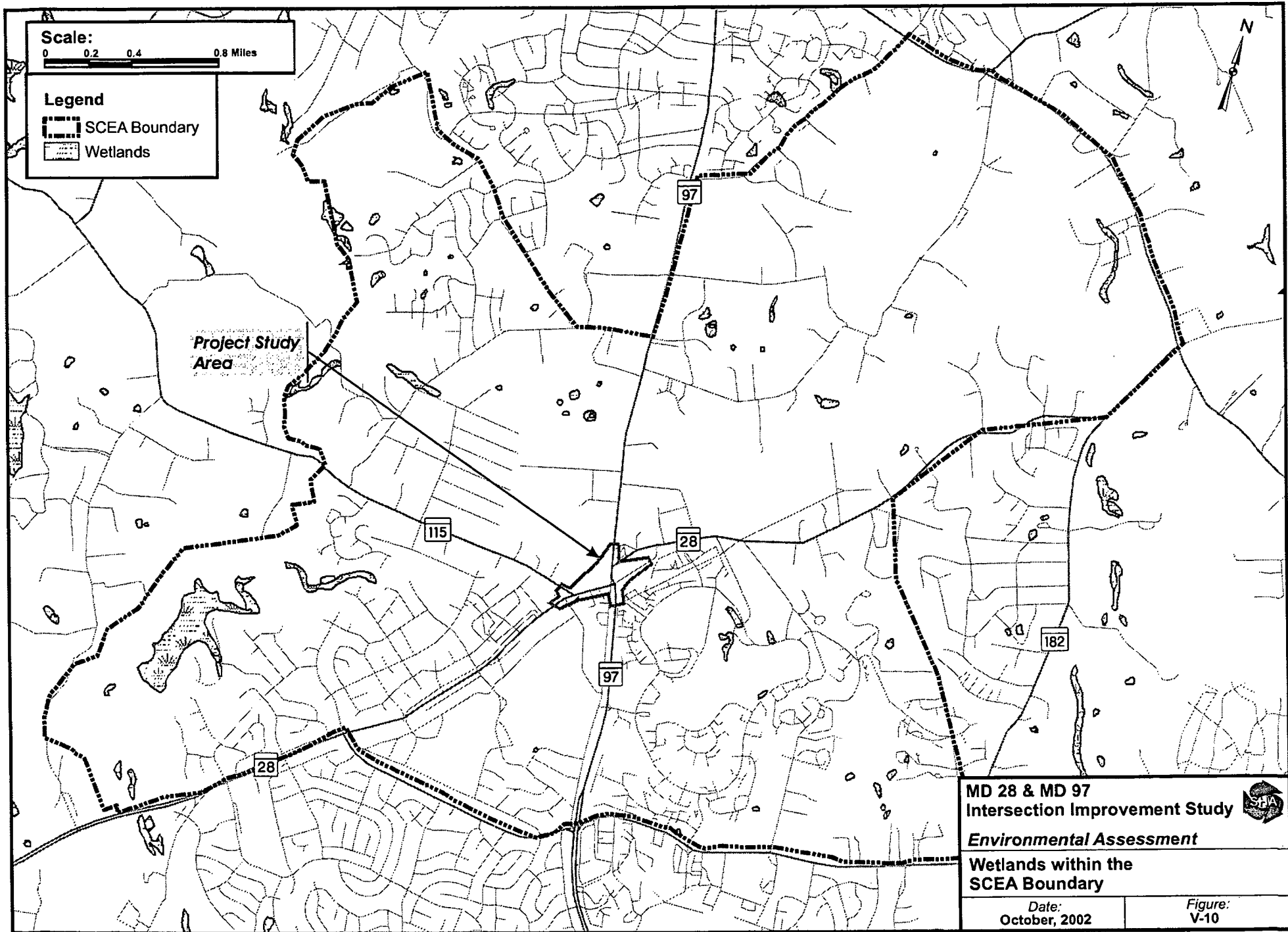
- the proposed impacts are small in relation to stream drainage areas;
- minimization of impacts will continue into design of the chosen alternative; and
- the current regulatory framework will ensure that minimization and mitigation of impacts is carried out to the greatest extent possible.

d. Wetlands

A considerable amount of non-tidal vegetated wetlands are found within the SCEA boundary (see Figure V-10). The wetlands consist of open water, forested, emergent and scrub-shrub classes. The majority of the wetlands that occur are found along the many streams that bisect the SCEA boundary. Although the US Fish and Wildlife's National Wetland Inventory (NWI) maps shows very few wetlands within the SCEA boundary, the Montgomery County Soil Survey indicates the presence of hydric soils along most of the streams. Many of the broadest areas of hydric soils are located in the headwater areas where slopes are gentler. NWI mapping often underestimates the presence of wetlands in Piedmont areas where wetlands may be relatively small. Many of the areas mapped as hydric would be expected to support wetlands. In the Piedmont, wetlands are most often found in headwater areas where seeps break out of valley slopes and along narrow floodplains. Due to their location in undeveloped riparian areas, the majority of the wetlands are forested. A number of open-water wetlands exist in the form of farm ponds and golf course water hazards.

All of the wetlands in the SCEA boundary would be expected to provide important ecological functions such as sediment stabilization, groundwater recharge/discharge, flood control, nutrient attenuation and wildlife habitat. The farm ponds and seep wetlands would most likely provide only a few of these functions, while the broader floodplain wetlands would provide most if not all of these functions.

Based on the SCEA boundary's past history as an agricultural area, it is likely that wetlands were diminished prior to the SCEA timeframe through ditching of stream channels and other farming activities. In more recent times, development and increased population have affected wetlands in this area both quantitatively and qualitatively, although impacts appear to be much less than in other areas of the State. In addition to direct losses from fill activities, impervious areas introduced during development can affect wetlands by diminishing the recharge of groundwater that drives seep wetlands and by increasing runoff and stream erosion so that streams down-cut below natural groundwater levels, effectively draining floodplain



Scale:
0 0.2 0.4 0.8 Miles

Legend
[Dashed Line] SCEA Boundary
[Stippled Area] Wetlands

Project Study Area

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Intersection Improvement Study
Environmental Assessment
Wetlands within the
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wetlands. Although no specific data is readily available for the SCEA boundary, several studies have been done for Montgomery County and the Piedmont physiographic region in general.

In 1973 approximately 180 acres of various types of wetlands were identified by the MDNR in Montgomery County. Thirty-three percent of the wetlands were on public lands and forty-six percent were on land jointly owned by public and private entities. Data from the Maryland Office of Planning (MOP) reports a similar acreage and shows no loss of wetland acreage in Montgomery County from 1973 to 1990. Much of this apparent success in wetlands protection can be attributed to the fact that many of the county's riparian areas have been set aside as stream valley parks, protecting the associated wetland resources. It is also likely that both of these studies were based on large riparian wetlands and that many of the smaller wetlands that are typically affected by development were not included in the analysis.

The USFWS completed a more detailed analysis of wetland trends in the Piedmont region of Maryland for 1980-1981 and 1988-1989, using the U.S. Geological Survey Kensington topographical quadrangle as one of the six areas studied. The majority of the SCEA boundary is located in the Kensington quadrangle. Over the time period studied, only 3.5 percent of vegetated wetlands changed. (Tiner and Foulis, 1993) Sixty-seven percent of the changes were associated with the filling of wetlands for development with a total of 88.45 acres being converted to upland. Approximately 34 acres of wetland were converted to other vegetated wetland types, while 9.72 acres were converted to non-vegetated wetlands such as farm ponds. Agriculture and road and highway construction were the prevalent causes of wetland loss.

Because agricultural uses were diminishing in the SCEA boundary during the SCEA time frame and much of the boundary was developed prior to the implementation of current regulations protecting wetlands, it is likely that wetland losses were primarily a result of roadway construction and residential development. This is particularly true of the southern portion of the SCEA boundary where streams were piped and riparian areas were cleared to allow for higher residential and commercial densities. Wetlands were probably also lost or converted during the construction of many of the golf courses in the SCEA boundary. Although greatly diminished in magnitude, wetland impacts have continued in more recent developments such as The Preserve, where it appears from field observations that road crossings of wetlands were permitted to provide access into the developable uplands. These impacts, however, were most likely mitigated in accordance with current regulations, minimizing the overall effect of the loss.

Wetlands in the SCEA boundary are regulated under Section 404 of the Clean Water Act as well as under Maryland's Nontidal Wetlands Protection Act. Due to these regulations and county programs to discourage impacts to wetlands and riparian corridors, most of the projected development that could occur would have little or no direct impact on wetlands. Residential developments, the dominant type of development projected, can usually avoid wetland impacts through careful design, except where access to the site requires a crossing. Planned roadway projects, on the other hand, are less flexible as it is usually necessary to follow existing roads and meet design standards that may necessitate encroachment into adjacent wetlands. If wetland impacts were to occur, review by the ACOE and MDE as well as a permit requiring avoidance and minimization of impacts and adequate mitigation would be necessary. Forested and scrub-shrub impacts are typically replaced at a 2:1 ratio while emergent wetlands are replaced at a 1:1

ratio. Assuming that careful review of proposed development is carried out and mitigation sites are available within or near the SCEA boundary, overall wetland impacts from regulated impacts under the future build-out scenario should be minimal.

Although the future build-out scenario would be anticipated to have some degree of impact on wetlands, these land use changes are planned and would occur independent of the proposed project. Because of the moratoriums currently restricting development throughout the SCEA boundary, it is unlikely that development will occur in the short-term without significant transportation improvements. Secondary impacts are only expected from the project if an at-grade alternative is selected and if such an improvement would add enough capacity to allow for continued fulfillment of the build-out. Even with this possibility, the project is not expected to spur development beyond what is already planned for the area. Consequently, secondary impacts from the project are expected to be minimal.

The proposed build alternatives would impact between 0.15 and 0.63 acres of forested and/or emergent wetlands within the SCEA boundary. As discussed in Section V.E.3, Alternatives 3 and 6 would have the greatest water quality impacts, while Alternative 5 would have the least. In the context of the entire SCEA boundary, the loss is relatively small. However, almost all of the impacts occur in the headwaters of the Manor Run watershed, which has few wetland resources remaining and was recently impacted by construction of Thistlebridge Drive and development of the Preserve. Consequently, project impacts, in conjunction with the successive loss of wetlands over the SCEA time frame, could make a sizeable contribution to cumulative wetland effects in the Manor Run watershed and an incremental contribution to the SCEA boundary as a whole.

However, potential direct impacts of the project will be minimized to the extent possible throughout the planning and design process and wetland permits will be obtained for all impacts. In accordance with federal and state regulations, all impacts will be mitigated and every effort will be made to provide mitigation in the Manor Creek or Upper Rock Creek watershed. These actions should prevent a net loss of wetlands in the SCEA boundary, although there may still be a cumulative reduction in wetland quality.

e. Terrestrial/Wildlife

Three primary vegetative communities characterize terrestrial resources within the SCEA boundary. These include farmland/pastures, forests, and man-dominated environments. Farmland is the least prevalent of these types and is concentrated in the northeastern quadrant of the SCEA boundary. Vegetative cover in these areas consists of crops, pastureland dominated by grasses and wildflowers, and successional areas where fields are being allowed to convert to young forests. In addition to providing local sources of food to human populations, agricultural land provides important food sources and habitat to numerous species of wildlife. Open farmland can also provide aesthetically pleasing landscapes and a link to the historic and cultural heritage of the region.

The majority of the large forested areas are located along the stream valleys within the SCEA boundary, with the largest woodlands being found within Rock Creek Park along the

western boundary, and in the Batchellors Run watershed in the northeast quadrant of the SCEA boundary. According to the Vegetation Map of Maryland (Brush et al., 1976), the wetland forests fall within the Sycamore-Green Ash-Box Elder-Silver Maple Association and the River Birch-Sycamore Association. The upland forests are typical of the Tulip Poplar Association.

Many of the rare, threatened and endangered species recorded in Maryland need forested habitat for survival. In addition, considerable attention has recently been given to the dwindling populations of Forest Interior Dwelling Birds (FIDBs) who find the large areas of mature contiguous woodland they require for nesting and breeding disappearing throughout the Mid Atlantic region.

Man-dominated environments are found throughout the SCEA boundary, but are most heavily concentrated in the southern portion of the SCEA boundary and least prevalent in the northeast quadrant. They range from dense commercial and residential development where little natural vegetation remains to medium/low density residential areas where impervious surfaces are mixed with lawns, golf courses, landscaping and natural areas.

The agricultural land, forests, wetlands, and low-density, man-dominated environments within the SCEA boundary provide important habitat for a variety of wildlife. Urban and dense suburban environments would be expected to be populated primarily by highly adaptable mammal species such as mice, rats, squirrel, opossum, and raccoon, as well as opportunistic bird species such as sparrows, finches, starlings, doves, cardinals, robins, and other common "backyard" birds. Park/open space/vacant lands would most likely support these species as well as providing habitat for moles, shrew, rabbit, woodchuck, skunk, beaver, muskrat, fox, and deer. Numerous bird species that prefer edge and more open habitats would also be found in these areas, such as Red-tailed Hawk, sparrows, finches, doves, waxwings, wrens, and jays. The forested habitats, however, provide shelter for the greatest diversity of species as they can support many of the opportunistic species but also are essential to less adaptable species of mammals, reptiles, amphibians, and birds. In particular, large forested areas provide vital habitat for FIDBs, as described above.

Agricultural lands have been steadily diminishing in the county over the last three decades. According to trends reported by the Maryland Department of Planning (MDP), Montgomery County as a whole experienced a 16.4 percent loss of agricultural land from 1973-1990 with 8.3 percent of that loss occurring in the last five years of the time period (MDP, 1991). These numbers track agricultural losses in the county as a whole.

The United States Department of Agriculture (USDA) - Forest Service analyzed forest trend data for the Chesapeake Bay region from the 1970's to 1995 (USDA, 1996). Within the Potomac River region of Loudoun, Fairfax, and Prince William counties in Virginia, and Montgomery and Prince George's counties in Maryland, seven percent of the forest was lost to urban development between 1985 and 1995. This amounted to about 2.9 thousand hectares (7.1 thousand acres) per year. In analyzing forest losses for the county, the MDP found that ten percent of the forests had been lost from 1973-1990, with over half of this loss (6.8 percent) occurring from 1985-1990.



A second inventory by the USDA for Montgomery and Prince Georges County reports a one percent gain in forest resources for the period between 1986 and 1990. This decrease in forest loss may in part be attributable to the implementation of the Maryland Forest Conservation Act in 1991. Regulations associated with this law require the minimization of forest clearing, long-term preservation of forested areas and forest planting as mitigation for clearing above set thresholds. A review of the first five years of the Forest Conservation program reported that 120% more forest was retained and planted on development sites than was cleared (MDNR, 1999).

In the SCEA boundary specifically, the majority of the forest losses occurred prior to, or in the early part of the SCEA time frame. In the late 1950's the largest area of contiguous forest(>600 acres) was located along MD 97 between Bel Pre Road and MD 28, where Leisure World stands today. Numerous smaller forested areas have also been lost to development over time. These cumulative losses in forested area, have been somewhat mitigated by forest regeneration in protected areas like Rock Creek Park. Other areas of considerable regeneration can be found along stream valleys where agricultural lands have been replaced by residential uses or where farmland was historically taken out of cultivation. However, the overall trend has been a net loss of forest in the SCEA boundary.

As forests and agriculture have diminished, man-dominated environments have increased dramatically. Today, residential and commercial development, transportation corridors, and other uses that limit the availability and diversity of wildlife habitat dominate the SCEA boundary. As these changes have occurred, the wildlife community has transitioned from one made up of a relatively wide variety of species including those tolerant and intolerant to human disturbances, to one made up of mostly tolerant species that can utilize narrow edge habitats. More sensitive species may still exist in the SCEA boundary, however, they would be expected to be found only in protected areas like Rock Creek Park or in the northeast quadrant where large areas of forest, farmland, and relatively undisturbed riparian areas still remain.

Under the future build-out scenario, forest and farmland habitat conversions would be expected to continue, though at far lower rates than in the past. In the southern portion of the SCEA area, the remaining natural areas are located in narrow strips along streams and between land uses. Other open habitats exist in the three golf courses, though these are generally heavily manicured habitats. The largest areas of forest in the northeastern quadrant are located in Rock Creek Park and will not be impacted. There are smaller areas of forest, however, that are still large enough to potentially support sensitive species, such as FIDBs, that could be impacted by future development.

The greatest potential for forest and farmland impacts is within the northeast quadrant. The future land use scenario shows this area as rural residential. While this would allow for only low-density residential development, development of even large-lot subdivisions could reduce open-lands and fragment large forests to the point that they diminish their ability to provide viable habitat for the more sensitive species that may currently inhabit these areas. FIDB's require large areas of contiguous woodlands to breed successfully, and openings in the canopy for driveways, houses and yards could allow edge species to out-compete the less opportunistic FIDB species. Loss of actively cropped farmlands can diminish wildlife food supplies and the

replacement of open pastures and fields with more manicured landscapes can impact grassland birds and other species that require open meadow habitats. These habitats are rapidly dwindling across the state, stressing the health of the populations that use them.

As mentioned above, the Maryland Forest Conservation Act has greatly slowed the loss of forests in the county. The Act sets thresholds for forest conservation depending upon the zoning designation of the land. For every acre of forest cleared above the threshold two acres of forest must be replaced. This provides a strong incentive for conservation of forest land. In addition, a percentage of non-forested lands must be planted with trees when they become developed. As a result of these restrictions on forest clearing and requirements for reforestation, forest losses are expected to be minimal. In areas where open farmland is developed, forest area may actually increase under the future scenario as open fields are allowed to regenerate.

Forest losses could also occur from the planned transportation improvements described in Section 4. Most of the projects have the potential to impact forests, although the size of the forests and size of potential impacts varies greatly between projects. Because the majority of the projects occur along existing right-of-way, impacts will primarily be to edge habitats. All forest impacts for state road projects would be mitigated in accordance with the Maryland Reforestation Law, which requires that cleared areas be replaced on a 1:1 basis. Prior to any clearing, project plans would be approved by the MDNR Regional Forester including required reforestation details. Every effort is made to complete reforestation within the project area. These and other land use restrictions may slow the loss of crucial habitats for sensitive species, yet the quality of these habitats may still suffer from fragmentation, increased foot traffic in habitats adjacent to residential and commercial areas, and introduction of exotic and invasive species.

For wetlands and water quality, secondary impacts to habitats and wildlife are dependent on which alternative is chosen and how much capacity would be generated by a grade-separated interchange if one is selected. Once again, it should be noted that even if the moratorium were lifted, development decisions in the SCEA boundary would be based on area master plans rather than whether the proposed project was built.

Between 8.9 and 13.2 acres of forest impacts are anticipated if a build alternative is chosen. Details on potential impacts of each alternative are provided in Section V.E.5.b. These impacts, along with the loss of other habitats have the potential to cumulatively affect the quantity and quality of terrestrial habitat in the SCEA boundary. These effects will be somewhat mitigated through required compliance with the Maryland Reforestation Law that requires that cleared areas be replaced on a 1:1 basis. Despite this mitigation, however, overall forest quality and perhaps quantity within the SCEA boundary could still be reduced, as mitigation may be provided in the form of narrow areas of roadside trees rather than in large contiguous areas that would provide higher quality habitat. In addition, newly planted forests would take decades to provide similar habitats to those potentially impacted by the project.

4. Conclusions

Cumulative Impacts

Direct impacts on the environment from each of the alternatives under consideration are added to other past, present and future actions to arrive at cumulative impacts. Alternative 1 would not result in direct impacts to resources, but all of the build alternatives would result in direct impacts to natural and social resources.

No cumulative impacts to parklands and recreation areas within the SCEA boundary are anticipated as a result of this project. Cumulative impacts to water quality from the proposed project are expected to be minimal because the proposed impacts caused by the build alternatives are small in relation to stream drainage areas. A minimization of impacts will continue into the final design phase of the chosen alternative while mitigation of those impacts would be carried out to the greatest extent possible during construction. Within the scope of the entire SCEA boundary, the loss of existing wetlands would be relatively small. Almost all of the impacts occur in the headwaters of the Manor Run watershed, as it has few wetland resources remaining and was recently impacted by the construction of Thistlebridge Drive and the development of the Preserve. Consequently, project impacts, in conjunction with the successive loss of wetlands over the SCEA time frame, could make a sizeable contribution to cumulative wetland effects in the Manor Run watershed only, but a small incremental contribution to the SCEA boundary as a whole. However, based on the current federal and state regulations, no net loss of wetlands would occur within the SCEA boundary as a result of this project. Since up to 13.2 acres of forest impacts are projected if a build alternative is selected, there is a potential for a cumulative effects concerning the quantity and quality of terrestrial habitat within the SCEA boundary.

For the MD 28/MD 97 project, none of the alternatives will cause direct impacts to National Register Eligible historic resources; however, alternatives 2, 3, 6 and 7 will cause adverse impacts to White's Hardware Store and Residences. Within the SCEA boundary, no other transportation projects or planned development projects are anticipated to cause direct impacts to historic resources, with the possible exception of the MD 115 project, which may require some minor right-of-way acquisition from the two Mount Pleasant sites. This will not be determined until the MD 115 project progresses through the development and evaluation phase.

Secondary Impacts

The potential effects to resources from future land use changes would be expected to occur independent of improvements to the MD 28/MD 97 intersection. While the grade-separated build alternatives (Alternatives 2, 3, 3-Modified, 4, 6, 6-Modified and 7) would provide additional capacity, the change is not expected to alter projected development densities in the area. The county has stated that the amount of additional capacity caused by converting the MD 28/MD 97 at-grade intersection into a grade-separated interchange would be minor but since the area north of MD 28 is close to coming out of a residential moratorium, these improvements alone could cause enough additional capacity to lift the moratorium. The county anticipates a reevaluation of the housing / roadway capacity ratios during the next annual Olney and Vicinity Policy Area review, which will take into consideration the MD 28/MD 97

intersection improvements as well as other county and state roadway improvement projects. Therefore, at this time, it is premature to determine if there will be secondary land use effects. Should the county find that adequate transportation network is in place to accommodate additional development, those developments would be subject to individual capacity impact assessments. It should be noted, that even if the moratorium were lifted, it would soon be imposed again without the implementation of other projects to add greater capacity. Secondary impacts are not anticipated from the at-grade alternative since the improvements are not expected to add sufficient capacity to lift the moratorium.

VI. COMMENTS AND COORDINATION

A. Interagency Coordination

There have been several Interagency Review Meetings regarding the MD 28/MD 97 Intersection Improvement Project. On September 15, 1999, the Purpose and Need was presented to representatives from the U.S. Army Corps of Engineers (USACE), U.S. Environmental Protection Agency (EPA), Maryland Department of Natural Resources (DNR), Federal Highway Administration (FHWA), U.S. Fish and Wildlife Service and the Maryland Department of Planning (MDP). All agencies concurred with the Purpose and Need through written correspondence dated between October 10, 1999 and February 23, 2000. Some minor comments or concerns were expressed regarding potential wetland and aquatic resource impacts, business impacts and residential access issues.

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In accordance with CEQ regulations, SHA requested concurrence from FHWA that the proposed improvements to the MD 28/MD 97 intersection be classified as an Environmental Assessment Evaluation. Concurrence was granted by FHWA on December 3, 2001.

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B. Summary of Public Involvement

The MD 28/MD 97 Intersection Improvement Study was initiated in early 1997, following efforts completed as part of the Congestion Relief Study. The current project has been included in the Development and Evaluation Section of Maryland's Consolidated Transportation Program each year since. The project was also included in the State Transportation Improvement Program (STIP) Amendment in December of 1999.

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The general public has been aware of potential improvements to the MD 28/MD 97 intersection since notices were mailed in reference to the public involvement activities associated with the Congestion Relief Study. Correspondence has continued to occur between SHA and local business owners, as well as local residents and regional commuters. There has also been some correspondence between elected officials and SHA. Copies of these letters are included within this section of the document.

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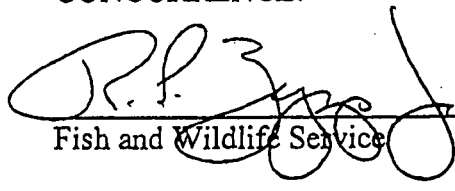
PURPOSE AND NEED CONCURRENCE

Mr. Robert Zepp
MD 28 at MD 97
Page 2

Please check one:

- ~~Concur (without comments)~~ *No Action*
- Concur (comments attached)
- Do not concur (comments attach)

CONCURRENCE:



 Fish and Wildlife Service

Date 10-12-99

CS:AE

Enclosure

- cc:
- Ms. Anne Elrays, SHA
 - Mr. Joseph R. Kresslein, SHA
 - Ms. Gay L. Olsen, SHA
 - Ms. Sue Rajan, SHA
 - Ms. Cynthia D. Simpson, SHA
 - Ms. Pamela Stephenson, FHWA
 - Mr. James Wynn, SHA

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Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

September 29, 1999

RE: Project No. MO852B11
MD 28 at MD 97
Montgomery County, MD

Mr. Paul Wettlaufer
Transportation Program Manager
U.S. Army Corps of Engineers
Attn: CENAB-OP-R
P.O. Box 1715
Baltimore MD 21201

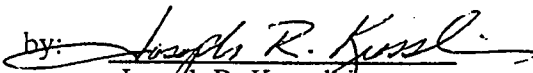
Dear Mr. Wettlaufer:

In accordance with the merged Environmental/Regulatory process, the Maryland State Highway Administration requests your concurrence on the signature line below indicating your agreement with the Purpose and Need for the MD 28 at MD 97 project. The Purpose and Need Statement was presented at the September 15th Interagency Review meeting, and is documented in the attached summary.

Please provide your concurrence by November 1, addressed to the attention of Ms. Gay L. Olsen in the Project Planning Division. Should you have any questions, please contact Mr. Joseph Kresslein at 410-545-8550.

Very truly yours,

Cynthia D. Simpson
Deputy Director
Office of Planning and
Preliminary Engineering

by: 
Joseph R. Kresslein
Assistant Division Chief
Project Planning Division

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

VIA-2

Mr. Paul Wettlaufer
MD 28 at MD 97
Page 2

Please check one:

- Concur (without comments)
- Concur (comments attached)
- Do not concur (comments attach

CONCURRENCE:

Paul Wettlaufer
U.S. Army Corps of Engineers

10/16/99
Date

CS:AE

Enclosure

- cc: Ms. Anne Elrays, SHA
 Mr. Joseph R. Kresslein, SHA
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 Ms. Cynthia D. Simpson, SHA
 Ms. Pamela Stephenson, FHWA
 Mr. James Wynn, SHA

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SHA

ER/AES

Maryland Department of Transportation
State Highway Administration

Parris N. Glending
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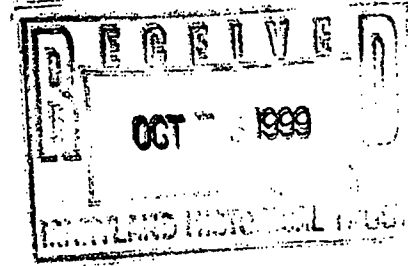
September 29, 1999

RE: Project No. MO852B11
MD 28 at MD 97
Montgomery County, MD

OCT 20 '99 AM 10:07 OPPE



Mr. J. Rodney Little
Office of Preservation Services
Maryland Historical Trust
100 Community Place
Crownsville MD 21032-2023



Dear Mr. Little:

In accordance with the merged Environmental/Regulatory process, the Maryland State Highway Administration requests your comments on the Purpose and Need for the MD 28 at MD 97 project. The Purpose and Need Statement was presented at the September 15th Interagency Review meeting, and is documented in the attached summary.

Please provide your comments by November 1, addressed to the attention of Ms. Gay L. Olsen in the Project Planning Division. Should you have any questions, please contact Mr. Joseph Kresslein at 410-545-8550.

Very truly yours,

Cynthia D. Simpson
Deputy Director
Office of Planning and
Preliminary Engineering

Archeo/st.
#2pc BC 10/18/99
further consultation
needed to complete
Sec. 106

MHT has no comments on or
objection to the P&N:

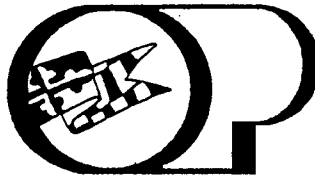
Ephraim J. Cole 10/18/99
MD Historical Trust

by: *Joseph R. Kresslein*
Joseph R. Kresslein
Assistant Division Chief
Project Planning Division

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
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Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202



MARYLAND Office of Planning

Parris N. Glendening
Governor

Ronald M. Kreitzer
Director

October 28, 1999

Ms. Cynthia D. Simpson, Deputy Director
Office of Planning & Preliminary Engineering
Maryland State Highway Administration
P.O. Box 717
Baltimore, MD 21203-0717

Attention: Ms. Gay Olsen

Dear Ms. Simpson:

Staff at the Maryland Office of Planning has reviewed the information provided in **the Purpose and Need Statement for the MD 28 at MD 97 Project**. We find that the information presented in the Purpose and Need Statement is adequate. The purpose of the project is to improve transportation facilities to accommodate all applicable modes of transportation including movements of vehicles, transit users, pedestrian, and bicyclists. We note that the MD 28 at MD 97 intersection improvement is one of the candidates included in the State's Congestion Relief Study, an effort providing short-term relief for east-west traffic congestion in south central areas between I-270 and I-95/US 1 corridors in Montgomery and Prince George's Counties.

Should you have any questions regarding our comments, please contact Bihui Xu or me at 410-767-4551.

Sincerely,

Larry Duket
Deputy Chief
Local Planning Assistance

cc: George K. Frick, Jr. FHWA
Keith Harris, COE
Attention: Vance Hobbs

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Parris N. Glendening
Governor

Kathleen Kennedy Townsend
Lt. Governor

Maryland Department of Natural Resources
ENVIRONMENTAL REVIEW

Tawes State Office Building
Annapolis, Maryland 21401
November 10, 1999

Sarah J. Taylor-Roe
Secretary

Stanley K. Arthur
Deputy Secretary

Gay Olsen
Project Planning Division
Maryland Department of Transportation
State Highway Administration
P.O. Box 717
Baltimore, Maryland 21203-0717

Dear Ms. Olsen:

This letter is in reply to Joseph Kresslein's letter of request, dated September 29, 1999, for Maryland Department of Natural Resources (DNR) comments on the Purpose and Need Statement for Project No. MO852B11, MD 28 at MD 97, Montgomery County.

The Department participated in discussions of this project at the Interagency Meeting. We have no comments on the Purpose and Need Statement at this time. We note that you have included in the Appendix of the document information on Environmental Considerations. We advocate optimized protection of the streams referenced in this section, and their associated aquatic resources. Both direct and indirect impacts, such as sediment and stormwater runoff, should be considered to accomplish this protection.

If you have any questions concerning these comments, you may contact Greg Golden of my staff at (410) 260-8334.

Sincerely,

Ray C. Dintaman, Jr., Director
Environmental Review Unit

NOV 19 1999 10:21 AM

10/01/99 10:00 AM



Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
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Parker F. Williams
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October 1, 1999

RE: Project No. MO852B11
MD 28 at MD 97
Montgomery County, MD

Mr. Nelson J. Castellanos
Division Administrator
Federal Highway Administration
The Rotunda-Suite 220
711 West 40th Street
Baltimore MD 21211

Attn: Ms. Pamela Stephenson

Dear Mr. Castellanos:

In accordance with the merged Environmental/Regulatory process, the Maryland State Highway Administration requests your concurrence on the signature line below indicating your agreement with the Purpose and Need for the MD 28 at MD 97 project. The Purpose and Need Statement was presented at the September 15th Interagency Review meeting, and is documented in the attached summary.

Please provide your concurrence by November 1, addressed to the attention of Ms. Gay L. Olsen in the Project Planning Division. Should you have any questions, please contact Mr. Joseph Kresslein at 410-545-8550.

Sincerely,

Parker F. Williams
Administrator

by:

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

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

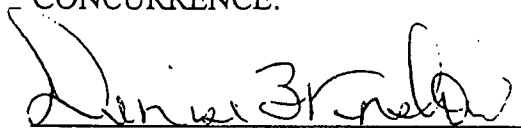
Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Mr. Nelson J. Castellanos
MD 28 at MD 97 Project
Page Two

Please check one:

- Concur (without comments)
- Concur (comments attached)
- Do not concur (comments attach

CONCURRENCE:



 Federal Highway Administration

2/23/00

 Date

CS:AE

Enclosure

- cc: Ms. Anne Elrays, SHA
 Mr. Joseph R. Kresslein, SHA
 Ms. Gay L. Olsen, SHA
 Ms. Sue Rajan, SHA
 Ms. Cynthia Simpson, SHA
 Ms. Pamela Stephenson, FHWA
 Mr. James Wynn, SHA

AGENCY CORRESPONDENCE



United States Department of the Interior



NATIONAL PARK SERVICE
P.O. Box 87127
Washington, D.C. 20018-7127

IN REPLY REFER TO:

2280

To: Susan J. Binder, Division Administrator
FHWA, Maryland Division Office
The Rotunda, Suite 220
711 West 40th St.
Baltimore, MD 21211-2187

The Director of the National Park Service wishes to inform you of our determination pursuant to the National Historic Preservation Act, as amended, and Executive Order 11593 in response to your request for a determination of eligibility for inclusion in the National Register of Historic Places. Our determination appears on the enclosed material.

As you know, your request for our professional judgment constitutes a part of the Federal planning process. We urge that this information be integrated into the National Environmental Policy Act analysis and the analysis required under section 4(f) of the Department of Transportation Act, if this is a transportation project, to bring about the best possible program decisions.

This determination does not serve in any manner as a veto to uses of property, with or without Federal participation or assistance. The responsibility for program planning concerning properties eligible for the National Register lies with the agency or block grant recipient after the Advisory Council on Historic Preservation has had an opportunity to comment.

Attachment

E.O. 11593

DETERMINATION OF ELIGIBILITY NOTIFICATION

National Register of Historic Places
National Park Service

Project Name: Intercounty Connector (ICC) Project Study Area

Location: Montgomery/Prince Georges Counties State: MD

Request submitted by: Susan J. Binder, Division Administrator, FHWA

Date received: 12/29/96 Additional information received: 6/2/97

Name of property	Eligibility	
	SHPO Opinion	Secretary of the Interior's opinion
Cashell Farm	Eligible	Eligible
Willow Grove	Eligible	Eligible
Oak Hill	Eligible	Eligible
Woodburn	Eligible	Eligible
Edgewood II	Eligible	Eligible
Spencer-Carr House	Eligible	Eligible
Duvall-Kruhm House	Eligible	Eligible
Drayton	Eligible	Eligible
George Bennett House	Eligible	Eligible
Isaac Burton, Jr. House	Eligible	Eligible
Lacy Shaw House	Eligible	Eligible
Burtonsville Lookout Tower	Eligible	Eligible

(continued)

Name of property	SHPO opinion	Secretary of the Interior's opinion
Joseph Harding House	Eligible	Eligible
Sycamores	Eligible	Eligible
Glenmont Elementary School	Eligible	Eligible
Amersley	Eligible	Eligible
Conley House	Eligible	Eligible
White's Hardware Store and Residences	Eligible	Eligible (see comments)
Mt. Pleasant Church and Cemetery	Eligible	Eligible
Mt. Pleasant School	Eligible	Eligible
Richard Hill House	Eligible	Eligible
Morris and Julia Quill House	Eligible	Eligible
George M. Edwards Farmstead	Eligible	Eligible
John Norton House	Eligible	Eligible
Thomas Adams House	Eligible	Eligible

Linda McClelland
 Keeper of the National Register
 Date: 8/6/97

WASO-27

Comments

Please note that the two metal workshops (circa 1970) located on the White's Hardware Property are considered non-contributing for National Register purposes.

Request for Additional Documentation

We have determined that determinations of eligibility for the properties listed below will require further evaluation and a field inspection. We will schedule such inspections in the near future and will inform you of our determinations or the need for additional information shortly thereafter. We have also requested the opinion of the MD SHPO on the eligibility of the Free Methodist Church Camp Meeting Ground and the Henry Krusen House.

- Parker-Mann House
- Needham C. Hines House
- Spencer House
- Joseph Milstead House
- Griffith Search
- Howard Marlow House
- Harry T. Burton House
- George H. M. Bennett House
- Alloway Site and Cemetery
- Liberty Grove Church
- Wm. Phair Residence
- Casey Barn
- Laurel Sand and Gravel Company
- Adamson Farmhouse
- Nathan Shaw House
- Rosehill
- Rockville Park H.D.
- Henry Chaney House
- Andrew Buskirk House
- Susquehanna Transmission Co.
- Odorian Roboy House
- John R. Champayne House
- Good Hope Methodist Episcopal Church and Cemetery
- Henry C. Miller Property
- Wm. Kisner Property
- Henry S. Krusen Property
- Columbia Primitive Baptist
- Spencerville Historic District
- Bridge M56



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401



May 17, 1999

Mr. Parker F. Williams
Administrator
State Highway Administration
707 N. Calvert St.
Baltimore, MD 21203-0717

ATTN: Mr. Mark D. Duvall

RE: Project No. SP903B48; MD 28 at MD
97 Intersection; Montgomery County,
MD

Dear Mr. Williams:

This responds to your April 22, 1999, request for information on the presence of species which are federally listed or proposed for listing as endangered or threatened within the above referenced project area. We have reviewed the information you enclosed and are providing comments in accordance with Section 7 of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

Except for occasional transient individuals, no federally proposed or listed endangered or threatened species are known to exist within the project impact area. Therefore, no biological assessment or further Section 7 consultation is required with the U.S. Fish and Wildlife Service. Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered.

This response relates only to federally protected threatened or endangered species under our jurisdiction. It does not address the Service's concerns pursuant to the Fish and Wildlife Coordination Act or other legislation. For information on the presence of other rare species, you should contact Ms. Lori Byrne of the Maryland Heritage and Wildlife Division at (410) 260-8573.

We appreciate the opportunity to provide information relative to fish and wildlife issues, and thank you for your interest in these resources. If you have any questions or need further assistance, please contact Andy Moser at (410) 573-4537.

Sincerely,



Robert J. Pennington
Assistant Field Supervisor
Div. of Habitat Evaluation and Protection



Parris N. Glendening
Governor

Maryland Department of Natural Resources
Forest, Wildlife and Heritage Service
Tawes State Office Building
Annapolis, Maryland 21401

John R. Griffin
Secretary

Carolyn D. Davis
Deputy Secretary

May 28, 1999

Mr. Louis H. Ege, Jr.
Maryland Department of Transportation
State Highway Administration
P.O. Box 717
Baltimore, MD 21203-0717

RE: Project No. SP903B48, MD 28 at MD 97B Intersection, Montgomery County

Dear Mr. Ege:

The Wildlife and Heritage Division has no records for Federal or State rare, threatened or endangered plants or animals within this project site. This statement should not be interpreted as meaning that no rare, threatened or endangered species are present. Such species could be present but have not been documented because an adequate survey has not been conducted or because survey results have not been reported to us.

However, the Wildlife and Heritage Division's Natural Heritage database indicates that there are historical records for species of concern known to occur within the vicinity of the project site. These species could potentially occur on the site itself, especially if the appropriate habitat exists. They are:

<u>Scientific Name</u>	<u>Common Name</u>	<u>State Status</u>
<i>Orthilia secunda</i>	One-sided Pyrola	Endangered*
<i>Pyrola virens</i>	Greenish-flowered Pyrola	Endangered Extirpated
<i>Triosteum angustifolium</i>	Narrow-leaved Horse Gentian	Endangered

*Proposed for status change in near future.

If you should have any further questions regarding this information, please contact Lori Byrne at (410) 260-8573 or at the above address.

Sincerely,

Michael E. Slattery
LAB for

Michael E. Slattery,
Director,
Wildlife & Heritage Division

ER# 99.0711.mo



220

Parris N. Glendening
Governor

Maryland Department of Natural Resources

John R. Griffin
Secretary

Kathleen Kennedy Townsend
Lt. Governor

ENVIRONMENTAL REVIEW

Stanley K. Arthur
Deputy Secretary

Tawes State Office Building
Annapolis, Maryland 21401

June 28, 1999

Joseph R. Kresslein
Project Planning Division
Maryland Department of Transportation
State Highway Administration
P.O. Box 717
Baltimore, Maryland 21203-0717

Dear Mr. Kresslein:

This letter is in response to your letter of request, dated April 22, 1999, for information on the presence of finfish species in the vicinity of Project No. SP 903B48; MD 28 @ MD 97 Intersection; Montgomery County.

The headwater and upper watershed areas of several streams are located in your study area. A tributary to North Branch Rock Creek, labeled as Manor Run on some maps, begins in the northwest quadrant of the study area, an unnamed tributary to Northwest Branch begins within Rossmoor Leisure World in the Southeast Quadrant of the study area, and runoff in the other two quadrants flows to other tributaries of North Branch Rock Creek and Northwest Branch. These streams are within the Washington Metropolitan Area sub-basin, and are Use IV streams. Generally, no instream work is permitted in Use IV streams during the period of March 1 through May 31, inclusive, during any year.

At this time, trout are not stocked within North Branch Rock Creek. If they are stocked in the future, these trout would not be expected to reach parts of that stream system in the vicinity of the Study Area because of the small size of the tributaries. Adult trout are currently stocked in the Northwest Branch mainstem each spring to provide recreational fishing opportunities. Trout are not expected to reach the vicinity of your study area, again because of the small size of those tributaries. However, any potential stream impact from the project could affect habitat for the stocked trout downstream. Of special concern would be instream sedimentation and thermal impacts. Stormwater management should be designed to avoid permanently pooled water and should also attempt to reduce the thermal impacts of pavement runoff.

Joseph R. Kresslein
June 28, 1999
Page 2

Lake Frank (also known as Lake Norbeck) is located downstream of your study area on North Branch Rock Creek. A number of warmwater gamefish species reside and spawn in the lake. Most of the spawning periods for these fish species will be protected by the Use IV instream work restriction period referenced above.

Our files do not contain data on the resident fish populations which exist in the tributaries in the vicinity of the study area. It is expected that the perennial reaches of the streams support resident populations of several warmwater fish species typically found in this region. Most of the spawning periods for the fish species likely to reside and spawn near your project site will be protected by the Use IV instream work restriction period referenced above.

Anadromous fish cannot access the streams near your project site due to natural barriers and dams located downstream. The extent of the natural migration range of these species is well downstream of your study area.

If you have any questions concerning these comments, you may contact Greg Golden of my staff at (410) 260-8334.

Sincerely,



Ray C. Dintaman, Jr., Director
Environmental Review Unit



**Maryland Department of Transportation
State Highway Administration**

Barris N. Gondering
Governor
John D. Porcaro
Secretary
Parker F. Williams
Administrator

August 13, 1999

RE: Project No. M0852B11
MD 28 @ MD 97 Intersection
Montgomery County, Maryland

Mr. J. Rodney Little
State Historic Preservation Officer
Maryland Historical Trust
100 Community Place
Crownsville MD 21032-2023

Dear Mr. Little:

The purpose of this letter is to formally notify you of a project slated for MD 28 (Norbeck Road) at its intersection with MD 97 (Georgia Avenue). The study area largely overlaps that which was surveyed as a part of the Intercounty Connector project. It also overlaps in small part a project about which we notified you on July 29—MD 97 SB from north of Emory Lane to north of MD 28.

Secondly, we wish to request your concurrence in our determination that the White's Hardware Store Complex (M:23-113/4) is the sole architectural resource within the Area of Potential Effect (APE) for this project which meets the criteria for listing in the National Register of Historic Places.

We further wish to seek your input in identifying members of the public, and others who might be appropriate, as consulting parties to this consultation. In accordance with the Section 106 regulations (effective June 17), as promulgated by the Advisory Council on Historic Preservation, we are combining the initiation of the consultation and public involvement steps, as outlined in 36CFR800, Section §800.3 (g). By copy of this letter we are notifying representatives of local preservation organizations and governments that we seek their views within thirty days of receipt of this letter concerning the identification of historic properties.

Project Description

This project calls for geometric improvements in order to relieve traffic congestion. Capacity and safety issues, such as sight distance, need to be addressed. The project study area extends along MD 97 from north of Norbeck Ave and south to Rossmoor Blvd, and, on MD 28, from the MD 115@MD 28 intersection to east of Bradford Rd. The location and limits of our project is indicated on the two location maps (Attachments 1 and 2).

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Mr. J. Rodney Little
MD 28 @ MD 97 Intersection
Page Two

Funding: Federal

Identification of Area of Potential Effect (APE)

The improvements slated for this intersection are undefined at this time; however, we have identified an APE which is inclusive enough to encompass any improvement which would ultimately be developed. We have examined the environs of the possible proposed improvements in light of any changes that might be introduced that would have the potential to affect characteristics qualifying resources for inclusion in the National Register. In determining the APE we took into account the existing land use, the amount and intensity of the development, current zoning, area of possible noise impact, traffic patterns, and future development, if these factors pose the potential to affect characteristics qualifying resources for the National Register of Historic Places. We have developed the APE, as shown on Attachments 1 and 2, which is coterminous with the area of likely direct construction impact and also includes the viewsheds from the roadway.

Methods and Results

Both architectural and archeological resources were investigated for the proposed project.

Identification of Historic Properties

Architecture

An historic sites reconnaissance of the APE was executed by the SHA contractor PAC Spero Company and by SHA Architectural Historian Rita M. Suffness. The USGS map for Kensington, MD, historic maps and Maryland Historical Trust data, and previous cultural resource surveys were examined. We conferred with contacts within local governments, as needed, and reconnoitered the APE in June, 1996 and again in June of this year.

Within the APE there are a number of historic structures previously identified as part of the Intercounty Connector project. Those resources identified as "NRE" have been determined eligible for inclusion in the National Register of Historic Places. Those identified as "Not NRE" would not likely meet the criteria. The significance determinations are referenced along with the name and address of these four properties, which are:

Mr. J. Rodney Little
MD 28 @ MD 97 Intersection
Page Three

NAME	MHT NUMBER	STATUS National Register Eligibility
Whites Hardware and Residences 15508-12 Georgia Avenue	M23:113/4	NRE Previously Determined
Abland V. Ltd House 4007 Muncaster Mill Road	A4.34	Not NRE Previously Determined
James Burris House II 15520 Georgia Avenue	M:23-113/5	Not NRE Previously Determined
Richard Hewitt Property 3501 Norbeck Road	M23-113/6	Not NRE Previously Determined

Two additional resources were recently identified as part of the MD 97 Southbound (from north of Emory Lane to north of MD 28) project. These properties were evaluated and determined to lack the significant characteristics that would qualify them for inclusion in the National Register of Historic Places. We requested your concurrence in these determinations by August 30 in previous correspondence delivered to your office on July 29. These historic properties are:

John Ray Property 15526 Georgia Avenue	M23:147	Not NRE (Previously Recommended as part of MD 97SB project)
Charles Anderson Barn NE Cr. MD 97 and MD 28 (Ruinous)	M:23-114	Not NRE (Previously Recommended as part of MD 97SB project)

One property was newly identified as part of this study, the Hazel Whalen Property, as described in Attachment 4. It is currently being dismantled.

Hazel Whalen Property 3701 Norbeck Road (Being Dismantled)	M23:146	Not NRE (Recommended)
--	---------	--------------------------

Mr. J. Rodney Little
MD 28 @ MD 97 Intersection
Page Four

MHT Inventory forms are included for two sites identified within the APE but outside of the corridor reconnoitered for the ICC [John Ray Property (M23:147) and Hazel Whalen Property (M23:146)]. An addendum sheet is included for the Charles Anderson Barn Ruins, M:23-114 site. These are appended as **Attachments 3, 4, and 5**. As the Whalen property is being dismantled, current photographs have been included which document its present state.

A table with our determinations of eligibility is included as **Attachment 6**.

Archeology

The MD 97/MD 28 intersection was previously assessed as having low archeological potential based on no expansion of right-of-way. The scope of this current project, and its potential for the acquisition of right-of-way along MD 97 and MD 28 has not been determined. There are no previously recorded archeological sites in the project area's vicinity despite the inclusion of the MD 97/MD 28 intersection in several prior surveys. Conrad (1975) performed an archeological reconnaissance of MD 28 from MD 97 to Bauer Drive. Epperson (1980) surveyed MD 97 from MD 28/609 to MD 108. A portion of the APE was included in the corridor studied by Mid-Atlantic Research, Inc. (1979) for the Metropolitan Washington Area Water Supply Project. The intersection was also included in SHA's Phase I Identification and Sampling Survey for the ICC. None of these surveys located archeological sites.

Much of the project area has been disturbed by prior transportation and drainage improvements including a park and ride facility. High-density residential and commercial development has also substantially impacted the project area. However, there are numerous structures depicted on historic maps in the project area vicinity from the mid- 19th through the early 20th centuries. Most are associated with the historic communities of Layhill and Norbeck. A store and post office is shown in 1879 (Hopkins 1879) on the west side of MD 97 at its intersection with Norwood Road. It is undoubtedly the location of NR eligible Whites Hardware Store and Residences (M23:113/4). While the project area may have high archeological potential in general, the need for archeological identification studies cannot be assessed until project plans are more concretely conceptualized.

Review Request

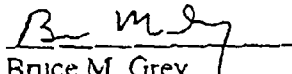
We request your concurrence in our determination that the White's Hardware Store Complex (M:23-113/4) is the sole standing structure within the APE for this project which meets the criteria for listing in the National Register of Historic Places by September 10. By copy of this letter we invite the Montgomery County Historical Society and the Montgomery County Historic Preservation Commission to provide comments and consult in the Section 106 process for this project. If no response is received by September 10 we will assume that these organizations decline to participate.

Mr. J. Rodney Little
MD 28 @ MD 97 Intersection
Page Five

Should you have any questions or require clarification, please feel free to phone Ms. Rita M. Suffness on 410-545-8561 (or by e-mail, RSuffness@sha.state.md.us) for historic standing structures or Ms. Mary F. Barse on 410-321-3232 (or by e-mail, MBarse@sha.state.md.us) concerning archeology.

Very truly yours,

Cynthia D. Simpson
Deputy Director
Office of Planning and
Preliminary Engineering

by: 
Bruce M. Grey
Assistant Division Chief
Project Planning Division

Accepted by:

State Historic Preservation Office

Date

CDS:RMS

Attachments (6)

- cc: Ms. Mary F. Barse (w/attachments)
- Ms. Anne Elrays (w/attachments)
- Mr. Bruce M. Grey
- Dr. Charles Hall (w/attachments)
- Mr. Joe Kresslein
- Ms. Pam Stephenson (w/attachments)
- Ms. Mary Kay Harper, Montgomery County Historical Society (w/attachments)
- Ms. Gwen Wright, Montgomery County Historic Preservation Commission (w/attachments)
- Ms. Rita M. Suffness (w/attachments)



**Maryland
Department of
Housing and
Community
Development**

*Division of Historical and
Cultural Programs*

100 Community Place
Crownsville, Maryland 21032

514-7600

0-756-0119

Fax: 410-987-4071

Maryland Relay for the Deaf:

1-800-735-2258

<http://www.dhcd.state.md.us>

Parris N. Glendening
Governor

Raymond A. Skinner
Secretary

Marge Wolf
Deputy Secretary

September 14, 1999

SEP 16 '99 AM 9:45 OPI

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Mr. Bruce Grey
Assistant Division Chief
Project Planning Division
State Highway Administration
707 North Calvert Street
P.O. Box 717
Baltimore, Maryland 21203-0717

RE: Project No. M0852B11
MD 28 @ MD 97 Intersection
Montgomery County, Maryland

Dear Mr. Grey:

Thank you for your recent letter, dated 13 August 1999 and received by the Trust on 19 August 1999, regarding the above-referenced project.

IDENTIFICATION AND EVALUATION

Archeology: We understand that SHA cannot assess the need for archeological investigations for this project until it has determined the exact scope of the undertaking. We await SHA's completed assessment of potential once it has developed preliminary conceptual plans for the proposed improvements.

Architecture: SHA provided the Trust with one new MIHP form for the Hazel Whalen Property, M:23-146, at 3701 Norbeck Road, Norbeck Vicinity, Montgomery County, and requested our concurrence that the property is not eligible for inclusion in the National Register of Historic Places. The Trust concurs that it is **not eligible** for the National Register, because of the extensive remodeling which has occurred in the past ten years. With regard to the other properties discussed in SHA's letter, we would note that the previous determinations of eligibility remain in effect.

ASSESSMENT OF EFFECTS

We look forward to continued coordination with SHA to complete the project's Section 106 review, as project planning progresses for this undertaking.

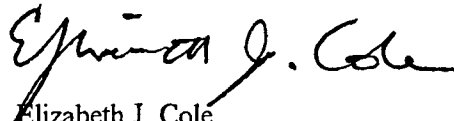


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Mr. Bruce Grey
September 14, 1999
Page 2

If you have questions or require additional information, please call Ms. Anne Bruder (for structures) at (410) 514-7636 or me (for archeology) at (410) 514-7631. Thank you for your cooperation and assistance.

Sincerely,



Elizabeth J. Cole
Administrator
Archeological Services

EJC/

cc: Dr. Charles Hall
Ms. Rita Suffness
Ms. Pam Stephenson

MEMORANDUM

TO: Ms. Cynthia D. Simpson
Deputy Director
Office of Planning and
Preliminary Engineering

FROM: Ms. Suseela Rajan
Team Leader
Project Planning Division

DATE: May 2, 2000

SUBJECT: Project No. MO852B11
MD 28 at MD 97
Intersection Improvements
Montgomery County

RE: Initial Interagency Field Review

In accordance with the streamline NEPA/404 process and prior to initiating transportation improvement alternatives, an interagency field review meeting for the MD 28 at MD 97 intersection improvements project was held on March 27, 2000 at 9:30 AM at the park and ride lot just east of the MD 28/MD 97 intersection. The field review was arranged to introduce preliminary conceptual alternatives and review natural environmental and socio-economic conditions within the project study area. Those who attended the meeting are as follows:

Name	Representing	Phone
Kay Adenaiya	D-3 Traffic	(301) 513-7424
Mary Barse	SHA - PPD	(410) 545-2883
Alazar Feleke	SHA - PPD	(410) 545-8543
Van Funk	SHA - PPD	(410) 545-2899
Dan Hardy	M-NCPPC	(301) 495-4530
Hugh Harvey	SHA - HD	(410) 545-8869
Aparna Murthy	SHA - PPD	(410) 545-8525
Cindy Nethen	MDE	(410) 631-8043
Don Ostrander	M-NCPPC	(301) 495-2184
Sue Palmer	D-3 Traffic	(301) 513-7318
Sue Rajan	SHA - PPD	(410) 545-8514
Denise Winslow	FHWA	(410) 962-4342 Ext. 117
Bihui Xu	OP	(410) 767-4567

Background Information:

The MD 28/MD 97 intersection is currently experiencing stop and go conditions during morning and evening peak hours. At these hours, it is operating at a Level of Service "F" (extremely heavy congestion) and by the year 2020, it is projected that traffic volumes on both MD 28 and MD 97 will increase by 82%. This project was included in the Construction Program of the 1999-2004 Consolidated Transportation Program as part of the Congestion Relief Study (CRS). The CRS is intended to provide short-term relief for east-west traffic congestion in central Montgomery County. This project is intended to reduce congestion at the intersection and promote non-automotive transportation use by emphasizing intermodal access to transportation facilities.

Field Review:

After introductions, a brief description of the project's goals and an overview of the meeting agenda was discussed by the project manager Ms. Sue Rajan. Handouts were provided that contained the agenda, preliminary conceptual alternates, and proposed Secondary and Cumulative Effects Analysis (SCEA) geographical boundaries. The following preliminary concepts were discussed:

*Alternate 1 – No-Build**Alternate 2 – Concept of the ICC Upgrade existing roads alternative*

This consists of an urban diamond interchange with MD 97 being depressed under MD 28, retaining walls in all 4 quadrants. A modified version of this concept (with a reduction in the bridge length) will be studied.

Alternate 3 - At-grade concept Case 1

Northbound and Southbound left turns on MD 97 are eliminated from the intersection and are accommodated through a jughandle and a median left turn lane respectively. The Southbound left turns from the median left turn lane onto an at-grade ramp connecting to MD 28 will be signalized at two locations, MD 97 NB and MD 28. The Park & Ride (P&R) lot will need to be redesigned. This concept will be studied further.

Alternate 4 – At-grade concept case 2

Eastbound, Westbound left turns from MD 28 are eliminated from the intersection and provided through low speed at-grade ramps in the NE and NW quadrants respectively. Northbound left turns from MD 97 can also be provided in the NE quadrant movement. The approach to the P&R lot will need to be relocated. The concept will be further studied with and without the ramp in the NW quadrant for the westbound left turns. The concept would also provide an offramp for the southbound (MD 97) right turns.

Alternate 5 – At-grade concept case 3

Northbound, Southbound, Eastbound and Westbound left turns from MD 28 and MD 97 are eliminated from the intersection and provided through low speed at-grade ramps in the NE quadrant. The approach to the P&R lot will need to be relocated. The concept will be further studied with and without the ramp in the NW quadrant for the westbound left turns.

Alternative 6 – Relocated MD 28 overpass over MD 97

Another concept that was proposed and discussed, consisted of grade separating the through movements on MD 28 by relocating it north of the existing MD 97/MD 28 where all the turning movements would still occur. This concept will be studied further.

After the preliminary conceptual alternates were presented and discussed, Mr. Van Funk gave a brief overview of the environmental features in the area and presented proposed geographical boundaries for the Secondary and Cumulative Effects Analysis.

Environmental Features:

Two stormwater management basins with associated wetlands exist in the northeast quadrant of the intersection. The first basin is located approximately 600' north of the intersection and is an outfall area for stormwater runoff from the park and ride lot. The second storm water management basin lies approximately 1100' north of the intersection. Both basins contain emergent wetlands consisting of cattails and black willow.

The headwater and upper watershed areas of several streams are located in the project area. A tributary to North Branch Rock Creek begins in the Northwest quadrant of the intersection and an unnamed tributary to Northwest Branch begins in Rossmoor Leisure World in the Southeast quadrant. Runoff in the other two quadrants flow to other tributaries of North Branch Creek and Northwest Branch. All are Use IV streams with no in-stream work permitted from March 1st through May 31st, inclusive. Although several streams are within the projects study area, no direct impacts to these streams or the 100-year floodplain associated with them are anticipated.

An assessment of the archeological potential of the study area indicates that the project area generally has a high potential for undiscovered archeological resources. Whites Hardware Store and associated residences (located in the northwest quadrant of the intersection) are the only National Register Eligible standing structures in the project study area. Six other Maryland Inventoried Structures were identified within the study area but were determined not to be eligible for inclusion in the National Register. Mary Barse (SHA archeologist) commented that although the Maryland Inventoried Structures were not national register eligible based on architectural merit, there is a possibility that they could be eligible due to archeological features associated with them. Ms. Barse also stated that all of the Maryland Inventoried structures should be shown and labeled on the conceptual alternates map.

Secondary and Cumulative Effects Analysis:

The proposed project occurs in a heavily developed area. The only directly affected resource appears to be historic properties. The proposed geographical boundaries presented for

analyses were; traffic analysis zones (area of traffic influence), watershed boundaries, election districts, census tracts, priority funding areas and planning area boundaries. It was pointed out that the different geographical boundaries should be overlaid on a single map and that a time line for the analysis needs to be developed.

After discussions of the concepts and environmental features, the group proceeded to walk the project study area. The group walked along MD 97 northbound and southbound north of the MD 28 intersection and along MD 28 from MD 115 to the park and ride lot. Areas that could be potentially impacted by the alternates were pointed out during the walkthrough. FHWA commented that the Montgomery County bike plan should be incorporated into the plans and that environmental features should be shown and identified on the conceptual plans.

M-NCPPC – Concept of at-grade intersection
Minority groups in area?

- cc: All attendees
- Ms. Anne Bruder (MHT)
- Ms. Elizabeth Cole (MHT)
- Mr. Greg Golden (DNR)
- Ms. Kameel Holmes (SHA)
- Mr. Keith Riniker (SHA)
- Mr. Bob Simpson (Mont. Co. DPWT)
- Mr. Brian Smith (FHWA)
- Ms. Jamie Stark (EPA)
- Ms. Kelly Steele (SHA)
- Ms. Mona Sutton (SHA)
- Mr. Robert Zepp (USFWS)



Maryland Department of Transportation
State Highway Administration

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Administrator

MEMORANDUM

TO: Mr. Neil J. Pedersen
Deputy Administrator
For Planning and Engineering

FROM: Cynthia D. Simpson
Deputy Director *CDS*
Office of Planning and
Preliminary Engineering

DATE: December 28, 2000

SUBJECT: MD 28/MD 97 Intersection Improvement Study
Project No. MO852B11
Meeting Minutes - Alternatives Retained for Detailed Study
Section 8-102 Memorandum – Initial Project Planning Summary

A team meeting was held on November 2, 2000 in the Project Planning Division Conference Room in State Highway Administration Headquarters at 707 Calvert Street in Baltimore, Maryland. The following persons were in attendance:

- | | |
|----------------------|-------------------------------|
| Mr. Ken Briggs | SHA-Highway Design |
| Ms. Caryn Brookman | FHWA |
| Mr. Greg Cooke | SHA-EAPD |
| Mr. Alazar Feleke | SHA-PPD |
| Mr. R. Van Funk | SHA-PPD Environmental Section |
| Mr. Dan Hardy | M-NCPPC |
| Mr. Joe Harrison | SHA-PPD |
| Mr. Hugh Harvey | SHA-Highway Design |
| Mr. Paul Maloney | SHA-PPD |
| Mr. Ralph Manna | SHA-Bridge Design |
| Ms. Aparna Murthy | SHA-PPD |
| Mr. Neil J. Pedersen | SHA-Deputy Administrator |
| Ms. Odessa Philip | SHA-PPD |
| Mrs. Sue Rajan | SHA-PPD |
| Ms. Cynthia Simpson | SHA-Deputy Director, OPPE |
| Mr. Bob Simpson | MCDPWT |

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Mr. Neil J. Pedersen
Page Two

Ms. Chanel Torsell SHA-OOTS
Mr. Jim Wynn SHA-PPD

The purpose of the meeting was to discuss the comments received on the alternatives as a result of the Alternates Public Workshop held on September 7, and to recommend alternatives to be retained for detailed study to Mr. Neil Pedersen, Deputy Administrator for Planning and Engineering. The agenda and other handouts from the meeting are attached.

Following introductions, Ms. Sue Rajan, the Project Manager, started the meeting by discussing the status of the project. It was mentioned that the Alternates Public Workshop was held on September 7, 2000 with approximately 200 people attending the workshop. More than 50 written comments were received as a result of the workshop.

Alternatives Presented at the Alternates Public Workshop:

Alternative 1 – No Build

Under this alternative, no significant improvements to the MD 28/MD 97 intersection would occur. Only minor improvements would be conducted, which would not affect roadway capacity and reduce accident rate.

Alternative 2 – Urban Diamond Interchange

Under this alternative, a single point urban diamond interchange is provided with MD 97 through lanes carried over MD 28 on a bridge. Both MD 97 and MD 28 would be 3 lanes in each direction in the vicinity of the interchange. The turning traffic would use ramps, which intersect with MD 28 at-grade under the bridge. With this interchange, only one signal would be required, as the opposing left turns down the ramps to MD 28 would be made simultaneously. Similarly, the left turns from MD 28 onto the ramps to MD 97 would also occur simultaneously.

Alternative 3 – Option A (Relocated Overpass)

This alternative would have MD 28 relocated 600 feet north of the existing intersection and would cross over MD 97 on a bridge. The proposed relocated roadway would tie into existing MD 28 at MD 115 (Muncaster Mill Road), west of MD 97. East of MD 97, the proposed relocated roadway would tie into existing MD 28 just east of the existing Park & Ride lot. The northbound left-turns from MD 97 to westbound MD 28 would be accommodated through a loop ramp from roadway. The southbound left-turns from MD 97 to westbound MD 28 would be accommodated via the loop ramp, running behind the shopping center, which
e bridge onto the MD 28 relocated roadway.

Mr. Neil J. Pedersen
Page Three

The eastbound to northbound and westbound to southbound left turns would occur at the existing MD 97/MD 28 intersection.

Alternative 3 – Option B (Relocated Overpass)

This alternative is similar to Alternative 3A except for the following:

- The northbound to westbound left-turns from MD 97 would occur at the intersection of the proposed relocated MD 28 and existing MD 28 to the east of MD 97.
- The southbound right turns from MD 97 would not occur at the existing MD 28/MD 97 intersection. Instead, a directional ramp would be provided from MD 97 southbound to the MD 28 relocated overpass to accommodate the right turns.
- The eastbound left turns from MD 28 to MD 97 northbound would not occur at the existing MD 28/MD 97 intersection. Instead, traffic would continue along the MD 28 relocated overpass and make two consecutive rights to go northbound on MD 97.
- The alignment for the relocated roadway would be 720 feet north of the existing MD 28/MD 97 intersection.

Summary of Comments Received from the Public

Ms. Odessa Philip reviewed the comments received from the public. She explained that there were comments ranging from concerns regarding access to St. Patrick’s Church to issues about noise impacts. There were suggestions on using audio signals for the elderly people around the area. Citizens have also asked about reconsidering depressing MD 97 and carrying MD 28 over on a bridge. The following is the summary of the written comments received from the public:

- Support no build alternative 7
- Support Alternative 2 3
- Support Alternative 3A 3
- Support Alternative 3B 3
- Support combination of 3A and 3B 3
- Oppose no-build 2
- Oppose alternative 2 1

A detailed summary of written comments that was distributed at the meeting is attached.

Mr. Bob Simpson from MCDPWT explained that this project has drawn a lot of opposition from citizens who live in the Preserve community. The fact that the project proposes major construction in their neighborhood has made them uneasy because of its impacts in regards to aesthetics, property values, visual impacts and noise.

Mr. Neil J. Pedersen
Page Four

Environmental Impacts

The MD 28 and MD 97 intersection lies between the boundaries of the Olney and Aspen Hill planning areas. The study area consists of single family housing, commercial uses and wooded areas, park and ride lot and a private golf course. The Environmental Manager, Mr. Van Funk, mentioned that Alternative 2 would impact the Whites Hardware Store and associated buildings, which are eligible for National Register for Historic Places.

Mr. Funk also mentioned that woodlands would be impacted if any of the options of Alternative 3 were carried forward. The impacts would vary between 13 and 14 acres. Moreover, it was mentioned that Leisure World tenants who live adjacent to the MD 28 and MD 97 intersection did not want to lose the trees close to the intersection as they serve as a noise and visual buffer for them.

Team Recommendations

The team then presented their recommendations of alternatives that should be carried forward for further evaluation. The team recommended carrying forward Alternative 2 and combining alternatives 3A and 3B without the loop ramp by keeping the directional ramp and realigning Thistlebridge Drive. Mr. Neil Pedersen also explained that Senator Teitelbaum would like the project team to study an overpass option by keeping MD 28 at-grade and depressing MD 97.

Mr. Bob Simpson said that MCDPWT would like the team to carry forward an at-grade intersection improvement, as it would comply with Aspen Hill Master Plan. He said that MCDPWT would submit the request through a letter. Since this meeting we have received this letter and it was decided to include this alternative for detailed study.

In summary, the following alternatives retained for detailed study will be presented to the environmental resource agencies for concurrence

- Alternative 1 - No-Build
- Alternative 2 - The Urban Diamond Interchange with MD 97 over MD 28
- Alternative 3 - Combination of options A and B.
- Alternative 4 - Urban Diamond Interchange with MD 97 depressed under MD 28
- Alternative 5 - At-grade Intersection

Mr. Neil J. Pedersen
Page Five

Schedule

Ms. Rajan handed out the project schedule and discussed the upcoming meetings with the Leisure World community on November 14, 2000 and with the Preserve on the Small's Nursery on November 16, 2000. It was also mentioned that the alternates for detailed study will be presented to the Focus Group on December 6, 2000.

Initial Project Planning Summary

During the initial project planning phase, many alternatives were studied, in addition to the No-Build Alternative. The alternatives studied include several at-grade improvements, an urban diamond interchange and options of relocating MD 28 to the north. An environmental inventory of the area was completed to identify social, economic, natural, and cultural resources. These resources were considered during the development of the alternatives.

During the final project-planning phase, an environmental document will be prepared describing the alternatives and their potential impacts. The document will be circulated and made available to the public. A Location/Design Hearing will be held in the Fall 2001 to summarize the detailed information relative to these alternatives and to receive comments from all concerned persons.

As part of the initial project planning phase, and in accordance with Section 8-102 of the 1993 Annotated Code of the Public General Laws of Maryland, it has been determined that the objectives of the proposed project could not be satisfactorily met through:

- 1. Improvements in highway maintenance and safety:

The existing intersection of MD 28 and MD 97 is currently operating at a failing level of service. Safety improvements are needed, and are being incorporated into the alternatives under study. However, the roadways are operating at capacity now and will worsen over time. At-grade alternatives will not substantially improve traffic operations; however, in order to evaluate an alternative that is consistent with the local master plans, an at-grade intersection alternative is included for detailed study. Generally, improvements associates with highway maintenance and the at-grade condition will not result in desirable conditions.

Mr. Neil J. Pedersen
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- 2. Safety projects that modify existing highways, but provide for minimal relocation or new highway construction:

The study area is a densely developed urban area and, due to the close proximity of buildings to the existing roadways, relocation and new highway construction will be somewhat extensive.

- 3. Improvements in or adoption of, transit alternatives, including mass transit:

A progressive transit system is already in use throughout the study area. Under all alternatives there will be provision for a future busway in the median. In addition, ways to improve access to the existing park and ride lot in order to enhance its usage will be studied.

I concur that the above accurately reflects the selection of Alternates Retained for Detailed Study, and to proceed with final project planning for the proposed improvements to the MD 28/MD 97 Intersection Improvement Study.

Concurrence:

Neil J. Pedersen
 Neil J. Pedersen
 Deputy Administrator for
 Planning and Engineering

12/31/00
 Date

cc: Mr. Van Funk, Environmental Manager, Project Planning Division
 Ms. Sue Rajan, Project Manager, Project Planning Division



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MEMORANDUM

TO: Ms. Cynthia D. Simpson
Deputy Director
Office of Planning and
Preliminary Engineering

ATTN: Ms. Sue Rajan
Project Manager
Project Planning Division

FROM: Joseph R. Kresslein *JK*
Assistant Division Chief
Project Planning Division

DATE: November 8, 2001

SUBJECT: Project No. MO852B11
USACE/MDE Tracking No. 200166062
MD 28/ MD 97 Intersection Improvements
Jurisdictional Wetland Field Review

A jurisdictional wetland field review was held on August 31, for the MD 28/MD 97 Intersection improvement project to obtain a jurisdictional determination of the wetland boundaries flagged for the project. Those in attendance included:

Steve Elinsky	U.S. Army Corps of Engineers (USACE)
Patricia Greene	SHA-Project Planning Division (PPD)
Eric Tombs	SHA-PPD
Veronica Piskor	SHA-EPD

The Maryland Department of the Environment (MDE) and SHA's Highway Hydraulics Division were notified of the meeting, but did send a representative.

Participants met at the park and ride lot located in the northeast quadrant of the MD 28/MD 97 intersection. The meeting began with a brief overview of where the wetlands are located within the project area. Steve Elinsky requested that SHA provide an updated copy of the alternatives

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Ms. Cynthia D. Simpson
MD 28/MD 97 Intersection Improvements
Page Two

mapping to the USACE (the mapping is transmitted to the USACE as an attachment to this memo). The group then began the review of the individual wetlands. The following information summarizes the wetland JD results.

Wetland 1 - (W1) This is a small palustrine emergent wetland located adjacent to MD 97, approximately 500 feet north of the MD 28/MD 97 intersection. The USACE accepted the wetland boundary as flagged. There was some discussion regarding whether the area was originally created as a stormwater management (SWM) pond to treat runoff from the park & ride lot. Mr. Elinsky stated that the USACE would not take jurisdiction over the area if it was determined to be a SWM facility. SHA has investigated the status of the area, and it was determined that the area was designed for SWM. The results of the investigation concluded that the area was not constructed to function for quality control but to provide volume (quantity) control.

It was noted that W1 drained to Wetland 2 via a ditch adjacent to MD 97. If W1 is determined not to be a SWM facility and is jurisdictional, the USACE stated that they would take jurisdiction over this ditch as an ephemeral channel. SHA agreed to add it to the project mapping if necessary when the determination on Wetland 1 is made.

Wetland 2 - (W2) This wetland is a SWM pond located adjacent to MD 97 approximately 1100 feet north of the intersection. The USACE indicated that they will take jurisdiction over this SWM facility, as it appears to be an in-stream facility in the headwaters of Manor Run (Wetland 4) and appears to have been abandoned.

The USACE will also take jurisdiction over the ephemeral channel that carries surface runoff from Wetland 3, along MD 97 to Wetland 2. SHA agreed to add this channel to the mapping

SHA's Highway Hydraulics Division has indicated that this SWM pond (W2) is not abandoned. The area is an active stormwater management facility and is maintained by SHA, is scheduled for maintenance this fall. Should the USACE take jurisdiction, SHA would be required to obtain a permit to perform maintenance activities.

Wetland 3 - (W3) This wetland is located in the northern portion of the study area on property SHA does not currently have permission to access. This wetland therefore has not been flagged and was reviewed from SHA's right-of-way. Old SHA flags were visible within the wetland indicating a previous wetland delineation. The USACE requested that SHA review project files for the Intercounty Connector (ICC) and any previous work associated with MD 97 to locate mapping of the wetland from previous delineations. Based on what was visible from the right-of-way, the USACE will take jurisdiction over this wetland. Subsequent to the field review, SHA reviewed the Natural Environmental Technical Report prepared for the ICC and other projects associated with MD 97, and it appears that no wetlands were previously identified along MD 97, north of MD 28.

Ms. Cynthia D. Simpson
MD 28/MD 97 Intersection Improvements
Page Three

Wetland 4 – (W4) With the exception of one flag point, the USACE concurred with this wetland as flagged. A minor change was made at flag 36A, which was moved fifteen feet in a northerly direction, towards the wetland, and then accepted by USACE.

Wetland 5 - This wetland was determined to be isolated by the USACE and therefore not jurisdictional. The USACE indicated that it is possible that Maryland Department of the Environment (MDE) could take jurisdiction over the area as a wetland of the state. SHA contacted MDE to schedule a field review of the wetland. MDE agreed to take jurisdiction over the area based on the USACE's review of the area.

Wetland 6 – (W6) The USACE did not take jurisdiction over this area because it is a maintained SWM pond.

Attachment(s)

- | | | | |
|-----|-------------------------|------------|-----------------|
| cc: | Attendees | | w/attachment(s) |
| | Mr. Elder Ghigiarelli | MDE | w/attachment |
| | Mr. Joseph Kresslein | SHA/PPD | w/attachment |
| | Ms. Cindy Nethen | MDE | w/attachment |
| | Ms. Sue Rajan | SHA/PPD | w/attachment |
| | Ms. Cynthia Simpson | SHA/PPD | |
| | Mr. Raja Veeramachaneni | SHA/OHD/HH | w/attachment |



Maryland Department of Transportation
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Parris N. Giendening
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March 25, 2002

Re: Project No. MO852B11
MD 28 at MD 97
Montgomery, Maryland
USGS Kensington 7.5" Quadrangle

Mr. J. Rodney Little
State Historic Preservation Officer
Maryland Historical Trust
100 Community Place
Crownsville MD 21032-2023

Dear Mr. Little:

Introduction and Project Description

The purpose of this letter is to update you on the expanded Area of Potential Effects (APE) due to additional Alternates Retained for Detailed Study (ARDS), advise you of the addition of two historic properties to the APE, and to present our assessment of archeological sensitivity for the subject project. Our prior consultation resulted in agreement that White's Hardware Store and Residences (M: 23-113-4) was the only National Register eligible property within the APE (MHT Letter of September 14, 1999). However, we have expanded the APE since our last consultation to include areas along MD 115 (Muncaster Mill Road) to accommodate access options into planned and existing residential developments located north of existing Thistlebridge Road, and stormwater management facilities. A location map with historic properties and APE indicated is included as Enclosure 1.

Funding

Federal funds are anticipated for this project.

Status Update: Area of Potential Effects

In determining the expanded APE of this project, we have carefully considered the nature of the project and any changes that the proposed work could introduce into the environs which might affect characteristics qualifying resources for the National Register of Historic Places (NRHP). In doing so we considered the general viewsheds, land use and terrain. For both historic standing structures and archeological resources the APE is coterminous with the area of direct construction impact. The APE is inclusive of worst case impacts anticipated under all alternate scenarios.

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Mr. J. Rodney Little
MD 28 at MD 97
Page Two

Identification and Evaluation of Historic Properties

Potentially significant architectural and archeological resources were both researched as part of the historic investigation instigated by the proposed MD 28 at MD 97 intersection reconfiguration to provide congestion relief.

Structures:

Only one historic standing structure determined eligible for inclusion in the NRHP was located within the original APE, as previously developed for this project and coordinated with the SHPO in August 1999. The SHPO agreed that only the Whites Hardware Store Complex (M: 23-113-4) was eligible for inclusion in the NRHP. We have previously provided to Barbara Shepherd of your staff, through our consultant, revised mapping which clarifies an error made in the original submission by P.A.C. Spero (now part of KCI Technologies). The correct boundary was shown in the Draft Environmental Impact Statement (DEIS) for the former Intercounty Connector (ICC) project. The full inventory form for White's Hardware Store and Residences is included as Enclosure 2, with the boundary that encompasses 0.77 acre as the total of these two tax parcels, in accordance with that reproduced in the ICC document.

The SHA is currently considering proposals for a connector road between MD 115 and MD 97 to the north of the hardware property, thus necessitating the expansion of our APE to include MD 115 north of its intersection with MD 28. This area includes two additional properties--the Mount Pleasant Church and Cemetery (M: 23-113-1), and the Mount Pleasant School/Norbeck School (M: 23-113-2). The Thomas Adams historic property (M: 23-113-8) has been destroyed since it was identified in the 1996 ICC related historic sites identification and evaluation effort. Both of the extant historic sites are all that remain of the African-American Mount Pleasant community established by freed slaves in the 1860s and have been determined eligible for the NRHP.

Given the significance of these properties, SHA will carefully plan its project in order to consider and/or lessen the impact of the project in accordance with the requirements of Section 106 of the National Historic Preservation Act. The SHPO is being advised that the project's APE has been expanded to include these resources. Although the SHA-GIS depicts an additional structure designated M: 23-113-3 in or adjacent to the APE, field visits have verified that there is no structure in the indicated location. at 4115 Muncaster Mill Road.

Archeology:

SHA archeologist Mary Barse assessed the archeological potential of the project area through consultation of previous archeological studies, SHA GIS site and survey inventory information, modern landuse mapping, and historic mapping. The APE for this project is restricted to the area of direct construction impact within existing and proposed right of way and/or easements, wherein all ground disturbing activities will take place. A field visit was conducted on December 17, 2001, to ascertain current land use and conditions.

Mr. J. Rodney Little
MD 28 at MD 97
Page Three

There are no previously recorded archeological sites in or near the APE despite extensive investigations by several prior surveys (Enclosure 1). Conrad (1975) performed an archeological reconnaissance of MD 28 from MD 97 to Bauer Drive. Epperson (1980) surveyed MD 97 from MD 28/609 to MD 108. A portion of the APE was included in the corridor studied by Mid-Atlantic Research, Inc. (Thomas 1979) for the Metropolitan Washington Area Water Supply Project. The intersection was also included in SHA's Phase I Identification and Sampling Survey for the ICC (Tull et al. 1997). None of these surveys located archeological sites. Conrad (1975) did recommend evaluation of Whites Hardware Store and Residences (M:23: 113-4) shown on historic maps as early as 1879. However, Tull et al. (1997) recommended no archeological work at this property due to prior ground disturbance and consequent low archeological potential. As verified in the recent field visit by SHA staff, only those areas immediately adjacent to the standing structures have not been disturbed by road construction and parking lots, and these areas will be avoided by the current undertaking.

The project area is situated for the most part on a sloping, interfluvial upland with low potential for significant prehistoric archeological resources. However, one undisturbed area located west of MD 97 and north of MD 115 is situated adjacent to a headwater tributary of Rock Creek where prehistoric period resources are expected. Stormwater management facilities and the access road options are planned in this area which has not been subjected to prior archeological survey.

Examination of historic maps (Martinet 1861; Hopkins 1879; USGS 1926, 1949, 1973) indicates that several structures were clustered near the MD 29/MD 97 intersection in the 19th century. With the exception of the White's Hardware Store and Residences property, all of these locations have been destroyed by previous efforts to reconfigure the intersection between the late 19th and mid-20th century, by prior transportation and drainage improvements including a park and ride facility, and by high density residential development and commercial construction.

Other 19th century map indicated structures are clustered in or near the APE on MD 115, and coincide with inventoried properties M:23-113-3 (Frame Farmhouse), M:23-113-2 (Mount Pleasant School/Norbeck School), and M-23-113-1 (Mt. Pleasant Church and Cemetery). These locations are relatively undisturbed and may contain associated historic period archeological deposits. As stipulated in MIHP forms completed for the Intercounty Connector Project (P.A.C. Spero and Company 1996), the Mount Pleasant community was established by freed African American slaves circa 1866. A schoolhouse was constructed sometime between 1872, when the land was sold to the Montgomery County School Commission, and 1879 as indicated by its depiction on Hopkins' (1879) Atlas of Montgomery County. It was replaced by a second structure (M:23-113-2) between 1926 and 1928, with financial assistance and public support by the Mount Pleasant community. The Mount Pleasant Church (M:23-113-1) was constructed after land for it was purchased in 1885, and the cemetery was instituted circa 1895. Throughout the

Mr. J. Rodney Little
MD 28 at MD 97
Page Four

history of the Mount Pleasant community, settlement has focused on the community school and church. In addition to archeological deposits associated with the school and church, there may be remains associated with the residential and commercial life of the community not indicated by historic maps or prior written histories.

The vast majority of the APE has been subjected to prior archeological surveys with negative results, or has been disturbed by modern development. However, areas west of MD 97 and north of MD 115 remain undisturbed and have high potential for historic and prehistoric period archeological resources. Consequently, Phase I identification investigations are recommended for these portions of the APE (Enclosure 3).

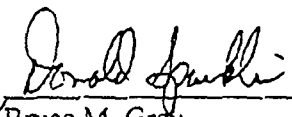
Concurrence Request

We request your concurrence that White's Hardware Store Complex (M: 23-113-4), Mount Pleasant School/Norbeck School (M: 23-113-2), and Mount Pleasant Church and Cemetery (M: 23-113-1), are the only National Register eligible standing structures within the expanded APE by April 29, 2002 (Enclosure 4). We will continue to consult with your office on impacts to these resources, and the results of upcoming archeological identification and evaluation efforts within the high potential portions of the APE. By carbon copy, we invite the Montgomery County Historic Preservation Commission and Montgomery Preservation, Inc., to provide comments and participate in the Section 106 process. Pursuant to the requirement of the implementing regulations found at 36 CFR Part 800, SHA seeks their assistance in identifying historic preservation issues as they relate to this specific project (see 36 CFR 800.2 (c) (4) and (6), and 800.3 (f) for information regarding the identification and participation of consulting parties, and 800.4, and 800.5 regarding the identification of historic properties and assessment of effects). For additional information regarding the Section 106 regulations, see the Advisory Council on Historic Preservation's website, www.achp.gov, or contact the Maryland State Highway Administration or the Maryland Historical Trust. If no response is received by April 29, we will assume that these offices decline to participate. Please call Ms. Rita M. Suffness at 410-545-8561 (or by email at rsuffness@sha.state.md.us) with questions regarding standing structures for this project. Ms. Mary F. Barse may be reached at 410-545-2883 (or by email at Mbarse@sha.state.md.us) with concerns regarding archeology.

Very truly yours,

Cynthia D. Simpson
Deputy Director
Office of Planning and
Preliminary Engineering

Mr. J. Rodney Little
MD 28 at MD 97
Page Five

by: 
for Bruce M. Grey
Deputy Division Chief
Project Planning Division

- Enclosures:
- 1) SHA Kensington Quad with Inventoried Resources and APE Indicated
 - 2) Inventory Form for Documentation for M: 23-113-4
 - 3) Conceptual APE for Archeological Investigations
 - 4) Eligibility/Status Table

- cc:
- Ms. Mary F. Barse, SHA-PPD (w/Enclosures 1-4)
 - ~~Ms. Patricia Greene, SHA-PPD (w/Enclosures 1-4)~~
 - Ms. Maria Hoey, Montgomery Preservation, Inc. (w/Enclosures 1-4)
 - Mr. Joseph Kresslein, SHA-PPD
 - Ms. Sue Rajan, SHA-PPD (w/ Enclosures 1 and 3-4)
 - Ms. Cynthia M. Simpson, SHA-PPD
 - Dr. James Sorensen, M-NCPPC/Office of History and Archaeology (w/ Enclosures 1-4)
 - Mr. Donald Sparklin, SHA-PPD
 - Ms. Rita M. Suffness, SHA-PPD (w/Enclosures 1 and 3-4)
 - Ms. Gwen Marcus Wright, M-NCPPC.(w/Enclosures 1-4)



Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
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Secretary
Parker F. Williams
Administrator

May 3, 2002

Re: Project No. MO852B11
MD 28 at MD 97 Intersection
Montgomery, Maryland
USGS Kensington 7.5" Quadrangle

Mr. J. Rodney Little
State Historic Preservation Officer
Maryland Historical Trust
100 Community Place
Crownsville MD 21032-2023

Dear Mr. Little:

Introduction and Project Description

The purpose of this letter is to request your concurrence in our determination that this project would have adverse effects on historic properties. Plans are included as **Attachment 1** and renderings showing the alternates are included as **Attachment 2**. A description of the alternates is included as **Attachment 3**.

Funding: Federal

Status Update: Area of Potential Effects

On March 18, 2002, we advised you concerning the expansion of the Area of Potential Effects (APE) and clarified the boundary for Whites Hardware. We provided our rationale for defining archeological sensitivity and delineated the undisturbed portions of the expanded APE where further archeological identification and evaluation investigations were warranted.

Identification of Historic Properties

Structures:

Three historic standing structures determined eligible for inclusion in the National Register of Historic Places (NRHP) are located within the expanded APE: Whites Hardware Store Complex (M: 23-113-4), Mount Pleasant Church and Cemetery (M: 23-113-1), and the Mount Pleasant School/Norbeck School (M: 23-113-2). The Keeper of the National Register concurred that these properties were eligible on August 6, 1997.

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Mr. J. Rodney Little
MD 28 at MD 97 Intersection
Page Two

Archeology:

SHA archeologist Mary Barse assessed the archeological potential of the project area through consultation of previous archeological studies, SHA GIS site and survey inventory information, modern land use mapping, and historic mapping, and made field visits on December 17, 2002, and March 25, 2002. Given the ecological setting of the project area, positive historic map review results, and the presence of historic standing structures, the undisturbed portion of the APE not subject to prior archeological survey was considered to have high archeological potential. Consequently, the archeological consulting firm of Louis Berger & Associates, Inc. was contracted to conduct a Phase I archeological identification survey for the project.

Enclosed for your review and comment is one copy of the resulting draft technical report entitled **Archeological and Historical Investigations for Improvements to the Intersection of Maryland Routes 28 and 97, Montgomery County, Maryland (Attachment 4)**, and a completed NADB Reports Recording Form (**Attachment 5**). One historic archeological site (18MO566) was identified and interpreted as a low density scatter of domestic refuse dating primarily to the later 19th and early 20th centuries. Given the site's limited research potential and lack of integrity, we agree with our consultant that 18MO566 is not eligible for listing in the NRHP under Criterion D. A completed Determination of Eligibility Form is included as **Attachment 6**.

The report has been reviewed by SHA and we believe it clearly conveys that sufficient work was conducted to ascertain an absence of significant historic and prehistoric archeological resources within the APE. No significant archeological deposits were identified within the APE in the vicinity of the Mount Pleasant School/Norbeck School (M: 23-113-2). The Mount Pleasant Church and Cemetery (M: 23-113-1), and its historically associated lots where archeological deposits are likely, will be avoided by the undertaking. We agree with the consultant's recommendation for no additional archeological investigations. Overall, we are pleased with the report's presentation. We have a few minor comments that have been appended to your review copy, and which will be addressed along with yours in the forthcoming final report.

The vast majority of the APE has been subjected to prior archeological surveys with negative results, or has been disturbed by modern development. Testing within an undisturbed portion of the APE not subject to prior archeological survey failed to identify significant archeological deposits. Prior road and parking lot construction around White's Hardware Store Complex suggest that any surviving archeological resources are located immediately adjacent to the extant structures which will be avoided by all alternates under consideration. Consequently, the project will have no impacts on significant archeological resources.

Mr. J. Rodney Little
MD 28 at MD 97 Intersection
Page Three

Effect Determinations
No Build Alternate

The No-build Alternate would not impact any of the historic standing structures. In addition, none of the intersections improvements slated for the MD 28/MD 97 project would impact the Mount Pleasant Church and Cemetery (M: 23-113-1) and the Mount Pleasant School/Norbeck School (M: 23-113-2), as they tie into the existing alignment near the existing intersection of MD 115 with MD 28. Thus, no change would be introduced into their immediate vicinity which has the potential to affect the characteristics that qualify them for inclusion in the NRHP.

Alternate 2

There would be no physical encroachment upon any of the historic sites or their boundaries by the build alternates. With *Alternate 2 - Urban Diamond Interchange with MD 97 over MD 28*, the through traffic on MD 97 is separated from the MD 28 intersection. The center through lanes, three in each direction on MD 97, would be gradually elevated to and from north and south approaches for an overpass at the current intersection with MD 28. The outside lanes on MD 97 would remain at grade and provide access from and to MD 28, in the form of an urban diamond interchange. On MD 28 west of MD 97, the existing curb line alongside of the historic White's Hardware Store was retained and the roadway widened southward to accommodate three through lanes in each direction and the necessary turn lanes. (See **Attachments 1 and 2**)

None of the intersection improvements slated for the MD 28/MD 97 project would impact the Mount Pleasant Church and Cemetery and the Mount Pleasant School/Norbeck School. The characteristics that qualify Whites Hardware for inclusion in the NRHP are related to its function as a roadside convenience, starting out as a wheelwright shop in the nineteenth century at the edge of the Brookeville Pike. It evolved over time to provide additional services to the traveling public, as well as functioning as a neighborhood store that also catered to the traveling public. Nonetheless, the structure that would carry MD 97 over MD 28 in the immediate vicinity of Whites Hardware would be a new element introduced into the existing environment with the grade separated interchange replacing an at grade intersection; thus, the site would be adversely impacted.

Alternate 3

Under *Alternate 3 - MD 28 Relocated Overpass (Options A and B Combined)* MD 28 would be relocated approximately 700 feet to the north, providing a shorter, more direct route and avoiding the constraints associated with the existing MD 28/MD 97 intersection. The relocation would begin at the MD 115 (Muncaster Mill Road) intersection, bridge over MD 97, reconnect to existing Norbeck Road near Coolidge Avenue and end just past Bradford Road. MD 97 would have three through lanes in each

Mr. J. Rodney Little
MD 28 at MD 97 Intersection
Page Four

direction and the median width would be reserved for a future busway. Existing MD 28 would also be reconstructed and serve as the primary link for local movements between MD 97 and MD 28. On MD 28 west of MD 97, the existing curb line alongside of the historic White's Hardware Store would be retained.

With Alternate 3, there would be adjustments to the MD 115/MD 28 intersection in the vicinity of Mount Pleasant Church and Cemetery and the Mount Pleasant School/Norbeck School. The proposed a five-point intersection at the intersection of existing MD 28 and MD 115 would terminate the improvements to MD 115 immediately adjacent to the boundary of two historic properties. A short retaining wall would be utilized to avoid any direct impact to them. Because of the introduction of a new roadway alignment (Thistlebridge Drive Access) into the immediate environs of the sites, both sites would be adversely impacted.

As previously stated, the characteristics that qualify Whites Hardware for inclusion in the NRHP are related to its function as a roadside convenience. Nonetheless, the structure that would carry MD 28 over MD 97 in the immediate vicinity of Whites Hardware would be a new element introduced into the existing environment, with the grade separated interchange replacing an at grade intersection. In addition, Whites Hardware would almost be surrounded by transportation facilities, as there would be roadways on three sides (MD 97, MD 28 and MD 28 Relocated). Thus, there would be a change in its relationship to the property on the north side, although the access to MD 97 and MD 28 would not be cut off. For these reasons, Whites Hardware would be adversely impacted.

Alternate 4

Alternate 4 (*Urban Diamond Interchange Depressing MD 97*) proposes an urban diamond interchange with MD 97 depressed to pass under existing MD 28. As in Alternate 2, this alternate would separate through traffic on MD 97 from the MD 28 intersection. The center through lanes, three in each direction on MD 97, would gradually be depressed to achieve sufficient clearance for MD 28 to cross on an overpass at the current intersection location, yet remain at grade level. The outside lanes from MD 97 would remain at grade and intersect with MD 28 within the urban diamond interchange.

None of intersections improvements slated for the MD 28/MD 97 intersection would impact the Mount Pleasant Church and Cemetery and the Mount Pleasant School/Norbeck School. Again, the characteristics that qualify Whites Hardware for inclusion in the NRHP are related to its function as a roadside convenience. Because MD 97 would be depressed below grade, with minimal change introduced into the

Mr. J. Rodney Little
MD 28 at MD 97 Intersection
Page Five

viewshed and the traditional at grade relationship to MD 28 retained, we have determined that the incremental change introduced into the environment would impact Whites Hardware, but not adversely.

Alternate 5

Alternate 5 [*Base Widening Alternate (Previously - Concept A)*] consists of at-grade improvements to the existing intersection. Base widening would occur at all legs of the intersection. However, on MD 28 west of MD 97, the existing curb line alongside of White's Hardware Store was retained and the roadway widened southward to accommodate the through lanes and the turn lanes. This alternate realigns MD 28 east of the urban diamond interchange. The 'S' curve in MD 28, as it approaches the interchange with MD 97 on the east, would be made more gradual which enhances vehicle safety in several aspects. This section of MD 28 would contain three lanes approaching the intersection with two lanes in the opposite direction, separated by a median. Proceeding west from the intersection, MD 28 would return to two lanes in each direction prior to the intersection with MD 115.

None of intersections improvements slated for the MD 28/MD 97 intersection would impact the Mount Pleasant Church and Cemetery and the Mount Pleasant School/Norbeck School. The characteristics that qualify Whites Hardware for inclusion in the NRHP are related to its function as a roadside convenience. Because both MD 97 and MD 28 would retain the traditional at grade relationship of the historic site to the roadways, we have determined that the incremental change introduced into the environment would impact Whites Hardware, but not adversely.

Alternate 6

Alternate 6 - *MD 28 Relocated (Underpass)* proposes a relocation of MD 28 that is similar to Alternate 3. The new alignment for MD 28 would be identical to Alternate 3, but the road would descend below grade and travel under MD 97. The alignment for the new section of MD 28 would be identical to that used in Alternate 3. On either side of MD 97, MD 28 would be depressed below grade and pass beneath MD 97, which would remain at grade level. This alternate, by utilizing an underpass on MD 28, presented a reduced visual impact to the adjacent properties and therefore this alternate was retained for detailed study.

With Alternate 6, there would be adjustments to the MD 115 / MD 28 intersection in the vicinity of Mount Pleasant Church and Cemetery and the Mount Pleasant School/Norbeck School. The proposed a five-point intersection at the intersection of existing MD 28 and MD 115 would terminate the improvements to MD 115 immediately adjacent to the boundary of two historic properties. A short retaining wall would be

Mr. J. Rodney Little
MD 28 at MD 97 Intersection
Page Six

utilized to avoid any direct impact to them. Because of the introduction of a new roadway alignment (Thistlebridge Drive Access) into the immediate environs of the sites, both sites would be adversely impacted.

The characteristics that qualify Whites Hardware for inclusion in the NRHP are related to its function as a roadside convenience. However, Whites Hardware would almost be surrounded by transportation facilities, as there would be roadways on three sides (MD 97, MD 28 and MD 28 Relocated); thus, there would be a change in its relationship to the property on the north side, although the access to MD 97 and MD 28 would not be cut off. For these reasons, Whites Hardware would be adversely impacted.

Concurrence Request

We request your concurrence in our effect determinations on historic properties by June 3, as summarized on the chart included as **Attachment 7**. By carbon copy, we invite the Montgomery County Historic Preservation Commission and Montgomery Preservation, Inc., to provide comments and participate in the Section 106 process. Pursuant to the requirement of the implementing regulations found at 36 CFR Part 800, SHA seeks their assistance in identifying historic preservation issues as they relate to this specific project (see 36 CFR 800.2 (c) (4) and (6), and 800.3 (f) for information regarding the identification and participation of consulting parties, and 800.4, and 800.5 regarding the identification of historic properties and assessment of effects). For additional information regarding the Section 106 regulations, see the Advisory Council on Historic Preservation's website, www.achp.gov, or contact the Maryland State Highway Administration or the Maryland Historical Trust. If no response is received by June 3, we will assume that these offices decline to participate. Please call Ms. Rita M. Suffness at 410-545-8561 (or by email at rsuffness@sha.state.md.us) with questions regarding standing structures for this project. Ms. Mary F. Barse may be reached at 410-545-2883 (or by email at Mbarse@sha.state.md.us) with concerns regarding archeology.

Very truly yours,

Cynthia D. Simpson
Deputy Director
Office of Planning and
Preliminary Engineering

Mr. J. Rodney Little
MD 28 at MD 97 Intersection
Page Seven

by: Donald Sparklin
for Bruce M. Grey
Deputy Division Chief
Project Planning Division

- Attachments: 1) Project Plans
- 2) Renderings of Alternates
- 3) Alternates Description
- 4) Draft Phase I Archeological Survey Report
- 5) NADB Reports Recording Form
- 6) DOE Form for 18MO566
- 7) Effects Table

- cc: Ms. Mary F. Barse, SHA-PPD (w/Attachment 3, 6, and 7)
- Ms. Patricia Greene, SHA-PPD (w/Attachment 3, 6, and 7)
- Ms. Maria Hoey, Montgomery Preservation, Inc. (w/Attachments 1, 2, 3, 6, and 7)
- Mr. Dan Johnson, FHWA
- Mr. Joseph Kresslein, SHA-PPD (w/Attachment 3, 6, and 7)
- Ms. Sue Rajan, SHA-PPD
- Ms. Cynthia M. Simpson, SHA-PPD (w/Attachments 1 - 7)
- Dr. James Sorensen, MNCPPC
- Mr. Donald Sparklin, SHA-PPD (w/Attachment 3, 6 and 7)
- Ms. Rita M. Suffness, SHA-PPD (w/Attachments 1, 2, 3, 6, and 7)
- Ms. Gwen Marcus Wright, MNCPPC

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Effects Table

Attachment 7

Project Name: MD 28 at MD 97 Intersection

May 3, 2002

Resource	Type	No Build		Alternate 2		Alternate 3		Alternate 4		Alternate 5		Alternate 6		Attach.	Remarks
		Impact	SHPO Concur	Impact	SHPO Concur	Impact	SHPO Concur	Impact	SHPO Concur	Impact	SHPO Concur	Impact	SHPO Concur		
Whites Hardware (M23-113-4)	S	None		Adverse		Adverse		Not Adverse		Not Adverse		Adverse			
Mt. Pleasant Church (M23-113-1)	S	None		None		Adverse		None		None		Adverse			
Mt. Pleasant School (M23-113-2)	S	None		None		Adverse		None		None		Adverse			
Effect		NPA	Requested 5/2002	AE	Requested 5/2002	AE	Requested 5/2002	NAE	Requested 5/2002	NAE	Requested 5/2002	AE	Requested 5/2002		

Codes:

Resource Types: S (Structure), A (Archeological Site), HD (Historic District), NHL (National Historic Landmark)

Impact: None, No Adverse, Adverse

Effect: NPA (No Properties Affected), NAE (No Adverse Effect), AE (Adverse Effect)

Bold rows indicate review action requested

Mr. J. Rodney Little
MD 28 at MD 97 Intersection
Page Eight

Concurrence with the MD State Highway Administration's
Determination(s) of Eligibility and/or Effects

Project Number: MO852B11
Project Name: MD 28 at MD 97 Intersection
County: Montgomery
Letter Date: May 3, 2002

MHT Log No. 200201754

The Maryland Historical Trust has reviewed the documentation attached to the referenced letter and concurs with the MD State Highway Administration's determinations as follows:

Eligibility (as noted in the Eligibility Table []):

- Concur
- Do Not Concur

Effect (as noted in the Effect Table [Attachment 7]): DEPENDING UPON SELECTED ALTERNATIVE.

- No Properties Affected ALTERNATIVE 1
- No Adverse Effect ALTERNATIVES 4 & 5
- Conditioned upon the following action(s) (see comments below)
- Adverse Effect ALTERNATIVES 2, 3, 6 (AND POSSIBLY 4)

Agreement with FHWA's Section 4(f) criteria of temporary use (as detailed in the referenced letter, if applicable):

- Agree

Comments:

18 MO 566 - Not Eligible
No further comments on the draft archeology report.
ALTERNATIVE 4 MAY ALSO HAVE AN ADVERSE EFFECT UPON
WHITE'S HARDWARE STORE DUE TO NEW RETAINING WALL ON
OPPOSITE SIDE OF MD 97. ADDITIONAL STUDY MAY BE NECESSARY.

By: [Signature] Date: 7-27-02
 MD State Historic Preservation Office/
 Maryland Historical Trust

Return by U.S. Mail or Facsimile to:
 Mr. Druce M. Grey, Deputy Division Chief, Project Planning Division,
 MD State Highway Administration, P.O. Box 717, Baltimore, MD 21203-0717
 Telephone: 410-545-8540 and Facsimile: 410-209-5004



Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

September 12, 2002

Re: Project No. MO852B11
MD 28 at MD 97 Intersection
Montgomery, Maryland
USGS Kensington 7.5" Quadrangle

Mr. J. Rodney Little
State Historic Preservation Officer
Maryland Historical Trust
100 Community Place
Crownsville MD 21032-2023

Dear Mr. Little:

Introduction and Project Description

The purpose of this letter is to advise you that we have developed Alternative 7 (Modified), to relocate MD 28 under MD 97 and request your concurrence in our determination that this alternative would have an adverse effect on historic properties. Plans are included as **Attachment 1**.

Funding: Federal

Alternative 7 Description: Alternative 7 is a refinement of several concepts developed by a Value Engineering Team. Although subtitled as VE Modified, it is the sole Alternative 7 ever developed for this project. This alternative is a relocation of MD 28 under MD 97 similar to Alternative 6. The relocation begins at the MD 115 (Muncaster Mill Road) intersection. At the Norbeck Center, Alternative 7 incorporates a reverse curve to avoid impacts to the convenience center. Alternative 7 crosses MD 97 at the same location as Alternative 6 Modified (approximately 700 feet north of existing MD 28), and reconnects to existing MD 28 near Coolidge Avenue and ends just past Bradford Road. At the existing MD 28/MD 97 intersection, the median crossover and traffic signal proposed with Alternative 6 would be eliminated. Access to and from MD 97 to Relocated MD 28 would be accomplished via right in/right out connector ramps that would utilize much of the existing MD 28 right-of-way.

On MD 28 west of MD 97, a new split tee configuration would be utilized. One tee intersection would serve existing MD 115 and the other tee intersection would serve the West Side connector ramps. Alternative 6 provided access to Relocated MD 28 at MD 115 on the west and at existing MD 28 on the east. At MD 115, the existing concrete median would be removed and an additional northbound lane provided to accommodate a double right turn. With this alternative (as with Alternative 6), MD 97 will have three through lanes in each direction and the median would be reserved for a future busway.

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Mr. J. Rodney Little
MD 28 at MD 97 Intersection
Page Two

The Thistlebridge Drive connection to MD 97 would remain the same as it is today except that the median left turn lane would be extended several hundred feet to the south. A two-lane connector will be provided between Relocated MD 28 and Thistlebridge Drive to improve access from the east. A right in/right out connector will also be provided from Relocated MD 28 to The Norbeck Center.

To accommodate bicycle commuter traffic, The outermost through lanes of Relocated MD 28 and MD 97 will be 17 feet wide. The existing bikeway on MD 655 (the service road) north of Thistlebridge Drive will also be extended south to the White's Hardware Store parking lot.

Status Update: Area of Potential Effects: On March 18 we advised you concerning the expansion of the Area of Potential Effects (APE). Alternative 7 is entirely within the area previously identified.

Identification of Historic Properties

Structures: Three historic standing structures determined eligible for inclusion in the National Register of Historic Places (NRHP) are located within the expanded APE: Whites Hardware Store Complex (M: 23-113-4), Mount Pleasant Church and Cemetery (M: 23-113-1), and the Mount Pleasant School/Norbeck School (M: 23-113-2).

Archeology: Phase I Identification investigations were conducted by SHA within the APE for Alternatives 2, 3, 4, 5, and 6. All undisturbed areas with high archeological potential were tested, and only archeological site 18MO566 was identified. The Maryland Historical Trust concurred on August 8, 2002, that 18MO566 was not eligible for listing on the NRHP.

Effect Determination

Structures: With Alternative 7 there would be adjustments to the MD 115/MD 28 intersection in the vicinity of Mount Pleasant Church and Cemetery and the Mount Pleasant School/Norbeck School. The proposed a three-point intersection at the intersection of existing MD 28 and MD 115 would terminate the improvements to MD 115 adjacent to the boundary of two historic properties. Because the roadway widening within existing right-of-way would taper into existing MD 115 on the roadway opposite the historic properties, thus introducing no new elements into the environs that had the potential to impact historic structures, neither of these sites would be impacted.

The characteristics that qualify Whites Hardware for inclusion in the NRHP are related to its function as a roadside convenience, starting out as a wheelwright shop in the nineteenth century at the edge of the Brookeville Pike. It evolved over time to provide additional services to the travelling public, as well as functioning as a neighborhood store that also catered to the traveling public. Nonetheless, in that Whites Hardware would almost be completely surrounded

Mr. J. Rodney Little
MD 28 at MD 97 Intersection
Page Three

by transportation facilities with the construction of Alternative 7 [as there would be roadways on three sides (MD 97, MD 28 and MD 28 Relocated)], and that there would be a change in its relationship to the property on the north side (it would be cut off from the property with which it has been connected historically), the property would be adversely impacted.

Archeology: All ground disturbing activities anticipated under Alternative 7 are contained within the APE subject to previous investigations. Consequently, no significant archeological resources will be impacted by Alternative 7, and no further archeological investigations are recommended.

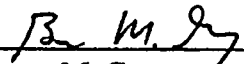
Concurrence Request

We request your concurrence by October 14 in our determination that Alternative 7 would adversely affect historic properties, as summarized on the chart included as **Attachment 2**. By carbon copy we invite the Montgomery County Historic Preservation Commission and Montgomery Preservation, Inc., to provide comments and participate in the Section 106 process. Pursuant to the requirement of the implementing regulations found at 36 CFR Part 800, SHA seeks their assistance in identifying historic preservation issues as they relate to this specific project (see 36 CFR 800.2 (c) (4) and (6), and 800.3 (f) for information regarding the identification and participation of consulting parties, and 800.4, and 800.5 regarding the identification of historic properties and assessment of effects). For additional information regarding the Section 106 regulations, see the Advisory Council on Historic Preservation's website, www.achp.gov, or contact the Maryland State Highway Administration or the Maryland Historical Trust. If no response is received by October 14, we will assume that these offices decline to participate. Please call Ms. Rita M. Suffness at 410-545-8561 (or by email at rsuffness@sha.state.md.us) with questions regarding standing structures for this project. Ms. Mary F. Barse may be reached at 410-545-2883 (or by email at Mbarse@sha.state.md.us) with concerns regarding archeology.

Very truly yours,

Cynthia D. Simpson
Deputy Director
Office of Planning and
Preliminary Engineering

by:



Bruce M. Grey
Deputy Division Chief
Project Planning Division

Mr. J. Rodney Little
MD 28 at MD 97 Intersection
Page Four

Attachments (2)

- cc: Ms. Mary F. Barse, SHA-PPD (w/Attachments)
- Ms. Patricia Greene, SHA-PPD (w/Attachment 2)
- Mr. Wayne Goldstein, Montgomery Preservation, Inc. (w/Attachments)
- ~~Ms. Sue Rajan, SHA-PPD~~ (w/Attachment 2)
- Ms. Cynthia M. Simpson, SHA-PPD
- Mr. James Sorenson, MNCPPC (w/Attachments)
- Mr. Donald Sparklin, SHA-PPD
- Ms. Rita M. Suffness, SHA-PPD (w/Attachments)
- Ms. Gwen Marcus Wright, M-NCPPC (w/Attachments)

Effect Table

Project Name: MD 28 at MD 97 Intersection, MO852B11

September 12, 2002

Resource	Type	No Build		Alternate 2		Alternate 3		Alternate 5		Alternate 6		Alternate 7	
		Impact	SHPO Concur	Impact	SHPO Concur	Impact	SHPO Concur	Impact	SHPO Concur	Impact	SHPO Concur	Impact	SHPO Concur
Whites Hardware (M23-113/4)	S	None	June, 2002	Adverse	June, 2002	Adverse	June, 2002	Not Adverse	June, 2002	Adverse	June, 2002	Adverse	Requested Sept. 2002
Mt. Pleasant Church (M23-113-1)	S	None	"	None	"	Adverse	"	None	"	Adverse	"	None	Requested Sept. 2002
Mt. Pleasant School (M23-113-2)	S	None	"	None	"	Adverse	"	None	"	Adverse	"	None	Requested Sept. 2002
Effect		None	"	Adverse	"	Adverse	"	NAE	"	Adverse	"	Adverse	Requested Sept. 2002

Codes:

Resource Types: S (Structure), A (Archeological Site), HD (Historic District), NHL (National Historic Landmark)

Impact: None, No Adverse, Adverse

Effect: NE (No Effect), NAE (No Adverse Effect), AE (Adverse Effect)

Bold rows indicate review action requested

Mr. J. Rodney Little
MD 28 at MD 97 Intersection
Page Five

Concurrence with the MD State Highway Administration's
Determination(s) of Eligibility and/or Effects

Project Number: MO852B11
Project Name: MD 28 at MD 97 Intersection
County: Montgomery
Letter Date: September 12, 2002

MHT Log No. 200203647

The Maryland Historical Trust has reviewed the documentation attached to the referenced letter and concurs with the MD State Highway Administration's determinations as follows:

Eligibility (as noted in the Eligibility Table [N/A]):

- Concur
- Do Not Concur

Effect (as noted in the Effect Table [Attachment 2]):

- No Properties Affected
- No Adverse Effect
- Conditioned upon the following action(s) (see comments below)
- Adverse Effect

Agreement with FHWA's Section 4(f) criteria of temporary use (as detailed in the referenced letter, if applicable):

- Agree

Comments:

By: 
MD State Historic Preservation Office/
Maryland Historical Trust

10-8-02
Date

Return by U.S. Mail or Facsimile to:
Mr. Bruce M. Grey, Deputy Division Chief, Project Planning Division,
MD State Highway Administration, P.O. Box 717, Baltimore, MD 21203-0717
Telephone: 410-545-8540 and Facsimile: 410-209-5004

M-NCPPC



MONTGOMERY COUNTY DEPARTMENT OF PARK AND PLANNING

THE MARYLAND-NATIONAL CAPITAL
PARK AND PLANNING COMMISSION

8787 Georgia Avenue
Silver Spring, Maryland 20910-3760

February 8, 2000

Ms. R. Suseela Rajan
Project Planning Division
State Highway Administration
P.O. Box 717
Baltimore, MD 21203-0717

RE: MD 28 at MD 97 Intersection Project Team
Meeting held on February 3, 2000

Dear Ms. Rajan:

As discussed at the MD 28 at MD 97 Intersection Project Team Meeting held on February 3, 2000, please find enclosed the information indicated below for your reference.

- A copy of the adopted Aspen Hill Master Plan (April, 1994), with relevant text / figures concerning transportation recommendations for roadways, public transportation, bikeways, sidewalks, and parking in the MD 28 / MD97 project area highlighted.
- A copy of the Georgia Avenue Busway Study Summary Report (August, 1998) with relevant text / figures concerning the preferred busway option and Georgia Avenue cross-section as well as the improvement of the existing Norbeck Road Park-and-Ride Lot highlighted.
- A M-NCPPC memorandum, dated March 4, 1997, recommending transportation conditions required for the approval of the Golden Bear Golf Center Preliminary Plan. The appendix includes improvements required by previously approved preliminary plans.
- A M-NCPPC memorandum, dated February 21, 1997 recommending transportation conditions required for the approval of the Small's Nursery Preliminary Plan. The appendix includes improvements required by previously approved preliminary plans.

Additional information concerning the participants for the Focus Group for this effort can be

obtained by contacting Khalid Afzal at (301) 495-4650. Please contact me at (301) 495-2184 if you have any questions concerning the enclosed information.

Sincerely,



Don Ostrander
Planner
Transportation Planning

- cc: Larry Cole (w/o encl.)
- Dan Hardy (w/o encl.)
- Khalid Afzal (w/o encl.)
- Bob Simpson, DPW&T (w/o encl.)

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DEPARTMENT OF PUBLIC WORKS
AND TRANSPORTATION

November 15, 2000

Douglas M. Duncan
County Executive

Albert J. Genetti, Jr., P.E.
Director

Mr. Neil J. Pedersen, Deputy Administrator
for Planning and Engineering
Maryland State Highway Administration
Mailstop C-411
707 North Calvert Street
Baltimore, Maryland 21202

Dear Mr. *Wail* Pedersen:

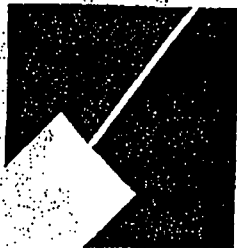
We request that the State Highway Administration (SHA) continue to consider an at-grade alternative for the Norbeck Road (MD 28)-Georgia Avenue (MD 97) Congestion Relief Study (CRS #M11) intersection improvements as part of its project planning for this study (Project #MO852B11). At the recent team meeting to identify alternatives retained for detailed study to be recommended to the Administrator, staff from this office made such a request. You asked that this request be submitted in writing, and include a description of the intersection configuration. This correspondence responds accordingly.

Before describing a specific configuration, let me review our rationale for making this request. First, although the initial CRS work identified a grade-separation as the first-ranked configuration, there were also high ranking at-grade configurations that resulted in non-failing levels of service with volume-to-capacity ratios of less than 1.00 (see Attachment A). Second, this intersection is inextricably linked to the facility to be studied by SHA under the "East-West Link Improvement" project as that project is currently described (this intersection is its western end). To consider grade-separated solutions only (until we better understand the East-West Link Improvement project, including the ultimate status of the related western and eastern project segments recently put on hold) appears to be premature and short-sighted. Third, and for similar transportation-related reasons, we need to understand the impact of a Georgia Avenue busway on this intersection before we can conclude that only a grade-separated solution is workable. Montgomery County is currently requesting that the State perform a project planning study of this busway. Finally, the local master plans do not show a grade separation at this location (indeed the 1980 Olney Master Plan deleted and removed from this location the specific interchange that was previously shown on the 1966 Olney Master Plan and 1970 Aspen Hill Master Plan). Therefore, we believe an at-grade improvement must continue to be studied while the above issues are being clarified and more definitively resolved.

Based on consideration of the current Master Plan recommended improvements (Attachment B), the findings of the initial CRS work (Attachment A), and project feedback we have reviewed to date, we request the following at-grade intersection configuration be studied (see also Attachment C):

Office of the Director

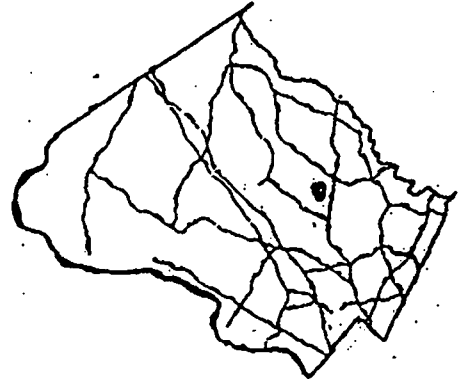
M-NCPPC



MONTGOMERY COUNTY DEPARTMENT OF PARK AND PLANNING

THE MARYLAND-NATIONAL CAPITAL
PARK AND PLANNING COMMISSION

8787 Georgia Avenue
Silver Spring, Maryland 20910-3760



MEMORANDUM

DATE: January 15, 2002

TO: Montgomery County Planning Board

VIA: Joseph R. Davis *JRD* Chief, Development Review Division

FROM: A. Malcolm Shaneman, Supervisor, Development Review Division *[Signature]*

REVIEW TYPE : Preliminary Plan of Subdivision and Site Plan Review

APPLYING FOR: Revision to the Previous Conditions of Approval

PROJECT NAME: Small's Nursery

CASE NO. 1-99029 and 8-95015

REVIEW BASIS: Chapter 50, Montgomery County Subdivision Regulations

ZONE: RE-1 Cluster Method

LOCATION: Northwest Corner of Georgia Avenue (MD 97) and Norbeck Road (MD 28), Northeast of Muncaster Mill Road

MASTER PLAN: Olney and Vicinity

APPLICANT: Small's Nursery, LLC

ATTORNEY: Leach Early and Brewer

HEARING DATE: December 2, 1999

STAFF RECOMMENDATION: Grant Request To Revise The Previous Conditions of Approval



**Maryland Department of Transportation
State Highway Administration**

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

December 5, 2000

Mr. John J. Clark
Acting Deputy Director for Transportation Policy
Montgomery County Department of Public Works
and Transportation
101 Monroe Street
10th Floor
Rockville MD 20850-2540

Dear Mr. Clark: *John*

Thank you for your recent letter requesting our inclusion of an at-grade alternative among those alternatives retained for detailed study for the Norbeck Road (MD 28)/Georgia Avenue (MD 97) Intersection Improvement Study. We also note your rationale for making this request and understand your concerns and your position supporting the master plan recommended improvements. As you requested, we will retain this alternative with the proposed lane configuration as you had noted for detailed study for this project.

The Congestion Relief Study (CRS) recommended an interchange at this location. However, during initial project planning studies, we also looked at several at-grade concepts, a Base Widening alternative was one of them. Earlier in this study, traffic analysis was conducted for a concept with reasonable widening at this intersection, which included 4 through lanes in each direction along Georgia Avenue and three through lanes in each direction along MD 28. Even with the addition of lanes, the 2020 LOS would be "F" for this concept. However, the forecasted volumes for 2020 did not assume the construction of the former Intercounty Connector (ICC) or the East-West Link Improvement study. These volumes will be obtained for future analysis of this intersection.

The traffic analysis conducted as part of the ICC study indicated that the Level of Service (LOS) at this intersection would be "F" by 2020 under all alternatives. The alternative that presents the least congestion was the Upgrade Existing Roads Alternative (UERA), which proposed an interchange at this location. The traffic analysis done for the CRS project was based on existing traffic volumes to provide short-term solutions.

This project will be closely coordinated with other projects in the area including the MD 28/MD 198 improvements, East-West Link Improvements, Norbeck Avenue extended and the Georgia Avenue busway. We plan to generate traffic volumes for all alternatives with and

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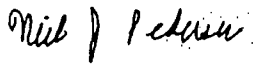
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Mr. John J. Clark
Page Two

without these improvements. Under all current alternatives, there is a provision for a future busway in the median. During the next stage of our studies, we will make a more detailed study of the impact of this busway at this intersection under all options. Access to the park and ride facility from Georgia Avenue will be evaluated during detailed studies.

Thank you again for your comments and recommendations. We plan to continue our coordination efforts with your staff while developing detailed alternatives for this project. If you have any questions, or if you need any additional information on the project, please do not hesitate to contact me at 410-545-0411 or the project manager, Mrs. Sue Rajan at 410-545-8514 1-800-548-5026, or srajan@sha.state.md.us.

Very truly yours,



Neil J. Pedersen
Deputy Administrator for
Planning and Engineering

- cc: Mr. Rick Hawthorne, M-NCPPC
- Mr. Glen Orlin, Montgomery County Council
- Mrs. R. Suseela Rajan, Project Manager, State Highway Administration
- Mr. Charlie K. Watkins, District Engineer, State Highway Administration
(w/ incoming)



Maryland Department of Transportation
State Highway Administration

FARRIS N. Glendening
Governor

John D. Porcari
Secretary

Parker F. Williams
Administrator

268

September 13, 2001

Mr. Arthur Holmes, Jr.
Chairman
Montgomery County Planning Board
Park and Planning Commission
8787 Georgia Avenue
Silver Spring MD 20910-3760

Dear Chairman Holmes: Art

For the past two years, the State Highway Administration (SHA) has been working cooperatively with Maryland National Capital Parks and Planning Commission (MNCPPC) staff, and Montgomery County Department of Public Works and Transportation staff to evaluate alternatives for providing additional capacity at the intersection of MD 28 (Nobeck Road) and MD 97 (Georgia Avenue). These alternatives have been previously presented to both the Montgomery County Planning Board and Montgomery County Council. The intersection at MD 28 and MD 97 currently experiences severe congestion and it is projected to become considerably more congested in the future if significant additional capacity is not provided.

One of the alternatives currently under consideration for the MD 97/MD 28 interchange would directly impact a proposed soccer field that the developers of the Small's Nursery property is required to construct as a result of Planning Board conditions for the development. SHA staff have met with MNCPPC staff in an attempt to see if the construction of the soccer field could be delayed or the plans for the soccer field could be revised so as not to conflict with the interchange alternative. The developer desires to proceed forward immediately with the construction of the soccer field because under the conditions placed by the Planning Board, Phase II of his development would be held up if the soccer field is not constructed.

SHA is quite concerned about the implications of the construction of the soccer field going forward at the location and on the time schedule currently proposed. The interchange concept that would impact the soccer field has the lowest cost of the concepts currently under consideration and involves the least disruption to traffic during construction. If the soccer field is constructed as planned and this alternative is selected, the soccer field would have to be relocated at considerable expense.

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Mr. Arthur Holmes, Jr.

Page Two

The SHA requests that the Planning Board delay construction of the soccer field for at least one year so we can complete the alternative evaluation process, hold a public hearing and select an alternative for the MD 28/MD 97 interchange during that time. If the alternative that impacts the soccer field is selected we ask that you direct your staff to work with SHA staff and the developers to reconfigure the location of the soccer field on the site. We recognize that the Planning Board may need to modify the conditions placed on the development approval so as not to delay the developer from proceeding forward with Phase II of his development.

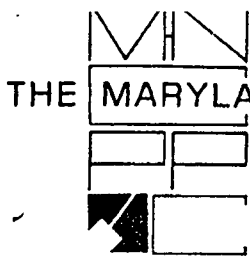
We appreciate the efforts of the MNCPPC staff participating on the project team. We are confident that we can come up with a plan that can accommodate both the roadway and the park. Thank you for your cooperation in this matter. If you have any questions about this request, please do not hesitate to contact me or Mr. Douglas H. Simmons, Director of Planning and Preliminary Engineering at 410-545-0412.

Very truly yours,

Neil J. Pedersen

Neil J. Pedersen
Deputy Administrator for
Planning and Engineering

- cc: Mr. Rick Hawthorne, M-NCPPC
- Mr. Douglas H. Simmons, Director of Planning and Preliminary Engineering,
State Highway Administration
- Mr. Charles Loehr, Director of Planning, MNCPPC
- Mr. Don Cochran, MNCPPC
- Mr. Parker F. Williams, Administrator, State Highway Administration



THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION

8787 Georgia Avenue • Silver Spring, Maryland 20910-3760

(301) 495-4605

Montgomery County Planning Board
Office of the Chairman

October 26, 2001

Neil J. Pedersen
Deputy Administrator for Planning
and Engineering
State Highway Administration
P.O. Box 717
Baltimore, MD 21203-0717

Dear Mr. Pedersen:

I am responding to your September 13, 2001 letter requesting a delay in construction of the soccer field in the MD97/MD28 interchange study area for at least a year. We understand your position and your desire to preclude development within the areas affected by the interchange alternatives. If the State is in a position to provide for the recreational needs of the County to the same extent as the developer, in a mutually agreeable location, then we believe your request can be accommodated.

As you know, our most immediate objective is to have a playing field and gravel lot delivered to our Parks Department as soon as possible. There is a significant deficit of ballfields in Montgomery County, and the field in question will provide a lacrosse/soccer game field that is needed to serve the Olney/Aspen Hill area. The field and parking lot are required to be constructed by the developer of the Small's Nursery subdivision. The developer has engineered the site pursuant to our specification and is a few months away from proceeding with construction. We have prevented the developer from obtaining the last three building permits on his subdivision until such time as he complies with the requirement to build the field and parking. To relieve him of this obligation without seeing to the recreation needs of nearby residents in a timely manner would be detrimental to our park users.

Your staff has proposed relocating the soccer field within other areas of the existing park. An analysis by our landscape architect has indicated that the field and parking lot cannot be accommodated on the site if Alternate 3 for the interchange is chosen because of the limited remaining land and significant environmental constraints. Thus if Alternate 3 is chosen, a new playing field site will need to be found.

If Alternate 3 is not chosen, we cannot, in all fairness, ask the developer to bring the necessary construction equipment back to the site a year after he has completed the subdivision. It is much more cost effective for the developer to do the construction now when his equipment is on site and he is doing work on the remainder of the property.



Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

December 10, 2001

Mr. Arthur Holmes, Jr.
Chairman
Montgomery County Planning Board
Park and Planning Commission
8787 Georgia Avenue
Silver Spring MD 20910-3760

Dear Chairman Holmes: *Art*

Thank you for your recent letter regarding the construction of the soccer field within the MD 28/MD 97 study area. We appreciate your cooperation in this matter by agreeing to delay the construction of the soccer field by one year, which would provide us adequate time to complete the studies to reach a final decision on one alternative. We anticipate the selection of an alternative by next Summer. We also understand the conditions you had mentioned in your letter.

Currently our engineers are working with your staff looking at ways to reconfigure the design of the soccer field at the proposed location which would also allow room for the alternatives being studied under the MD 28/MD 97 Intersection Improvement Study. Your staff members have kindly reviewed and provided guidance in reconfiguring the soccer field. We will schedule a meeting with the developer and all associated parties in the next few days to discuss this matter as well as to initiate potential changes to his conditions of the subdivision approval through the appropriate process.

The Planning Board's interest in providing a soccer/lacrosse field and parking lot to serve the nearby residents of the Olney/Aspen Hill area is quite understandable. We greatly appreciate the efforts of the Maryland-National Capital Park and Planning Commission staff working with the State Highway Administration on this matter.

410-545-0411

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Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Mr. Arthur Holmes, Jr.
Page Two

Thank you again for your cooperation in this matter. If you have any questions, please do not hesitate to contact me or Mr. Douglas H. Simmons, Director of Planning and Preliminary Engineering at 410-545-0412.

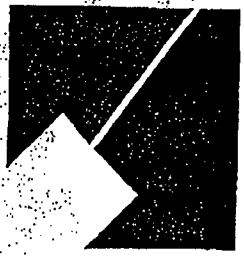
Sincerely,



Neil J. Pedersen
Deputy Administrator for
Planning and Engineering

- cc: Mr. Don Cochran, Maryland-National Capital Park and Planning Commission
- Mr. Joe Davis, Maryland-National Capital Park and Planning Commission
- Mr. Rick Hawthorne, Maryland-National Capital Park and Planning Commission
- Mr. Charles Loehr, Director of Planning, Montgomery County Department of Public Works and Transportation
- Mr. Douglas H. Simmons, Director of Planning and Preliminary Engineering, State Highway Administration
- Mr. Parker F. Williams, Administrator, State Highway Administration

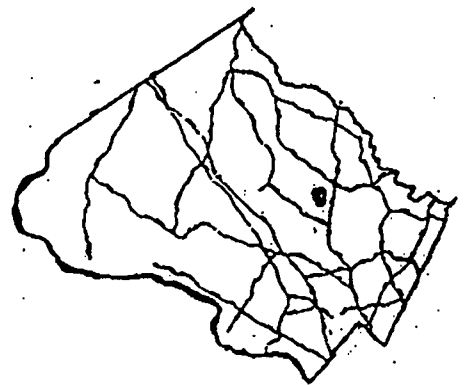
M-NCPPC



MONTGOMERY COUNTY DEPARTMENT OF PARK AND PLANNING

THE MARYLAND-NATIONAL CAPITAL
PARK AND PLANNING COMMISSION

8787 Georgia Avenue
Silver Spring, Maryland 20910-3760



MEMORANDUM

DATE: January 15, 2002

TO: Montgomery County Planning Board

VIA: Joseph R. Davis ^{JRD} Chief, Development Review Division

FROM: A. Malcolm Shaneman, Supervisor, Development Review Division

REVIEW TYPE : Preliminary Plan of Subdivision and Site Plan Review

APPLYING FOR: Revision to the Previous Conditions of Approval

PROJECT NAME: Small's Nursery

CASE NO. 1-99029 and 8-95015

REVIEW BASIS: Chapter 50, Montgomery County Subdivision Regulations

ZONE: RE-1 Cluster Method

LOCATION: Northwest Corner of Georgia Avenue (MD 97) and Norbeck Road (MD 28), Northeast of Muncaster Mill Road

MASTER PLAN: Olney and Vicinity

APPLICANT: Small's Nursery, LLC

ATTORNEY: Learch Early and Brewer

HEARING DATE: December 2, 1999

STAFF RECOMMENDATION: Grant Request To Revise The Previous Conditions of Approval

PROJECT DESCRIPTION

Prior Planning Board Actions

On June 16, 1994, the Board approved Preliminary Plan #1-94011 for the development of 100 units in the Small's Nursery subdivision, subject to conditions pursuant to the provisions of the 1994 Annual Growth Policy Ceiling Flexibility for Limited Residential Development. As part of the Preliminary Plan approval, the Planning Board indicated the need for additional recreation areas to serve the Olney area. This requirement was based on a finding that the Olney area was deficient of active recreational facilities identified by the Park and Recreation Open Space (PROS) Master Plan. On July 20, 1995, the Board approved Site Plan No. 8-95015. As part of the site plan approval the Planning Board required the applicant to dedicate and provide final grading, suitable for play and gravel parking for a "play field" as a proposed expansion of the Muncaster Road Local Park

In 1997, the Board approved an amendment to the Preliminary Plan to provide the development of an additional thirty (30) units in the Small's Nursery subdivision based on available staging ceiling capacity and conditioned approval, in part, on the previous site plan condition for the applicant to construct a "play field" in the southwest portion of the property, adjacent to the existing local public park.

In November of 2000 the Planning Board staff administratively approved a site plan amendment (Site Plan No. 8-95015A) to reflect the additional units. The Planning Board and the Developer subsequently entered into a Site Plan Enforcement Agreement, which provided that in the event the Parks Department had not timely completed the design of the play field (soccer field) by the contemplated date of issuance of the 101st building permit, the Developer could post a surety bond with the Planning Board to guarantee that the soccer field and associated parking would be built.

On February 20, 2001, the Board approved an amendment to the Preliminary Plan and Site Plan, which permitted the Developer to add an additional forty-five (45) lots in the subdivision. This was intended to be Phase IV of the subdivision. The developer later conveyed that portion of the site to MDSHA which is depicted on the Olney Master Plan as the future right-of-way for the Inter-County Connector. As part of this amendment, the Board revised condition No. 20 of the Preliminary Plan to state:

"Before issuance of the building permits for the 129th and 130th lots, the Applicant shall complete its park site dedication, and shall have

commenced construction pursuant to issued permits for grading, turf establishment and the gravel parking area associated with the park site.

ISSUES TO DATE

In November 2001, the applicant requested the ability to seek the release of building permits for the 129th and 130th lots. The applicant submitted a surety bond estimate for the construction of the soccer field pursuant to the revised site plan enforcement agreement. The surety bond is currently under evaluation by staff to insure that the cost estimate is adequate to fulfill the requirements of construction of the soccer field and related parking. While the applicant's estimate has been determined to be low, staff is working towards finalizing an estimate which should be available at the public hearing.

In September 2001 MDSHA relayed concerns about the timing of construction for of the expanded fields located on the south side of the Small's Nursery site. MDSHA noted that proposed interchange alternatives for the Georgia Avenue (MD 97) and Norbeck Road (MD 28) may impact the proposed "play field". MDSHA is currently reviewing several alternatives and has indicated that they anticipate making a decision on the selection of an alternative by Summer 2002.

In October 2001 the Planning Board responded to MDSHA's request. The Planning Board Chairman advised MDSHA that two of the alternatives would preclude the construction of the soccer field. The Chairman's letter further indicated that, in the event the interchange was not selected, it would be unfair, in terms of time and expense, to require the Developer to come back and construct the soccer field after they have completed construction of the subdivision and removed its equipment from the site. The Chairman recommended that MDSHA coordinate with the Developer because changes would be required to the conditions of subdivision approval.

In a letter addressed to the Chairman, dated December 10, 2001, MDSHA indicated that their engineers have been working with Parks staff in an attempt to devise a solution in which a soccer field could be constructed at the intended location. Parks Staff has developed a conceptual plan, which might permit such a coexistence of the soccer field and any proposed Norbeck Road/Georgia Avenue intersection improvement. MDSHA indicated that they would coordinate with the Developer to discuss issues related to the soccer field.

RECOMMENDATION

Staff believes that the applicant has complied with all the conditions imposed by the approval of the associated Preliminary Plan and Site Plans except the obligation of providing for the dedication and construction of the soccer field and related parking facility and the access road. The issue is compounded by MDSHA's current study to design alternatives for the Georgia Avenue (MD 97) and Norbeck Road (MD 28) interchange. The State's desire to delay the construction of the park facility should not adversely affect the applicant's intent to timely complete the residential development and fulfill their responsibilities for providing the new recreational field.

Staff recommends that the Planning Board consider removing Condition No. 20 of the Preliminary Plan and amending the remaining conditions of both the Preliminary Plan and Site Plan to incorporate the following:

"The Applicant shall convey or dedicate (to be determined by the Director) the 4.5 acre property shown on the approved Site Plan as park expansion area to the Commission or the Maryland Department of Transportation, State Highway Administration (to be determined by the Director) within ninety (90) days of the Planning Board's approval of Applicant's petition to revise this condition."

See Revised conditions

...and...

"Building permits for lot nos. 129 and 130 may be released to Applicant upon the posting of security in a form approved by Commission legal staff and in an amount to be approved by the director. The security shall cover the cost of grading, turf establishment, stabilization, and parking area with appropriate access from Thislebridge Drive. Such security shall be redeemable by the Commission for improvements to (a) parcel _____ or (b) such alternative site as the director may choose."

...and...

"Applicant shall enter into an amended Site Plan Enforcement Agreement with the Planning Board."

Agenda Item #7 & #8

Revised Conditions - Small's Nursery
Preliminary Plan # 1-99029
Site Plan # 8-95015

Each of the conditions listed below will be added to the conditions of approval for the Site Plan. Substitute or add the below conditions to the Preliminary Plan as noted below

- **Substitute for condition no. 18 of Preliminary Plan.**

"Applicant shall convey or dedicate for public use (to be determined by the Director) the 5.4 acre property shown on the approved Site Plan as park expansion area to the Commission or the Maryland Department of Transportation, State Highway Administration (to be determined by the Director) within ninety (90) days of the Planning Board's approval of Applicant's petition to revise this condition."

- **Substitute for condition no. 20 of Preliminary Plan.**

"The Commission shall release building permits for the 129th and 130th lots upon the Applicant's posting of security in a form approved by the Commission's legal staff and in an amount approved by the Director. The security shall cover the cost of grading, turf establishment, stabilization, Stormwater management controls and parking area with appropriate access (together "Park Improvements") from Thistlebridge Drive. The Commission shall release Applicant's security promptly upon (1) Applicant's completion of the Park Improvements to the satisfaction of the Commission, or (2) when the Applicant pays the sum of Two Hundred and Thirty-Four Thousand Dollars (\$234,000.00) ("Construction Costs") to the Commission. If the Commission or the SHA delay the Applicant's efforts to construct the Park Improvements beyond 90 days from the date of the Planning Board's approval of this revised condition ("Start Date"), the Applicant shall pay to the Commission the Construction Costs within fifteen (15) days. If the Commission sends notice to the Applicant at any time that the Commission elects to delay construction of the Park Improvements beyond the Start Date, or elects to construct the Park Improvements at an alternate location, then the Applicant shall pay to the Commission the Construction Costs within fifteen (15) days of the notice."

- **Add condition**

"Applicant shall enter into an amended Site Plan Enforcement Agreement with the Planning Board."

MEMORANDUM

TO: Ms. Cynthia D. Simpson
 Deputy Director
 Office of Planning and
 Preliminary Engineering

FROM: R. Suseela Rajan
 Project Manager
 Project Planning Division

DATE: February 8, 2002

SUBJECT: MD 28/97 Intersection Improvement Study

RE: **January 29, 2002 Team Meeting Minutes**

A meeting was held on Tuesday, January 29, 2002 in the M-NCPPC conference room to discuss the soccer field issue associated with the MD 28/MD 97 Intersection Improvements project. The following were in attendance:

Tanya Schmieler	M-NCPPC
Yolanda Langhorne-Thompson	SHA-PPD
Sue Rajan	SHA-PPD
Rachel Newhouse	M-NCPPC
Charlie Utermohle	McCormick Taylor
Dan Hardy	M-NCPPC
Mike Perrotta	PBQD

The following is a brief summary of the meeting:

- Tanya Selmieler stated that the Sycamore Acres Community would need an alternate representative to be involved in the project as a Focus Group Member. Contact information was received for Mary Johnson who would become the Sycamore Acres alternate for Barbara Weintraub
- There was a discussion on the five new options for relocated Thistlebridge Drive. Each option was explained and the pros and cons were given. Copies of the Thistlebridge Alternates, along with the names of the Focus Group members would be given to Tanya Schmieler for her file.

Ms. Cynthia D. Simpson
Page Two

- It was determined that even though Option 4, the service road access option, would provide additional space in the park area, there would be more opposition from the Preserve Community since the monumental entrance would be lost under this option. All traffic would have to utilize the service road under this alternative.
- Rachel Newhouse favored Option 1, the Norbeck Park avoidance option, since the monumental entrance to the Preserve could be relocated further north and closer to the community. It was stated that a house would have to be shown as a take under this option and the alignment would have to be shifted further west to avoid the graveyard.
- Option 2, the roundabout option, was the most preferred since houses in the Preserve community would not have to be taken and the roundabout would provide an optimum location for the monumental entrance.
- Option 3 was least favored by M-NCPPC since the alignment for the relocation of Thistlebridge Drive splits Norbeck Park in two. The Preserve community however, may prefer this option since it provides a scenic drive through the park and no houses from the community are lost.
- There was a discussion concerning the construction of the soccer field. M-NCPPC would like for SHA to construct the soccer field and provide the difference in cost for its relocation. Sue Rajan stated that she would have to check to see if SHA would actually construct the soccer field or only pay the difference in cost for design and construction.
- It was stated that the soccer field could be relocated to East Norbeck Park, however the park would either have to be reconfigured or an additional parcel would have to be purchased by SHA so that the park would be able to be constructed within the right of way. Tanya Selmieler stated that she would perform additional research to determine if the existing East Norbeck Park could be utilized for relocating the soccer field.
- Dan Hardy wanted to include an additional alternative that would eliminate the weaving problem along the ramp in Alternates 3-1, 3-2, and 6. An additional intersection would be created by intersecting Thistlebridge Drive, Ramp A and relocated MD 28 at a traffic signal. Charlie Utermohle stated that he would develop the Option to determine if it was feasible.

If you have any questions or comments regarding the above meeting summary, please contact Sue Rajan at 410-545-8514 or Yolanda Langhorne-Thompson at 410-545-8543.

cc: Project Team



**Maryland Department of Transportation
State Highway Administration**

Parris N. Glendening
Governor

John D. Porcari
Secretary

Parker F. Williams
Administrator

March 21, 2002

RE: Project No. MO852B11
MD 28 @ MD 97
Montgomery County, Maryland

Mr. C. R. Simpson
Senior Planning Specialist
Montgomery County Department of Public
Works and Transportation
Office of the Director
101 Monroe Street
Rockville MD 20850-2540

Dear Mr. Simpson:

Thank you for your letter December 19, 2001 commenting on the historic standing structures within the project area for the improvements proposed for the intersection of MD 97 and MD 28 in Montgomery County. We appreciate your inquiries concerning the boundary of the White's Hardware historic site and the presence of other historic standing structures within the project area, which has been recently expanded to include alternates which connect MD 97 and MD 115 north of the subject intersection and outside of the area previously considered for improvements relating to this project. We apologize for the lateness of the response, but as explained below, we encountered difficulties in obtaining information necessary to prepare this response.

Your first point concerns the boundary for the White's Hardware historic site (M23:113/4). We wish to take this opportunity to clarify the discrepancy between the historic site boundary that was shown in the Draft Environmental Impact Statement (DEIS) for the former Intercounty Connector (ICC) project and the boundary which we were initially using for the MD 97/MD 28 project planning study.

The hardware store property was documented by our consultant, the P. A. C. Spero Company, in December, 1996 as part of the Section 106 historic sites coordination undertaken for the former ICC project. The consultant firm was subsequently absorbed by another company, resulting in the dispersal of all of the personnel responsible for the original documentation of the site; consequently, it has been extremely difficult to determine how the boundary was developed and why certain irregularities occurred regarding the determination of the acreage it contained. The former consultant staff who prepared the documentation confirmed with our cultural

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Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Mr. C.R. Simpson
MD 28 @ MD 97
Page Two

resources manager, Ms. Rita Suffness on February 28, that although the acreage cited was incorrect in the text, the boundary was intended to include only the two tax parcels, which are identified as Parcels 935 and 956 on Tax Map HS 342, excluding the parking area that is part of SHA right-of-way. The corrected inventory form provided by the consultant is included as an attachment, and the State Historic Preservation Officer (SHPO) has been advised.

As part of the MD 28/MD 97 project, the White's Hardware store was determined to meet the criteria for inclusion in the National Register of Historic Places (NRHP), in consultation with the SHPO, with the boundary that encompasses 0.77 acre as the total of these two tax parcels, in accordance with that reproduced in the former ICC project document that you cite.

The tax parcel on which the store itself is located encompasses ca. 0.22 acre, with the property adjoining it on the north (and encompassing the two related historic residences and other related structures) containing ca. 0.55 acre. In constructing the last widening of MD 97 ca. twenty years ago, the SHA relocated the roadbed of MD 97 to the east, and retained the former MD 97 roadbed, redesignated MD 655 A, as a service road. As it exists today, the traffic utilizing the service road southbound is directed to the west just north of the store and to a shopping center behind the historic property. Consequently, the remaining section of MD 655A became a parking area immediately in front of the store. That the hardware store previously abutted the roadbed of MD 97 is indisputable. The SHA, in effect, created the opportunity for the hardware business to utilize area in front of the property for additional parking on the former roadbed of MD 97.

Your final point concerns the fact that three sites originally identified as part of the former ICC study, located on MD 115, were not included in the list of historic properties for the MD 97/MD 28 project planning study. When we initiated our formal coordination with the SHPO in August 1999, the area of potential effects included seven properties along MD 97 and on MD 28 east of MD 97. White's Hardware was the sole historic standing structure and/or complex determined to meet the criteria for inclusion on the NRHP. As no improvements were slated to occur beyond the immediate intersection of MD 97/MD 28 on the west side, MD 115 was not within the area covered as it was west of any proposed changes.

The SHA is currently considering proposals for a connector road between MD 115 and MD 97 to the north of the hardware property, thus necessitating the expansion of our APE to include MD 115 north of its intersection with MD 28. This area includes two additional properties, the Mount Pleasant Church and Cemetery (M: 23-113-1), and the Mount Pleasant School/Norbeck School (M: 23-113-2), as you have pointed out. The Thomas Adams historic property (M: 23-113-8) has been destroyed since it was identified in the 1996 ICC-related historic sites identification and evaluation effort. Both of these extant historic sites, the school and church (all that remain of an Afro-American component included in the Norbeck

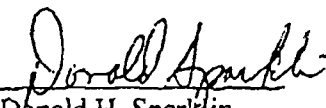
Mr. C.R. Simpson
MD 28 @ MD 97
Page Three

community) have been determined eligible for the NRHP. Given their significance, SHIA will carefully plan its project in order to consider and/or lessen the impact of the project in accordance with the requirements of Section 106 of the National Historic Preservation Act. The SHPO is being advised that the project area of potential effects has been expanded to include these resources.

We hope we have fully addressed your concerns. Should you have any questions or require clarification, please feel free to phone Ms. Rita M. Suffness on 410-545-8561 (or by e-mail, RSuffness@sha.md.state.us).

Very truly yours.

Cynthia D. Simpson
Deputy Director
Office of Planning and
Preliminary Engineering

by: 
Donald H. Sparklin
Assistant Division Chief
Project Planning Division

Attachment

- cc: Ms. Chris Barse, SHA-PPD (w/attachment)
- Ms. Pat Greene, SHA-PPD (w/attachment)
- Ms. Sue Rajan, SHA-PPD (w/attachment)
- Ms. Cynthia D. Simpson, SHA-PPD (w/attachment)
- Mr. Donald H. Sparklin, SHA-PPD (w/attachment)
- Ms. Rita M. Suffness, SHA-PPD (w/attachment)
- Ms. Gwen Wright, MNCPPC (w/attachment)



Maryland Department of Transportation
State Highway Administration

Parris N. Glencening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

March 28, 2002

RE: Project No: MO852B11
MD 28/MD 97 Intersection Study
Montgomery County, Maryland

Mr. Michael Riley, Chief
Park Planning and Development Division
Department of Parks and Recreation
Maryland National Capital Park and
Planning Commission
9500 Brunett Avenue
Montgomery County, MD 20901

Dear Mr. Riley:

The Maryland State Highway Administration (SHA) is proceeding with detailed Project Planning studies to improve traffic operations and accommodate capacity requirements at the MD 28/MD 97 intersection. The proposed project also includes improvements to the MD 28/MD 115 intersection.

Early in the Project Planning process SHA coordinated with your office regarding existing park facilities in the study area. At that time, SHA identified Norbeck Park, located on the east side of MD 115 just west of the MD 28/MD 97 intersection, as the only publicly owned public park within the study area. Although the preliminary alternatives that were developed did not impact the park, the alternatives that have been retained for detailed study may now require impacts to the park.

Due to the construction of sidewalks on MD 115, which are currently included in the alternatives being studied, approximately 0.1 acre of strip right-of-way may be required from Norbeck Park. In addition, SHA is examining several additional alternatives that propose the relocation of Thistlebridge Drive to provide access to the residential community known as The Preserve. Two of the proposed alternatives may impact up to 0.65 acre of the park. Since Norbeck Park may qualify for protection under Section 4(f) of the 1966 U.S. DOT Act, we request the following updated information regarding the park:

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

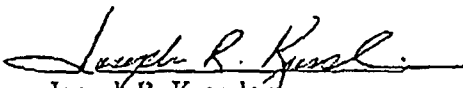
Mr. Michael Riley
MD 28/MD 97 Intersection Study
Page Two

- Funding Sources: were Program Open Space and/or Land and Water Conservation (Section 6 (f)) funds used to either acquire or develop the park?
- Your determination regarding the primary and any secondary functions of the park.
- Your determination as to whether the right of way required from Norbeck Park for the relocation of Thistlebridge Drive affects any public recreational uses associated with the park.
- Types of outdoor recreational facilities (existing and proposed) within the park.
- Frequency with which the public uses these facilities;
- Your determination as to whether this facility serves a "significant" function in providing for the overall recreational needs of the communities in the area. The Federal Highway Administration defines "significant" as: "In comparing the availability and use of recreation and park facilities with the needs of a community, the land in question plays an important role in meeting the needs." If it is found that the park is not significant, SHA would require a written determination of this from the official with jurisdiction over the park, in order to support a determination of the non-applicability of Section 4(f) of the U.S. DOT Act.

Your response is requested by April 26. Thank you for your cooperation in this matter. Should you have any questions or need additional information regarding this request, please feel free to contact Ms. Patricia Greene at (410) 545-8528 or Ms. Sue Rajan at (410) 545-8514.

Very truly yours,

Cynthia Simpson
Deputy Director
Office of Planning and
Preliminary Engineering

by: 
Joseph R. Kressler
Assistant Division Chief
Project Planning Division

Mr. Michael Riley
MD 28/MD 97 Intersection Study
Page Three

Enclosures

- cc: Mr. Bruce Grey, SHA-PPD
- Ms. Patricia Greene, SHA-PPD (w/enclosure)
- Mr. Joseph Kresslein, SHA-PPD
- Ms. Sue Rajan, SHA-PPD

April 2, 2002

Memorandum

To: Michael A. Perrotta, P.E.
Parsons Brinckerhoff Quade & Douglas
100 South Charles Street
Tower #1 - 10th floor
Baltimore, MD 21201

From: Karl Moritz, Research Manager, Research & Technology Center,
301-495-1312

Re: Annual Growth Policy Issues in Olney and Aspen Hill

Montgomery County, Maryland's adequate public facilities ordinance (APFO) is implemented through an annual resolution called the Annual Growth Policy. The Annual Growth Policy, or AGP, contains the guidelines for determining, among other things, the adequacy of transportation facilities.

Proposed development is tested by the Planning Board for adequacy of transportation facilities at the time of preliminary plan of subdivision. There are two tests, both of which must be passed. The first is Policy Area Transportation Review and the second is Local Area Transportation Review.

Policy Area Transportation Review

Policy Area Transportation Review determines for each subarea of the County (called a "policy area") the maximum amount of development that can be accommodated by the transportation network. These are called "staging ceilings." The Planning Board may approve development up to the staging ceiling; once the ceiling is reached, the area is in moratorium for new subdivision approvals. There is no formal time limit for a moratorium; that is, the moratorium is lifted only when facilities are once again adequate.

The staging ceiling is based on the average congestion on major links in the policy area. To be more precise, it is the average volume-to-capacity ratio for these links weighted by vehicle miles of travel. Our transportation model also makes sure that

staging ceilings in any one area do not generate traffic that would cause another policy area to exceed its standard.

The congestion standard for each policy area varies depending on the availability of transit. This allows the model to allocate more staging ceiling (and therefore more congestion) to policy areas where there are alternatives to driving.

Separate staging ceilings are set for residential and non-residential development because their transportation characteristics are different. For example, in the morning traffic tends to flow away from housing units and toward jobs.

Currently the Olney and Aspen Hill Policy Areas are in moratorium for new residential subdivisions. The Olney Area has been in moratorium since 2001 and the Aspen Hill Policy Area since 1989.

The staging ceiling in Olney or Aspen Hill can be increased when new transportation facilities are added to the County or State capital program. To be counted, a transportation project must be fully-funded within the first five years of the capital budget. In general, these must be significant projects to change an area's staging ceiling, since they must materially improve the average congestion for the entire policy area.

Our process for determining by how much staging ceilings can be increased for a new transportation facility involves repeated runs of the transportation model. I have not referred this issue to the model team. If you are interested in a model analysis, please contact Eric Graye at 301-495-4632. Based on past experience, however, it is extremely unlikely that an at-grade intersection improvement would be sufficient to increase staging ceilings. A grade-separated interchange might be sufficient. We have increased staging ceilings based upon new grade-separated interchanges in the past, but those were on higher-volume roadways (I-270 and US 29) than those in Olney and Aspen Hill.

Under AGP rules, the Planning Board may approve residential development in Olney despite the lack of net remaining capacity. A development can be approved if the developer agrees to a) provide the infrastructure needed by his development, b) mitigate or otherwise remove from the policy area's roadways a number of trips equal to that generated by his development, or c) provide a significant component of affordable housing. All of these options require a major commitment from a developer and are in no way an easy way around the moratorium.

Local Area Transportation Review

Local Area Transportation Review is a test of congestion at nearby intersections. LATR is applied to subdivisions generating at least 50 trips. We use the critical lane volume technique and our CLV standards for intersections vary from policy area to policy area based upon the availability of transit. The least restrictive LATR standard is 1800, for Metro Station Policy Areas. The most restrictive is 1450 in the rural areas of the County.

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If a subdivision will cause an intersection to exceed its standard, it is responsible for making improvements that will mitigate the effect of the subdivision. It is not required to bring the intersection back to standard, but only to make sure that the situation isn't any worse. I don't happen to know the current status of the MD 28/97 intersection but if you need a contact to find out the latest information, I would call Ron Welke in our office at 301-495-4533.

I hope you find this memo useful. Please let me know if I can be of further assistance.



THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION

May 23, 2002

Cynthia D. Simpson
Deputy Director
Office of Planning and Preliminary Engineering
State Highway Administration
P.O. Box 717
Baltimore, Maryland 21203-0717

Re: Project No: MO852B11
MD 28/MD 97 Intersection Study
Montgomery County, MD

Dear Ms. Simpson:

I am writing to respond to your March 28, 2002 letter to Michael Riley of this office regarding the above referenced project. The following statements are provided in response to the specific bulleted information requests in your letter.

Funding Sources - No Program Open Space or Land and Water Conservation Fund monies were used to acquire Norbeck-Muncaster Mill Neighborhood Park.

Primary and Secondary Functions - The primary use of Norbeck-Muncaster Mill Neighborhood Park is to serve the recreation needs of the nearby residential neighborhood. This park is improved with a recreation building, playground, basketball court, ballfield and parking lot. See attached drawing. The rear portion of the park is undeveloped and serves as a forested natural buffer to the adjacent properties. All of the park is considered to be primarily used as parkland with no secondary functions being served.

Affects of Relocated Thistlebridge Drive - Option 1 has no apparent, direct affect on the park except for bringing traffic close to high use areas which may in turn create safety, noise and air quality problems. In addition to the same impacts of Option 1, Option 2 also directly impacts the undeveloped natural buffer area located at the rear of the park. Option 3 would seriously impact the existing ballfield to the point where it would likely be unuseable. Also, Option 3 would cut the park into two units and basically destroy the park as an active use facility. Under Option 3 the park would be nothing more than a bifurcated green space of little recreation and park value.

Types of outdoor recreational facilities - Facilities presently found at Norbeck-

Muncaster Mill Neighborhood Park are described above. At least one additional ballfield (probably soccer) with parking and an access road is proposed for development on land to be received in dedication from the developer of an adjacent property to the south.

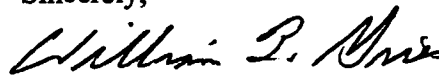
Frequency of use - The park presently serves 50-100 visitors per day when the recreation building is in use. A significant number of additional visitors will be served at this park when the property on the south is received in dedication and is developed as proposed.

Determination as to whether park facilities serve a significant function -The park facility described above does serve a significant function in providing for the overall recreation needs of the surrounding community.

As for the sidewalk proposed to be built along Muncaster Mill Road (MD 115) as part of this project, this should not be a problem if the right-of- way requirements are kept to a minimum. The sidewalk would be helpful in improving access for park users walking to the park from nearby neighborhoods.

If you need more information concerning the responses provided above, please do not hesitate getting in touch with me. I can be reached at (301) 650-2861. As usual, I regret that this response was not more timely and hope that you were not inconvenienced by my lateness in this regard.

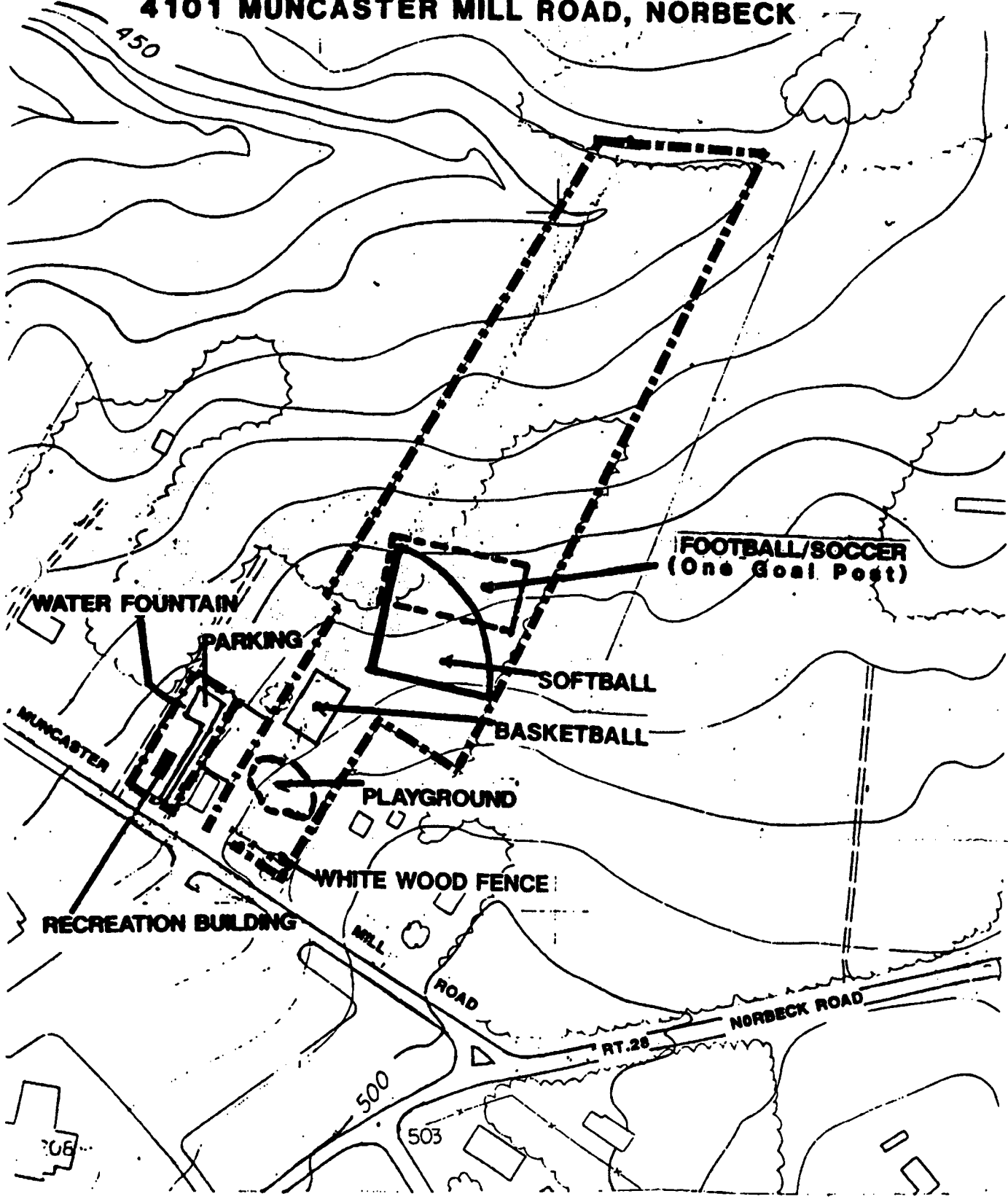
Sincerely,



William E. Gries
Land Acquisition Specialist

NORBECK - MUNCASTER MILL N.P.

4101 MUNCASTER MILL ROAD, NORBECK



MNCPPC STAFF GUIDE 24-3D

SCALE 1" = 200'

	ACREAGE	5.4
	FACILITY CODE	B39

REGION III, AREA B

ELECTED OFFICIALS CORRESPONDENCE



MONTGOMERY COUNTY COUNCIL

ROCKVILLE, MARYLAND

January 19, 1999

OFFICE OF THE COUNCIL PRESIDENT

The Honorable Parris N. Glendening
Governor, State of Maryland
State House
Annapolis, MD 21401

Dear Governor Glendening:

On December 15, I wrote to you conveying the Council's testimony to the Montgomery County Delegation regarding the Maryland Department of Transportation's Draft FY 1999-2004 Consolidated Transportation Program. I made the point that the Council had yet to review four new interchanges proposed for study as part of the Congestion Relief Study that are not shown in the County's Master Plan of Highways: Georgia Avenue @ Norbeck Road, Norbeck Road @ Veirs Mill Road, Rockville Pike @ Jefferson Street, and Rockville Pike @ Middle Lane. The latter three interchanges are allowed for in the City of Rockville's Master Plan.

We have just completed our review of these proposals. *We support the funding of a project planning study through the feasibility stage for a potential Georgia Avenue/Norbeck Road interchange.* It is a logical extension of the Council's Network Improvements Alternative to the Inncounty Connector, which would upgrade the capacity of the east-west arterial route comprising of Norbeck Road, Norbeck Road Extended, and Spencerville Road. One possible concept plan has already been engineered, and it appears that it would provide significant congestion relief while having relatively benign community and environmental effects. Once the feasibility stage is completed, the Council will review the results with SHA, the County's Department of Public Works and Transportation (DPWT) and the Planning Board to reach a consensus as to how or whether to proceed to the next phase of project planning.

The Council also supports funding project planning through the feasibility stage for the other three interchanges, under the condition that at-grade, open trough, and shorter options are studied for the Rockville Pike/Jefferson Street and Rockville Pike/Middle Lane interchanges. At the end of the feasibility stage on these projects, the Council will review the data and findings with SHA, DPWT and the City of Rockville to again come to agreement on how or whether to proceed to the next phase of project planning.

Sincerely,

Isiah Leggett
Council President

ll:go

- Copies: The Honorable Ida Ruben, Chair, Montgomery County Senate Delegation
- The Honorable Kumar Barve, Chair, Montgomery County House Delegation
- The Honorable Douglas Duncan, Montgomery County Executive
- The Honorable Rose Krasnow, Mayor of Rockville
- Mr. John Portari, Secretary, Maryland Department of Transportation
- Mr. William Hussmann, Chair, Montgomery County Planning Board

STELLA B. WERNER COUNCIL OFFICE BUILDING, 100 MARYLAND AVENUE, ROCKVILLE, MARYLAND 20850
301/217-7900 TTY 301/217-7914

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**Maryland Department of Transportation
State Highway Administration**

Parris N. Glendening
Governor

John D. Porcari
Secretary

Parker F. Williams
Administrator

February 29, 2000

The Honorable Douglas M. Duncan
Montgomery County Executive
101 Monroe Street
2nd Floor
Rockville MD 20850

Dear County Executive Duncan:

The State Highway Administration (SHA) is in the process of initiating a Focus Group to participate in the project planning study for the intersection of MD 28 (Norbeck Road) and MD 97 (Georgia Avenue).

The purpose of this project is to improve traffic operations for vehicles and pedestrians using the MD 97/MD 28 intersection, enhance mobility for bicyclists, pedestrians and transit users, and to address needed transportation improvements in a manner consistent with Maryland's Smart Growth Initiative.

This project is included in the Construction Program of the 2000-2005 Consolidated Transportation Program (CTP) as part of the East West Intersection Improvement Program. This intersection is currently experiencing failure during the peak periods with stop-and-go conditions. Traffic analysis shows that traffic operates at Level of Service (LOS) of "F" (extremely heavy congestion) during the morning and evening peak hours. Furthermore, traffic forecasts show that these conditions will worsen with a projected 82 percent increase in traffic volume on both MD 97 and MD 28 by the year 2020.

The SHA would appreciate your assistance in nominating up to three candidates to serve on a ten to fifteen member focus group. The Focus Group would provide an opportunity for the representatives of community, business, and special interest groups to participate in the project development, as well as to share information with the study team. Your response should include a brief description of each nominee. Notice will be sent to those persons selected for the Focus group establishing an initial meeting within the next few weeks. You will be copied on this notice in case you or one of your representatives would like to participate in this meeting.

My telephone number is 410-545-0411 or 1-888-204-4828

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

The Honorable Douglas M. Duncan
Page Two

This letter is also going to other elected officials within the MD 28/MD 97 Intersection Study Area. If you have any questions about this project, please feel free to contact our Planning Director, Mr. Neil J. Pedersen, at 410-545-0410 or Ms. R. Suseela Rajan, Project Manager, at 410-545-8514 or 1-800-548-5026.

Very truly yours,



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

- cc: Mr. Albert Genetti, Director, Montgomery County Department of Public Works and Transportation
- Mr. Charles R. Loehr, Planning Director, Montgomery County
- Mr. Neil J. Pedersen, Director, Office of Planning and Preliminary Engineering, State Highway Administration
- Mr. Charlie K. Watkins, District Engineer, State Highway Administration

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**Maryland Department of Transportation
State Highway Administration**

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

February 29, 2000

The Honorable Leonard H. Teitelbaum
Senate of Maryland
205 James Senate Office Building
110 College Avenue
Annapolis MD 21401-1991

Dear Senator Teitelbaum: *Len*

The State Highway Administration (SHA) is in the process of initiating a Focus Group to participate in the project planning study for the intersection of MD 28 (Norbeck Road) and MD 97 (Georgia Avenue).

The purpose of this project is to improve traffic operations for vehicles and pedestrians using the MD 97/MD 28 intersection, enhance mobility for bicyclists, pedestrians and transit users, and to address needed transportation improvements in a manner consistent with Maryland's Smart Growth Initiative.

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The SHA would appreciate the District 19 delegation's assistance in nominating candidates for potential service on a ten to fifteen member focus group. The Focus Group would provide an opportunity for the representatives of community, business, and special interest groups to participate in the project development, as well as to share information with the study team. Your response should include a brief description of each nominee. Notice will be sent to those persons selected for the Focus group establishing an initial meeting within the next few weeks. You will be copied on this notice in case you or one of your representatives would like to participate in this meeting.

My telephone number is _____

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Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

The Honorable Leonard H. Teitelbaum
Page Two

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Very truly yours,

Neil J. Pedersen

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

- cc: The Honorable Henry B. Heller, Maryland House of Delegates
- The Honorable Adrienne Mandel, Maryland House of Delegates
- The Honorable Carol S. Petzold, Maryland House of Delegates
- Mr. Charles R. Loehr, Planning Director, Montgomery County
- Mr. Neil J. Pedersen, Director, Office of Planning and Preliminary Engineering,
State Highway Administration
- Mr. Charlie K. Watkins, District Engineer, State Highway Administration
- Mr. Parker F. Williams, Administrator, State Highway Administration

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Judiciary Committee
Vice Chair
Montgomery County Delegation
Deputy Majority Whip
Administrative, Executive and
Legislative Review Joint Committee
Chair
Advisory Council for
Office of Administrative Hearings



THE MARYLAND HOUSE OF DELEGATES
ANNAPOLIS, MARYLAND 21401-1991

Annapolis Office
222 Lowe House Office Building
Annapolis, Maryland 21401-1991
301-858-3001
1-800-492-7122 Ext. 3001
E-Mail carol_stoker_petzold@house.state.md.us

19th District Office
14113 Chadwick Lane
Rockville, Maryland 20853-2103
301-871-7433

CAROL S. PETZOLD

October 2, 2000

Mr. Neil Pedersen, P.E.
MDOT, SHA
Office of Planning & Preliminary Engineering
707 N. Calvert ST, C-411
Baltimore MD 21202

Dear Mr. Pedersen:

First, I want to sincerely thank your for finding the way to make the funding stream work on the project in District 19 which was hung up on technicalities. I am very grateful.

Enclosed is a copy of a letter I received from constituents. Although I don't know Mr. & Mrs. Harsh who wrote, their letter is concise and clear about the issues that concern my neighborhood. I wanted to bring it to your attention and ask that these issues be addressed by your staff.

I look forward to being at the Road Show on October 19 and will ask a question then to get a better idea of what can be done to make the project more in keeping with the neighborhood.

Sincerely yours,

Carol S. Petzold

Enclosure

**William and Carolyn Harsh
15309 Rosecroft Road
Rockville, MD 20853**

Delegate Carol S. Petzold
Lowe House Office Building
84 College Avenue
Annapolis MD21402-1991

Dear Delegate Petzold,

Recently, the Maryland Department of Transportation held a public meeting to solicit input concerning the MD 28/97 Intersection Improvement Study. The state officials at the meeting presented three alternatives, all of which would be disastrous to the established communities in your district in the vicinity of the corner of Georgia and Norbeck.

One of the alternatives would build an enormous overpass carrying Georgia over Norbeck that would be entirely out of scale with the surrounding residential community. The bridge would create a large amount of noise pollution in nearby neighborhoods by carrying trucks and buses using Georgia Avenue nearly 25 feet into the air, and would require the construction of enormous, unsightly walls to try to contain the spread of this noise. The other two alternatives would require construction of an elaborate interchange and a bridge carrying Norbeck over Georgia. There are many ways to address the modest traffic problem that exists at Georgia and Norbeck that would be in scale with the problem and in keeping with the surrounding neighborhood.

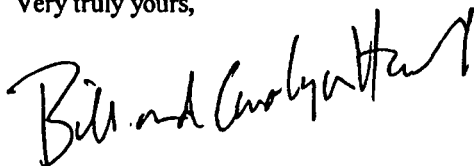
Even worse than the proposed "improvements" themselves is the fact that they appear to be part of a plan to build - piecemeal and without the otherwise required planning and environmental safeguards - a route linking I-95 to I-270 using Norbeck Road. Norbeck is an arterial road passing through long-established residential communities and Rock Creek Park. It is totally inappropriate as the route of a shortcut linking two interstate highways. Unless this piecemeal effort is halted, we can look forward to traffic moving from the Northeast to the Midwest - and all sorts of other traffic with no business on a local arterial road - using the Norbeck shortcut at all hours of the day and night.

We have lived in our community for more than 15 years and, like most of our neighbors, have invested many tens of thousands of dollars to improve our property. Now, despite assurances that the county Master Plan did not contemplate any major highways in our area, we face the prospect of living on top of a huge, totally inappropriate highway interchange and a major highway. We hope that you, as our representative, share our view that construction planning should respect established neighborhoods and that beautiful, well-established communities such as ours should not be needlessly destroyed.

We hope that you are working to prevent the State from acquiring the land it seeks to build the MD 28/97 Intersection Improvement. We also hope that you are working vigorously to make certain that the state follows both the letter and the spirit of the law in planning any future corridors that would materially change traffic flows along Norbeck Road.

We, and a growing number of our neighbors, are looking forward urgently to your reply and to an opportunity to discuss this issue with you.

Very truly yours,



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Judiciary Committee
Vice Chair
Montgomery County Delegation
Deputy Majority Whip
Administrative, Executive and
Legislative Review Joint Committee
Chair
Advisory Council for
Office of Administrative Hearings



THE MARYLAND HOUSE OF DELEGATES
ANNAPOLIS, MARYLAND 21401-1991

Annapolis Office
222 Lowe House Office Building
Annapolis, Maryland 21401-1991
301-858-3001
1-800-492-7122 Ext. 3001
E-Mail carol_stoker_petzold@house.state.md.us

19th District Office
14113 Chadwick Lane
Rockville, Maryland 20853-2103
301-871-7413

CAROL S. PETZOLD

October 25, 2000

Mr. Parker Williams
Administrator
State Highway Administration
707 North Calvert Street, Room c-400
Baltimore, MD 21202

Dear Mr. Williams:

This letter is to request that Mr. William C. Harsh of 15309 Rosecroft Road in Rockville (20853) be included in the focus group that is studying the Route 97/Route 28 intersection improvements. His home phone number is 301 929-1734.

Also, would you please send the notices of the focus groups meetings to me at my district office address so I could attend and listen to their discussions.

Thank you.

Sincerely yours,

Carol S. Petzold



**Maryland Department of Transportation
State Highway Administration**

301
Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

January 18, 2001

The Honorable Douglas M. Duncan
Montgomery County Executive
101 Monroe Street, 2nd Floor
Rockville MD 20850

Dear County Executive Duncan:

The State Highway Administration (SHA) has completed initial project planning studies for the proposed improvements to the intersection of MD 28 (Norbeck Road) and MD 97 (Georgia Avenue). Proposed alternatives include: Alternative 1 (the No-Build alternative); Alternative 2 (Single Point Urban Diamond Interchange with MD 97 over MD 28); Alternative 3 (MD 28 Relocated Overpass); Alternative 4 (depress MD 97 to pass under MD 28); and Alternative 5 (at-grade intersection improvements).

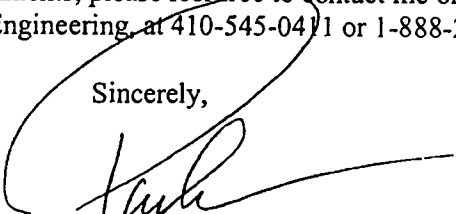
During the initial planning stage, alternatives were developed and an environmental inventory of the area was completed to identify social, economic, natural, and cultural resources. These resources were considered during the development of the alternatives.

An Alternates Public Workshop was held on September 7, 2000 at the Bauer Center to present the findings of the conceptual engineering and the preliminary natural, cultural, environmental, and socioeconomic studies. A copy of the brochure for the workshop is enclosed.

An environmental document will be prepared that will describe each alternative and its potential impacts. The document will be circulated and made available to the public. A public hearing will be held following the publication of the environmental document. In accordance with Section 8-612 of the Annotated Code of the General Public Laws of Maryland, we request your concurrence to proceed to Stage II of the Project Planning process for the MD 28/MD 97 Intersection Improvements Project.

If you have any questions or comments, please feel free to contact me or Mr. Neil J. Pedersen, our Deputy Administrator for Planning and Engineering, at 410-545-0411 or 1-888-204-4828.

Sincerely,



Parker F. Williams
Administrator

Enclosure

cc: Mr. Neil J. Pedersen, Deputy Administrator for Planning and Engineering, State Highway Administration
The Honorable John D. Porcari, Secretary, Maryland Department of Transportation

My telephone number is 410-545-0400 or 1-800-206-0770

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

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**Maryland Department of Transportation
State Highway Administration**

January 18, 2001

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

The Honorable Michael L. Subin
Chairman
Montgomery County Council
100 Maryland Avenue
Rockville MD 20850

Dear Chairman Subin:

The State Highway Administration (SHA) has completed initial project planning studies for the proposed improvements to the intersection of MD 28 (Norbeck Road) and MD 97 (Georgia Avenue). Proposed alternatives include: Alternative 1 (the No-Build alternative); Alternative 2 (Single Point Urban Diamond Interchange with MD 97 over MD 28); Alternative 3 (MD 28 Relocated Overpass); Alternative 4 (depress MD 97 to pass under MD 28); and Alternative 5 (at-grade intersection improvements).

During the initial planning stage, alternatives were developed and an environmental inventory of the area was completed to identify social, economic, natural, and cultural resources. These resources were considered during the development of the alternatives.

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If you have any questions or comments, please feel free to contact me or Mr. Neil J. Pedersen, our Deputy Administrator for Planning and Engineering, at 410-545-0411 or 1-888-204-4828.

Sincerely,

Parker F. Williams
Administrator

Enclosure

cc: Mr. Neil J. Pedersen, Deputy Administrator for Planning and Engineering, State Highway Administration

The Honorable John D. Porcari, Secretary, Maryland Department of Transportation
410-545-0400 or 1-800-206-0770

My telephone number is _____

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Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202



Maryland Department of Transportation
State Highway Administration

January 18, 2001

Parris N. Glendening
Governor

John D. Porcari
Secretary

Parker F. Williams
Administrator

The Honorable Ida G. Ruben
Senate of Maryland
100 James Senate Office Building
110 College Avenue
Annapolis MD 21401-1991

Dear Senator Ruben. *Ida*

The State Highway Administration (SHA) has completed initial project planning studies for the proposed improvements to the intersection of MD 28 (Norbeck Road) and MD 97 (Georgia Avenue). Proposed alternatives include: Alternative 1 (the No-Build alternative); Alternative 2 (Single Point Urban Diamond Interchange with MD 97 over MD 28); Alternative 3 (MD 28 Relocated Overpass); Alternative 4 (depress MD 97 to pass under MD 28); and Alternative 5 (at-grade intersection improvements).

During the initial planning stage, alternatives were developed and an environmental inventory of the area was completed to identify social, economic, natural, and cultural resources. These resources were considered during the development of the alternatives.

An Alternates Public Workshop was held on September 7, 2000 at the Bauer Center to present the findings of the conceptual engineering and the preliminary natural, cultural, environmental, and socioeconomic studies. A copy of the brochure for the workshop is enclosed.

An environmental document will be prepared that will describe each alternative and its potential impacts. The document will be circulated and made available to the public. A public hearing will be held following the publication of the environmental document. In accordance with Section 8-612 of the Annotated Code of the General Public Laws of Maryland, we request the Montgomery County Senate Delegation's concurrence to proceed to Stage II of the Project Planning process for the MD 28/ MD 97 Intersection Improvements Project.

If you have any questions or comments, please feel free to contact me or Mr. Neil J. Pedersen, our Deputy Administrator for Planning and Engineering, at 410-545-0411 or 1-888-204-4828.

Sincerely,

Parker F. Williams
Administrator

Enclosure

cc: Mr. Neil J. Pedersen, Deputy Administrator for Planning and Engineering, State Highway Administration

The Honorable John D. Porcari, Secretary, Maryland Department of Transportation
410-545-0400 or 1-800-206-0770

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202



Maryland Department of Transportation
State Highway Administration

January 18, 2001

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

The Honorable Kumar P. Barve
Maryland House of Delegates
222 Lowe House Office Building
6 Governor Bladen Boulevard
Annapolis MD 21401-1991

Dear Delegate Barve:

The State Highway Administration (SHA) has completed initial project planning studies for the proposed improvements to the intersection of MD 28 (Norbeck Road) and MD 97 (Georgia Avenue). Proposed alternatives include: Alternative 1 (the No-Build alternative); Alternative 2 (Single Point Urban Diamond Interchange with MD 97 over MD 28); Alternative 3 (MD 28 Relocated Overpass); Alternative 4 (depress MD 97 to pass under MD 28); and Alternative 5 (at-grade intersection improvements).

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If you have any questions or comments, please feel free to contact me or Mr. Neil J. Pedersen, our Deputy Administrator for Planning and Engineering, at 410-545-0411 or 1-888-204-4828.

Sincerely,

Parker F. Williams
Administrator

Enclosure
cc: Mr. Neil J. Pedersen, Deputy Administrator for Planning and Engineering, State Highway Administration
The Honorable John D. Porcari, Secretary, Maryland Department of Transportation
My telephone number is 410-545-0400 or 1-800-206-0770

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**Maryland Department of Transportation
State Highway Administration**

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

March 13, 2001

The Honorable Blair G. Ewing
President, Montgomery County Council
100 Maryland Avenue
Rockville MD 20850

Dear President Ewing:

The State Highway Administration (SHA) has completed initial project planning studies for the proposed improvements to the intersection of MD 28 (Norbeck Road) and MD 97 (Georgia Avenue). Proposed alternatives include Alternative 1 (the No-Build), Alternative 2 (Single Point Urban Diamond Interchange with MD 97 over MD 28), Alternative 3 (MD 28 Relocated Overpass), Alternative 4 (Depress MD 97 to pass under MD 28) and Alternative 5 (at-grade intersection improvements).

During the initial planning stage, alternatives were developed and an environmental inventory of the area was completed to identify social, economic, natural, and cultural resources. These resources were considered during the development of the alternatives.

An Alternates Public Workshop was held on September 7, 2000, at the Bauer Center, to present the findings of the conceptual engineering and the preliminary natural, cultural, environmental, and socio-economic studies. A copy of the brochure for the workshop is enclosed.

An environmental document will be prepared describing each alternative and its potential impacts. The document will be circulated and made available to the public. A public hearing will be held following the publication of the environmental document. In accordance with Section 8-612 of the Annotated Code of the General Public Laws of Maryland, we request the Montgomery County Council's concurrence to proceed to Stage II of the Project Planning process for the MD 28/MD 97 Intersection Improvement Project.

My telephone number is 410-545-0400 or 1-800-206-0770

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

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The Honorable Blair G. Ewing
Page Two

If you have any questions or comments, please feel free to contact me or Mr. Neil J. Pedersen, our Deputy Administrator for Planning and Engineering, who can be reached at 410-545-0411 or 1-888-204-4828.

Sincerely,



Parker F. Williams
Administrator

Enclosure

cc: Mr. Neil J. Pedersen, Deputy Administrator for Planning and Engineering, State Highway Administration



ROCKVILLE, MARYLAND

June 1, 2001

Mr. Parker F. Williams, Administrator
Maryland State Highway Administration
Post Office Box 717
Baltimore, Maryland 21203-0717

Dear Mr. Williams:

Thank you for your recent letter notifying us of the completion of the initial project planning phase for the proposed improvements to the MD 97/MD 28 intersection. Pursuant to Section 8-612 (b)(1)(iii) of the Annotated Code of the Public General Laws of Maryland, it is our determination that this study should proceed to the final project planning phase as soon as a few remaining commitments from the initial phase of project planning are completed.

We understand your staff is preparing presentation materials for Alternates 4 and 5 that have not yet been reviewed by the study's focus group. We also know that—at the request of the focus group—the project team will be forecasting and evaluating the traffic impact of other potential road projects in the vicinity in order to understand their interaction with the MD 97/MD 28 intersection. These are the tasks we believe should be completed prior to the final project planning phase. Our understanding is that this work can be completed within a couple of months, at most.

Again, thank you for keeping us informed on the progress of this project. We plan to review the final alternatives subsequent to your public hearing later this year or early next year. We look forward to the expeditious completion of this study so that a solution can be identified to improve safety and relieve congestion at this location.

Sincerely,

Douglas M. Duncan
County Executive

Blair G. Ewing, President
County Council



**Maryland Department of Transportation
State Highway Administration**

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Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

June 20, 2001

The Honorable Douglas M. Duncan
Montgomery County Executive
101 Monroe Street, 2nd Floor
Rockville MD 20850

The Honorable Blair G. Ewing
President
Montgomery County Council
100 Maryland Avenue
Rockville MD 20850

Dear County Executive Duncan and Council President Ewing:

Thank you for your recent letter regarding the MD 28/MD 97 intersection improvement study. The State Highway Administration appreciates your combined decision to allow the project to proceed to the next phase of project planning, once the remaining commitments have been satisfied from the initial project planning phase.

A focus group meeting has been scheduled for July 10. Alternatives 4 and 5 display maps, as well as computer renderings of all "build" alternatives, are being prepared for presentation to the focus group. As requested by focus group members, the project team is also conducting traffic analyses of adjacent intersections to determine how they might operate if improvements are made to the MD 28/MD 97 intersection under each of the alternatives. We plan to present the results at the July 10 meeting.

My telephone number is 410-545-0400 or 1-800-206-0770

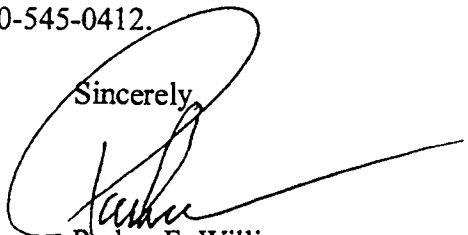
Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

The Honorable Douglas M. Duncan
The Honorable Blair G. Ewing
Page Two

Thank you again for your support of this project. We look forward to your continued input and will review the final alternatives with you prior to the location/design public hearing, which is tentatively scheduled for Spring 2002. If you have any questions or comments, please feel free to contact me or Mr. Douglas H. Simmons, our Director of Planning and Preliminary Engineering, who can be reached at 410-545-0412.

Sincerely,



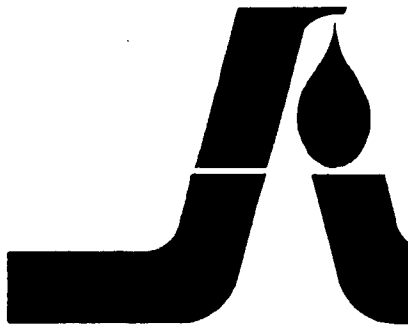
Parker F. Williams
Administrator

cc: The Honorable John D. Porcari, Secretary, Maryland Department of Transportation
Mr. Douglas H. Simmons, Director of Planning and Preliminary Engineering, State
Highway Administration

The Honorable Douglas M. Duncan
The Honorable Blair G. Ewing
Page Three

- bcc: Mr. Joe Harrison, Assistant Division Chief, State Highway Administration
Mr. Neil J. Pedersen, Deputy Administrator, Planning and Engineering, State Highway Administration
Mrs. R. Suseela Rajan, Project Manager, State Highway Administration
Ms. Nanette Schieke, State Legislative Officer, Maryland Department of Transportation
Ms. Cynthia D. Simpson, Deputy Director of Planning and Preliminary Engineering, State Highway Administration
Mr. Charlie K. Watkins, District Engineer, State Highway Administration
Mr. James Wynn, Assistant Division Chief, State Highway Administration

CITIZEN LETTERS



G. D. ARMSTRONG CO., INC.

MOTOR FUELS ★ LUBRICANTS

Ms. R. Suseela Rajan
Project Manager – Project Planning Division
Maryland State Highway Administration
P. O. Box 717
Baltimore, Maryland 21202-0717

September 27, 2000

RE: Project No. 852B11 – Intersection MD 28/97

Dear Ms. Rajan:

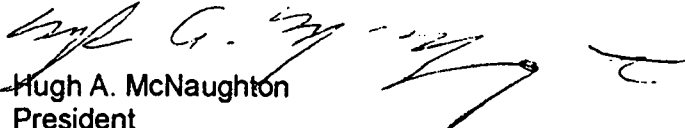
As representative for the G. D. Armstrong Co., Inc., the property owner of the service station on the corner of Maryland Routes 28 and 97, I attended your public workshop held September 7, 2000 which addressed proposed improvements to the above mentioned intersection. During that workshop I related several concerns with respect to these proposed improvements which would effect the G. D. Armstrong Co., Inc. They are as follows:

1. I was troubled by our exclusion from the Focus Group meetings that had been previously held. As a property owner that may be adversely effected, I felt our Company should have been included in those meetings.
2. Although I favor your Alternative 3 Options A or B, I was wearied by the similarity of the present proposed roadwork (your Alternative 3 Options A and B) to the proposed realignment of Route 28 that took place in the late 70's early 80's (enclosed 1A & 1B). I feel the previous plans, which have been enclosed, should be revisited. It is ironic that the past proposals, if implemented, would have resulted in less disruption to all businesses and communities in the area.
3. I was upset by your Alternative 2 (Interchange Option), which appears to further isolate our service station location. The Alternative 2 would have a serious economic impact on both the G. D. Armstrong Co., Inc. and its tenant on the property.
4. It appears that everyone (property owners, businesses, motorists, etc.) have been effected by the politics of the proposed inter-county connector roadway. A lack of political will to move forward with this issue has resulted in a Band-Aid approach to the chronic problem of cross county traffic.

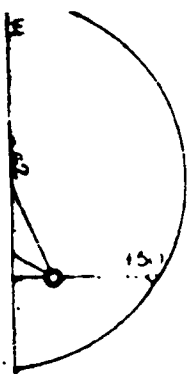
The above represents some of the concerns and opinions of the G. D. Armstrong Co., Inc. Since we were not privy to the process that has brought the proposed project to this juncture, there may be additional issues of concern to the G. D. Armstrong Co., Inc.

I hope that our Company will be included in the next Focus Group meeting so we can participate in the process, thereby being informed of the concerns of others and making others aware of our concerns.

Sincerely,


Hugh A. McNaughton
President

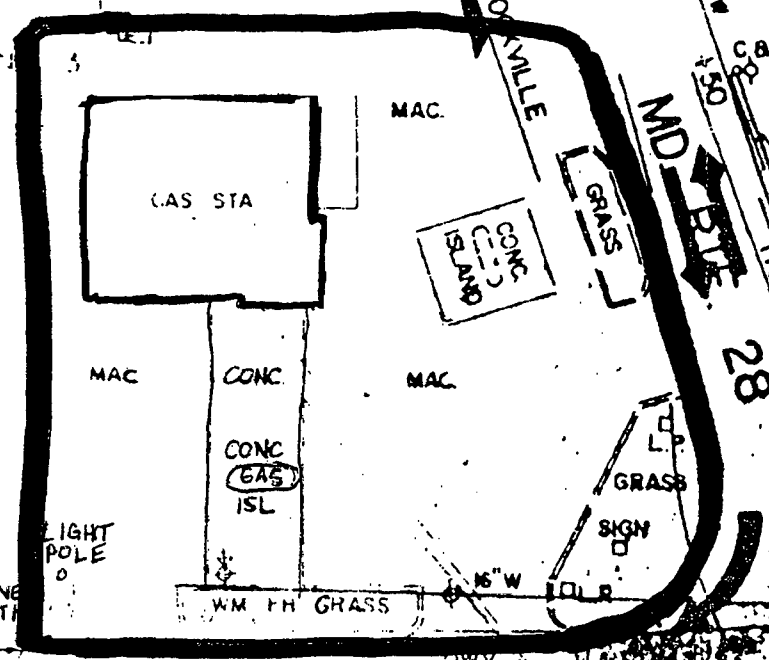
MOBIL STATION



34.60



EXISTING RIGHT OF WAY LINE.



VID-2



RTE C55

SERVICE RD.

LINE OF THROUGH HIGHWAY

L. 101

COOS

← MD 97 SB

501

502

503

504

505

506

507

508

509

MD 97 NB →



**Maryland Department of Transportation
State Highway Administration**

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

September 29, 1999

Col. H. J. Knoll, USAF – Ret.
15401 Bassett Lane, Apt. 3A
Silver Spring MD 20906

Dear Col. Knoll:

Thank you for your comments regarding the intersection of MD 28 and MD 97. State Highway Administration (SHA) is currently conducting a project planning study at this intersection.

The purpose of the study is to improve traffic operations for vehicles and pedestrians using the MD 28/MD 97 intersection, enhance mobility for bicyclists, pedestrians and transit users, and to address needed transportation improvements in a manner consistent with Maryland's Smart Growth Initiative. Currently, the project is at the initiation stage.

SHA is committed to minimizing impacts to the social, cultural, economic and natural environment. Close coordination with environmental agencies that review or issue permits for our roadway projects will be ongoing throughout the duration of the planning study. Please be assured that SHA will make every effort to minimize impacts to environment, including the strip of greenery around Leisure World that is mentioned in your letter.

If you have any questions or comments, you can contact the project manager, Ms. Sue Rajan at 410-545-8514 or at 1-800-548-5026.

Very truly yours,

Cynthia D. Simpson
Deputy Director
Office of Planning and
Preliminary Engineering

cc: Ms. Anne Elrays, Project Planning Division, State Highway Administration
Ms. Sue Rajan, Project Planning Division, State Highway Administration
Mr. Charlie Watkins, District 3, State Highway Administration

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202



Saint Patrick's Parish

4101 NORBECK ROAD
NORBECK, MARYLAND 20853
RECTORY 924-2284
CENTER 929-9314

October 6, 2000

Ms. Odessa Phillip
State Highway Administration
707 North Calvert Street, C301
Baltimore, Maryland 21202

Dear Ms. Phillip:

Thank you very much for your kind phone call and conversation of several days ago. We do, indeed, appreciate your response to the many parishioners who express concern.

I was pleased to have the opportunity to reiterate many of the concerns that we would have as a parish and the negative impact that the present plans would have upon our present situation. I would also add to the list of other items the issue of diminishing the number of parking spots available to our Church. As you can see, on Sunday at five services we use all of the available places and at some services, people from time to time have to park on the ball field. I do hope that this would be factored in when discussion is held about taking property from the present boundaries along Norbeck Road.

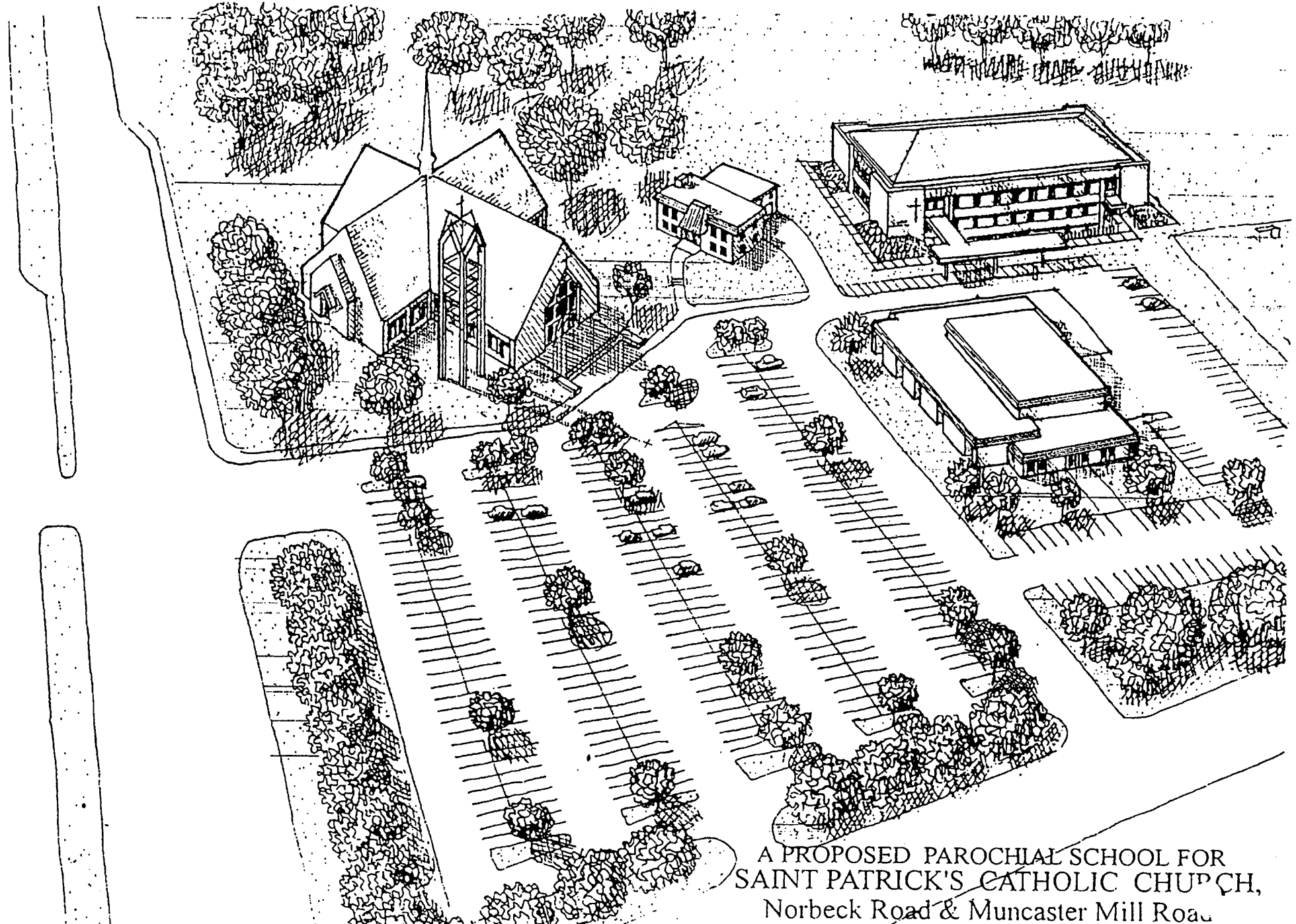
Also in the plan there seem to be no plans made directly for alterations of Muncaster Mill Road. To consider altering Norbeck Road, Route 28, without taking into account the impact on Muncaster Mill would be quite disastrous to us and to traffic flow.

Again, all the best and my sincere thanks for your kindness in conducting this inquiry.

Sincerely yours,

Rev. Msgr. Thomas A. Kane
Pastor

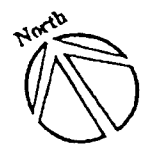
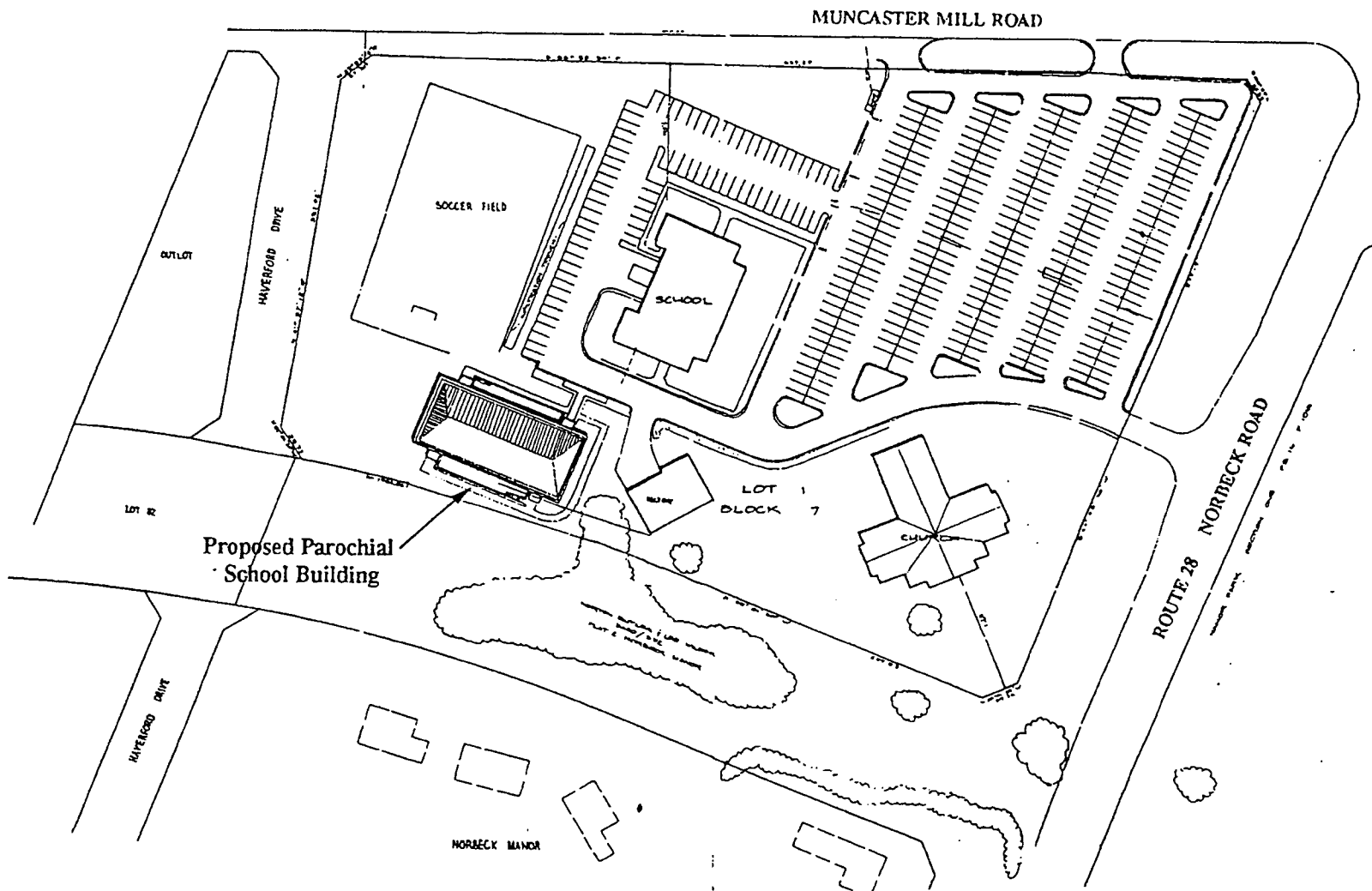
Enclosures



A PROPOSED PAROCHIAL SCHOOL FOR
SAINT PATRICK'S CATHOLIC CHURCH,
Norbeck Road & Muncaster Mill Road

VID-5

316



VID-6

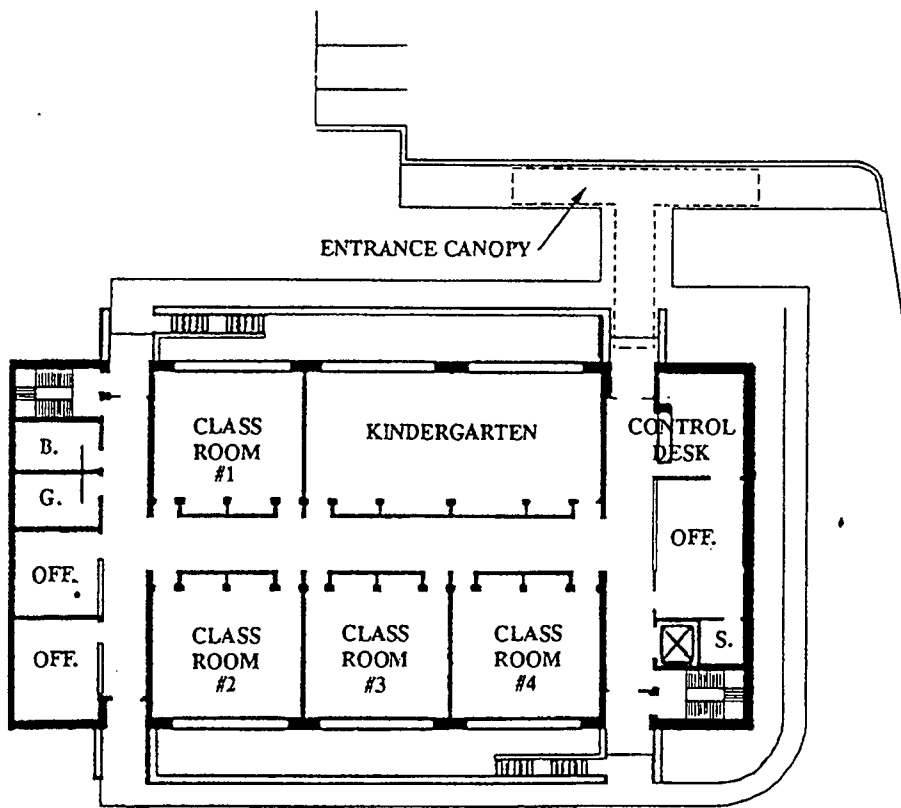
PROPOSED SITE PLAN
 Scale: 1/4" = 40' - 0"

CONCEPTUAL DESIGN STUDY FOR A
 PAROCHIAL SCHOOL FOR ST. PATRICK'S PARISH,
 OLNEY, MARYLAND

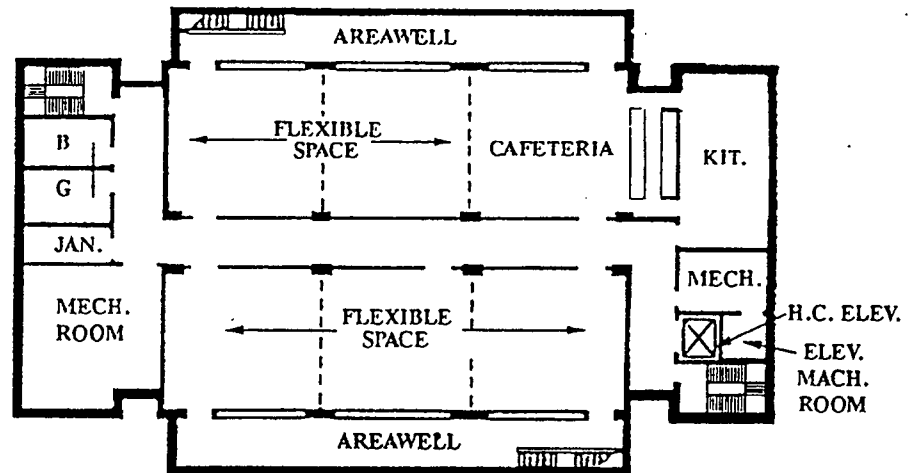
317

Graphic Scale:

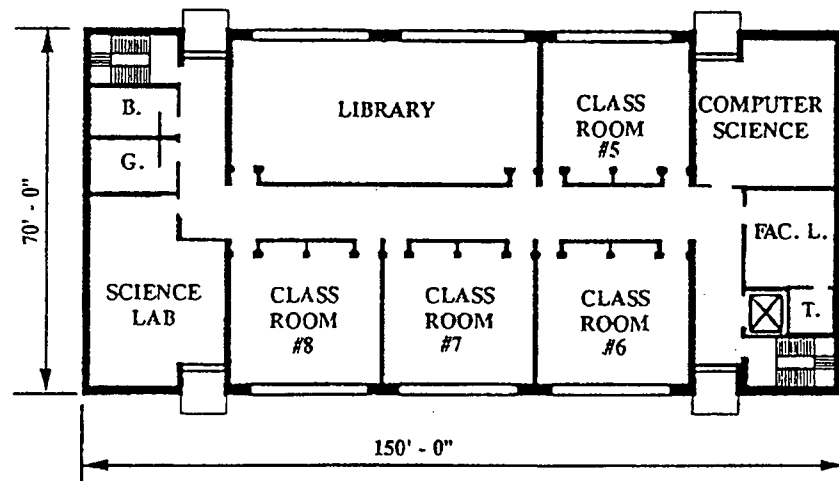




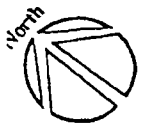
GROUND LEVEL FLOOR PLAN
Scale: 1" = 40' - 0"



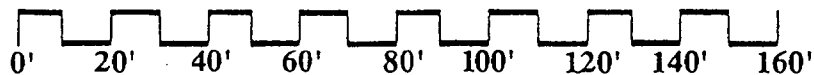
LOWER LEVEL FLOOR PLAN
Scale: 1" = 40' - 0"



UPPER LEVEL FLOOR PLAN
Scale: 1" = 40' - 0"



Graphic Scale:



CONCEPTUAL DESIGN STUDY FOR A
PAROCHIAL SCHOOL FOR ST. PATRICK'S PARISH,
OLNEY, MARYLAND
ANTHONY J. SEGRETI, AIA ARCHITECT
FEBRUARY 1, 2000 DWG. SK - 101 Rev. 03/31/00

VID-7

3/8

319

October 17, 2000

TO: GLEN SMITH

FAX: 410 209.5025

FROM: MINDY HARRIS, HOMEOWNER AT THE PRESERVE

SUBJECT: PROPOSED OVERPASS AT THE INTERSECTION OF NORBECK AND
AND GEORGIA ROADS

9 PAGES TO FOLLOW..

Glen,

Your contact point for questions on this is Mike Weiser, and he can be reached at 301.924.5532. Mike will be attending the meeting on October 19, 2000 along with at least one other homeowner.

Thank you for your willingness to represent our position at the meeting.

Sincerely,

MWHarris

Glen -

*Attached is one more
signature page!*

October 11, 2000

State Highway Administration
Office of Planning and Preliminary Engineering
Mail Stop C301
Box 717
Baltimore, MD 21203-0717

Re: MD 28/97 Norbeck Road/Georgia Avenue- Intersection Improvement Study

The following is a petition of homeowners at the Preserve at Small's Nursery in Rockville expressing their opposition to the State Highway Administration's initial alternatives to build an overpass at the intersection of Georgia Avenue and Norbeck Road. What follows are our initial comments, based on the limited information we have received to date. We look forward to significantly increased involvement with you, and review of all pertinent data to be able to provide better input into the Improvement Study.

1. Lack of Information and Representation of our community

Residents of the Preserve at Small's Nursery were not adequately informed of this study, nor properly represented in any focus group studies. This lack of information and representation is regrettable since the current proposals negatively affect our community. Several homeowners reviewed the County Master Plan for the area in May of 1999, and found no mention of this proposed project (only mention of the Inter-County Connector). As this is a new community, there is no active homeowners' association in place, however, action is now under way to form a formal organization that can properly represent the residents of the Preserve at Small's Nursery.

2. Loss of Community Entrance

The three current proposals would each result in the modification, if not the destruction, of the current Thistlebridge Drive entrance to Georgia Avenue and in the taking of the Association's common grounds. This is of great concern as it is the only access to/from our community, and as such greatly defines the character, and safe conduct of vehicular, bicycle and pedestrian traffic of the Preserve at Small's Nursery community. Unsatisfactory and impractical alternative accesses are suggested (i.e. Access through "service road"; construction of a "new" Thistlebridge road in a Forest Preservation Area and extremely close to homeowners lots) to provide access to the homeowners to Georgia Avenue. No provision to gauge the environmental impact of any benefits of any of the three proposals on the community was specifically discussed in any printed materials available to us.

3. Study has questionable assumptions

We question the assumptions made in assessing the alleged benefits of the presented alternatives. Only total traffic counts are reported; there is no study of the actual non-through traffic (turning traffic) at the intersection. Generally, the study does not take into consideration (1) the large percentage of non-through traffic at the intersection resulting in long traffic light cycles, (2) the

reduction of through lanes on east bound MD 28 and north bound MD 97 at the study intersection, and (3) the improper traffic light timing coordination on MD 28 at MD 97 and MD 115.

4. Inaccurate description of intersection

The Alternative Public Workshop handout inaccurately describes the current intersection configuration, especially with regard to the lane counts. Are these inaccuracies included in the benefit analysis?

5. Limited focus of study

A. By excluding the intersection of MD 115 and MD 28 in the study and related proposals, despite its impact on MD 28 traffic problems, any alleged benefits will be inconsequential due to the existing congestion at the MD 115 intersection that spills back to MD 97 and MD 28. The same observation applies with regard to the congestion at the MD 97 intersection at Leisure World and Bel Pre Road.

B. There is no discussion or evidence of study on the impact of the proposed alternatives on the overall Georgia Avenue corridor, or the MD 28 cross-country roadway. These alternatives appear to be an attempt to address an isolated intersection, and not an integral part of a concerted traffic control program for our area. Can you please comment on how this study is part of the overall County traffic strategy?

C. The State Highway Administration has been inconsistent in the inclusion of other proposals in their designs. It is interesting that the MD 97 bus way proposal is engineered into the designs, yet no engineering or consideration is made for any impact of a proposed ICC interchange. Nor are the projected traffic counts adjusted to reflect future reductions of intersection traffic as a result of an ICC or a bus way.

6. Omissions in Summary of Impacts and Costs

The Summary of Impacts and Costs in the Alternatives Public Workshop handout contains several omissions and inconsistencies:

A. There is no reference to the increase in traffic noise resulting from the construction of an overpass.

B. The Alt 3, Option B count of Properties Affected is incorrect, as it does not address the 135 residents impacted by the rerouting of Thistlebridge Dr.

C. There is an understatement of Recreational Properties affected, as it does not address the Common Properties (trails) of the Preserve at Small's Nursery.

Home Owners of the Preserve at Small's Nursery Petition

Re: MD 28/97 Norbeck Road/Georgia Avenue- Intersection Improvement Study

Name: Retard S. Harris

Address: 4013 Wild Grape Ct

Signature: [Signature]

Name: Nelson L. Michael

Address: 4011 Wild Grape Ct

Signature: Nelson L. Michael

Name: Donna M. Veneziano

Address: 4005 Wild Grape Ct

Signature: [Signature]

Name: Angie Norris

Address: 4015 Wild Grape Ct.

Signature: Angie Norris

Name: Anthony - Susan Bugel

Address: 4013 Wild Grape Ct.

Signature: [Signature]

Name: NANCY G. Mixson

Address: 15620 Thistlebridge Dr.

Signature: Nancy G. Mixson

Name: Susan D'Andelet

Address: 4010 Wild Grape Ct.

Signature: [Signature]

Name: Van H. Tran

Address: 4009 Wild Grape Court

Signature: Rockville, MD 20853

Name: _____

Address: _____

Signature: _____

Name: _____

Address: _____

Signature: _____

Home Owners of the Preserve at Small's Nursery Petition

Re: MD 28/97 Norbeck Road/Georgia Avenue- Intersection Improvement Study

Name: JAMES LEDER
Address: 3810 4014 Thistlebridge Way
Signature: [Handwritten Signature]

Name: Rajeev Patra
Address: # 4001 Thistlebridge Way
Signature: [Handwritten Signature]

Name: Kamal Solaimeen
Address: 4016 Thistlebridge Way
Signature: [Handwritten Signature]

Name: CHRIS MANTUA
Address: 4010 THISTLEBRIDGE WAY
Signature: [Handwritten Signature]

Name: Jack Best
Address: 4002 Wintonhurst
Signature: Jack Best

Name: James & Ann Lu
Address: 4019 Thistle Bridge Way
Signature: [Handwritten Signature]

Name: Linda Kurlo
Address: 15619 Thistlebridge Dr.
Signature: LINDA KURLO

Name: Natly + John Joaguin
Address: 4021 Thistlebridge Way
Signature: [Handwritten Signature]

Name: GARY R. Fennel
Thistle bridge Dr.
Address: 15714 Rockville, MD 20853
Signature: [Handwritten Signature]

Name: Michael Yuen
Address: 15731 Thistlebridge Dr.
Signature: Michael Yuen

Home Owners of the Preserve at Small's Nursery Petition

Re: MD 28/97 Norbeck Road/Georgia Avenue- Intersection Improvement Study

Name: MICHAEL WEISER

Address: 15718 THISTLEBRIDGE DR.

Signature: [Signature]

Name: JAMES C. WANG

Address: 15724 Thistlebridge Dr.

Signature: [Signature]

Name: Beth Marshall

Address: 15739 Thistlebridge Dr.

Signature: Beth A. Marshall

Name: Frances E. Gamble

Address: 15733 Thistlebridge Dr.

Signature: [Signature]

Name: Norman Hoston

Address: 4003 Thistlebridge way

Signature: [Signature]

Name: Nick [Signature]

Address: 4003 Thistlebridge way

Signature: [Signature]

Name: TREVEY HOSTON

Address: 4003 Thistlebridge way

Signature: Trevey Hooker

Name: Clint C. Wilson II

Address: 4000 Thistlebridge Way

Signature: [Signature]

Name: Mary J. Wilson

Address: 4008 Thistlebridge Way

Signature: Mary J. Wilson

Name: JOHN H. LITE

Address: 4008 THISTLEBRIDGE WAY

Signature: [Signature]

Home Owners of the Preserve at Small's Nursery Petition

Re: MD 28/97 Norbeck Road/Georgia Avenue- Intersection Improvement Study

Name: John + Laura Kramer
Address: 15707 Thistlebridge Dr.
Signature: [Signature]

Name: [Signature]
Address: 15700 Thistlebridge Dr.
Signature: [Signature]

Name: Bill + Judi Harman
Address: 15704 Thistlebridge Dr.
Signature: [Signature]

Name: Tom + Jill Bradley
Address: 15708 Thistlebridge
Signature: [Signature]

Name: John + Sarah Herring
Address: 15711 Thistlebridge Dr.
Signature: [Signature]

Name: Erick + Staci Lang
Address: 15717 Thistlebridge Drive
Signature: [Signature]

Name: Michael + Lynn Berman
Address: 15705 Thistlebridge Dr.
Signature: [Signature]

Name: JEAN D'SOUZA
Address: 15706 THISTLEBRIDGE DR
Signature: [Signature]

Name: Lisa + Emily Fung
Address: 15701 Thistlebridge Dr.
Signature: [Signature]

Name: _____
Address: _____
Signature: _____

Home Owners of the Preserve at Small's Nursery Petition

Re: MD 28/97 Norbeck Road/Georgia Avenue- Intersection Improvement Study

Name: Diane Mantoni

Name: Eric Marino

Address: 15728 Thistlebridge Dr

Address: 15719 Thistlebridge Dr

Signature: [Handwritten Signature]

Signature: [Handwritten Signature]

Name: Nancy Behram

Name: _____

Address: 4004 Thistlebridge Way

Address: _____

Signature: [Handwritten Signature]

Signature: _____

Name: THAVY YOUNG

Name: _____

Address: 4015 THISTLEBRIDGE WAY

Address: _____

Signature: [Handwritten Signature]

Signature: _____

Name: Rami Dalal

Name: _____

Address: 4022 Thistlebridge Way

Address: _____

Signature: [Handwritten Signature]

Signature: _____

Name: _____

Name: _____

Address: _____

Address: _____

Signature: _____

Signature: _____

Home Owners of the Preserve at Small's Nursery Petition

Re: MD 28/97 Norbeck Road/Georgia Avenue- Intersection Improvement Study

Name: JESSICA CURISMAN

Address: 15609 THISTLEBRIDGE DRIVE

Signature: Jessica Curisman

Name: Asoka M. Anandala

Address: 15613 Thistlebridge Dr.

Signature: A.M.A. Anandala

Name: HUNG N. NGUYEN

Address: 15614 THISTLEBRIDGE DR

Signature: Hung N. Nguyen

Name: Marc Tringali

Address: 15615 Thistlebridge Dr.

Signature: Marc Tringali

Name: MEROLE CONCORDIA

Address: 15607 Thistlebridge Dr.

Signature: Merole Concordia

Name: _____

Address: _____

Signature: _____

Name: Irene Lee

Address: 15611 Thistlebridge Dr.

Signature: Irene Lee

Name: _____

Address: _____

Signature: _____

Name: Beverly Rolwing

Address: 15610 Thistlebridge Dr.

Signature: Beverly C. Rolwing

Name: _____

Address: _____

Signature: _____

Home Owners of the Preserve at Small's Nursery Petition

Re: MD 28/97 Norbeck Road/Georgia Avenue- Intersection Improvement Study

Name: <u>JOHN W. WALTER JR</u>	Name: <u>Rosanna H. Guyen</u>
Address: <u>4003 WINTERSWEET CT</u>	Address: <u>4001 Wintersweet ct</u>
Signature: <u>[Handwritten Signature]</u>	Signature: <u>[Handwritten Signature]</u>

Name: <u>Kathleen Wilkins</u>	Name: _____
Address: <u>4005 Wintersweet Ct</u>	Address: _____
Signature: <u>[Handwritten Signature]</u>	Signature: _____

Name: <u>ROBERT T RHOAD</u>	Name: _____
Address: <u>4009 WINTERSWEET CT</u>	Address: _____
Signature: <u>[Handwritten Signature]</u>	Signature: _____

Name: <u>CRAIG L JONES</u>	Name: _____
Address: <u>4012 WINTERSWEET CT</u>	Address: _____
Signature: <u>[Handwritten Signature]</u>	Signature: _____

Name: <u>Ivan M Wakman</u>	Name: _____
Address: <u>4004 Wintersweet</u>	Address: _____
Signature: <u>[Handwritten Signature]</u>	Signature: _____

**MD 28/MD 97 Intersection Improvement Study
Summary of Written Comments Received by Public**

Position	# of Comments
Support No Build Alternative	7
Support Alternative 2	3
Support Alternative 3A	3
Support Alternative 3B	2
Support combination of 3A and 3B	3
Oppose No-Build	2
Oppose Alternative 2	1

Concerned about access to St. Patrick's Church	10
Concerned about parking at St. Patrick's Church	3
Concerned about pedestrian access	2
Build/Reconsider ICC	5
Impact of ICC on intersection improvements	2
Question how costs compare to ICC costs	1
Question how project relates to ICC	1
Concerned about noise impacts	4
Concerned about visual impacts	3
Concerned about air quality impacts	1
Concerned about construction impacts	1
Concerned about cumulative effects/bottlenecking	3
Reconsider depressing roadway	5
Extend Metrorail service	2
Concerned about merging traffic	2
Concerned about needing to widen MD 28	1
Concerned about loss of trees	1
Concerned about access road use/loss of use	1
Question impact of telecommuting on traffic patterns	1
Question time to construction on build alternatives	1
Questioned whether busway was incorporated into modeling	1
Need access to Park and Ride from MD 97	1
Concerned about additional churches on MD 115	1
Concerned about state of chain link fence/drainage area	1
Support grade separation	1



Maryland Department of Transportation
State Highway Administration

Parris N. Glendening
Governor
John D. Porcari
Secretary
Parker F. Williams
Administrator

February 27, 2001

Mr. Mike Weiser
15718 Thistle Bridge Drive
Rockville MD 20853

Dear Mr. Weiser:

This is in response to the petition submitted to State Highway Administration (SHA) by the homeowners of the Preserve at Small's Nursery, expressing their opposition to the alternatives proposing to build an overpass at the intersection of Georgia Avenue and Norbeck Road. We appreciate you taking time to express your views on the project.

We are also glad to note that the homeowners from the Preserve would like to review the project information and also be involved on the study. We would like to offer the following response to the various issues listed in your letter:

1. You had expressed concerns that members of your community were not adequately informed of the project or represented on the project focus group. State Highway Administration makes every effort to include all affected property owners and persons who have expressed an interest in the project in our project mailing list. The project initiation notice was published in local newspapers and was also mailed out to everyone in the project area requesting that they mail back the enclosed postcard if they wish to be included in the mailing list. Our mailing list currently includes representatives from all community associations in the area and all citizens who requested to be placed on the mailing list.

During the Spring of 2000, a focus group was formed which included representatives from local community associations. We understand that the Preserve being a new development, did not have an active homeowners association at that time. However, we notified one of the homeowners from your area of the initial focus group meeting. We are glad to note that a formal homeowners association is currently being formed. As requested at our meeting with your community on November 16, we included your name in the list of focus group members as well as Mr. John Kramer as an alternate. Both of you will be notified of all future focus group meetings.

My telephone number is _____

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Mr. Mike Weiser
Page Two

2. Your concerns regarding the impacts to the Thistle Bridge Drive entrance has been noted. We are aware that this is the only access to the community and we will certainly look at ways to minimize impacts and if possible not to relocate the entrance as shown under one of our alternatives. Please be assured that the entrance will be designed in a safe manner to accommodate pedestrians, bicyclists and motorists. SHA will also be conducting detailed environmental analysis of all alternatives selected for detailed studies.

3 In addition to the average daily traffic volumes mentioned in the Alternates Meeting brochure, we have also obtained the morning and evening peak hour volumes including turning volumes at the intersections. Additional traffic information was provided to you at our meeting with you on December 1, 2000. The study certainly takes into consideration all turning volumes and the reduction of through lanes as well as the signal timing coordination. All signals within Montgomery County are on a system managed by the county.

4 If you are referring to the figure in the Alternates Meeting brochure showing the existing lane configuration, the north leg of the intersection shows three arrows in the northbound direction. This indicates two through lanes and one receiving lane. It is true one of the arrows indicating the receiving lane is slightly misplaced. Please note that the correct lane configuration was used in our traffic analysis.

5 A. MD 115 intersection is not included as part of this study. During the next stage of detailed studies, traffic analysis will be conducted at the nearby intersections, which include MD 97 at Bel Pre Road, and at Leisure World.

B. This study was initiated to address the traffic problems at MD 28/MD 97 intersection, which was one of the failing intersections identified for improvement as a result of the Congestion Relief Study (CRS). As part of CRS, a number of intersections in Montgomery and Prince George's counties were identified for improvements as a short-term solution for congestion in these areas.

C. We show proposed improvements within the study area on our plans. In this case, Georgia Avenue Busway was shown on our plans, since it is in the Constrained Long Range Plan (CLRP). Improvements for MD 28/ MD 97 intersection would include provisions for a future busway along Georgia Avenue. The Intercounty Connector (ICC) is not in the CLRP and therefore was not shown on our plans. However, we will be coordinating our studies with the ongoing MD 28/MD198 Improvements project and the East-West Link Study, which is currently on hold.

Mr. Mike Weiser
Page Three

- 6. The summary of impacts and costs are based on our preliminary analysis.
 - A. Detailed noise analysis will be conducted during the next stage of Project Planning.
 - B. The number included in the summary for properties affected shows those that are directly impacted or those with right-of-way impacts.
 - C. Under recreational properties, areas designated as publicly owned public recreational areas were considered. The one impacted as shown in the brochure is the Golf Center property. The impacted area within the Preserve property if designated as a public recreational area, will be included in future analysis.

Following the September Public Workshop, after evaluating all comments received, we have identified the following alternatives for detailed study:

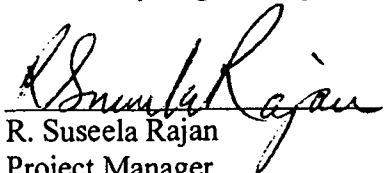
- Alternative 1 (No-build)
- Alternative 2 (Urban Diamond Interchange with MD 97 Raised to Pass Over MD 28)
- Alternative 3 (Combination of Options A and B)
- Alternative 4 (Urban Diamond Interchange with MD 97 Depressed)
- Alternative 5 (At-grade Intersection Improvements)

SHA is currently coordinating with the environmental resource agencies and requesting their concurrence on the above alternatives for detailed study. During the next phase of the study, alternatives will be developed in detail and detailed environmental analysis will be conducted. We look forward to your continuing participation in the project.

Thank you again for your comments. If you have any questions please feel free to contact the project manager, Sue Rajan at 410-545-8514 or at 1-800-548-5028.

Very truly yours,

Cynthia D. Simpson
Deputy Director
Office of Planning and
Preliminary Engineering

By: 
R. Suseela Rajan
Project Manager
Project Planning Division

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Mr. Mike Weiser
Page Four

cc: Mr. Van Funk, Environmental Manager, State Highway Administration (w/incoming)
Ms. Patricia Green, Environmental Manager, State Highway Administration
(w/incoming)
Mr. Charlie Watkins, District Engineer, State Highway Administration (w/incoming)

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Step Kaufman

LINOWES AND BLOCHER LLP

ATTORNEYS AT LAW

1010 Wayne Avenue, Tenth Floor
Silver Spring, MD 20910-5600
301.588.8580
Fax 301.495.9044
Website: www.linowes-law.com

June 19, 2001

Stephen Z. Kaufman
301.650.7056
szk@linowes-law.com

Ms. Cynthia D. Simpson, Deputy Director
Office of Planning and Preliminary Engineering
Maryland Department of Transportation
State Highway Administration
P.O. Box 717
Baltimore, MD 21203-0717

Re: Map HS42, Grid 0000, Parcel N680, Description: Par. A Golden Bear

Dear Ms. Simpson:

Reference is made to your letter dated May 31, 2001, delivered to our client, Robert Paul Hillerson, on behalf of Georgia Group LTD Partnership. As indicated in my letter to Neil J. Pedersen dated November 14, 2000, this firm represents both the land owner and the leasehold tenant of the subject property. Please direct all future correspondence to my attention at this office.

Accordingly, given the long history of this property being impacted by both the Georgia Avenue widening and the proposed east-bound ramp for the future ICC, our clients are not willing to consent to allow any SHA representatives to again enter their property. We understand that under Section 12-111(g) of the Annotated Code of Maryland, Real Property Article, the State may apply to a law or equity court for an order that entry be permitted. However, the Georgia Group LTD Partnership believes they have more than adequately previously contributed to area transportation needs as required by law. Thus, as stated in my letter to Mr. Pedersen, our clients strongly believe the subject intersection can be improved without taking more of their property. Further, they have authorized and directed this firm to take all legal steps necessary to protect them from any further taking.

Very truly yours,

LINOWES AND BLOCHER LLP

Steph Z Kaufman
Stephen Z. Kaufman

SZK:bta

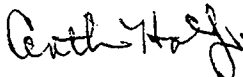
cc: Robert P. Hillerson, Esquire

Annapolis Columbia Frederick Greenbelt Silver Spring Washington, DC

We would only consider eliminating the subdivision requirements for the field, parking lot, and parkland dedication requirements if the State Highway Administration agrees to assume the responsibility to provide us with a completed soccer field and gravel lot on dedicated parkland at a mutually acceptable location. Considering the proposed schedule for the interchange project, we would entertain a memorandum of understanding for the State's provision of the recreational facilities to be delayed for one year beyond the expected delivery date by the developer.

From a procedural standpoint, the developer must initiate these potential changes to his conditions of subdivision approval through our subdivision process. It is therefore essential that you confer with the developer, as it is his rights and obligation that are at issue. If you choose to stand in the developer's shoes, you need to immediately find an acceptable replacement ballfield site to complement Alternate 3. Given that the ballfield is a condition of subdivision, I suggest that you contact Joe Davis at (301) 495- 4591 for details regarding the subdivision requirements. For ballfield location alternatives, please work with Tanya Schmieler (301) 650-4392.

Sincerely



Arthur Holmes, Jr.
Chairman

AH:TS:ss\D\Chairman Letters\Smallsnurserysha.doc

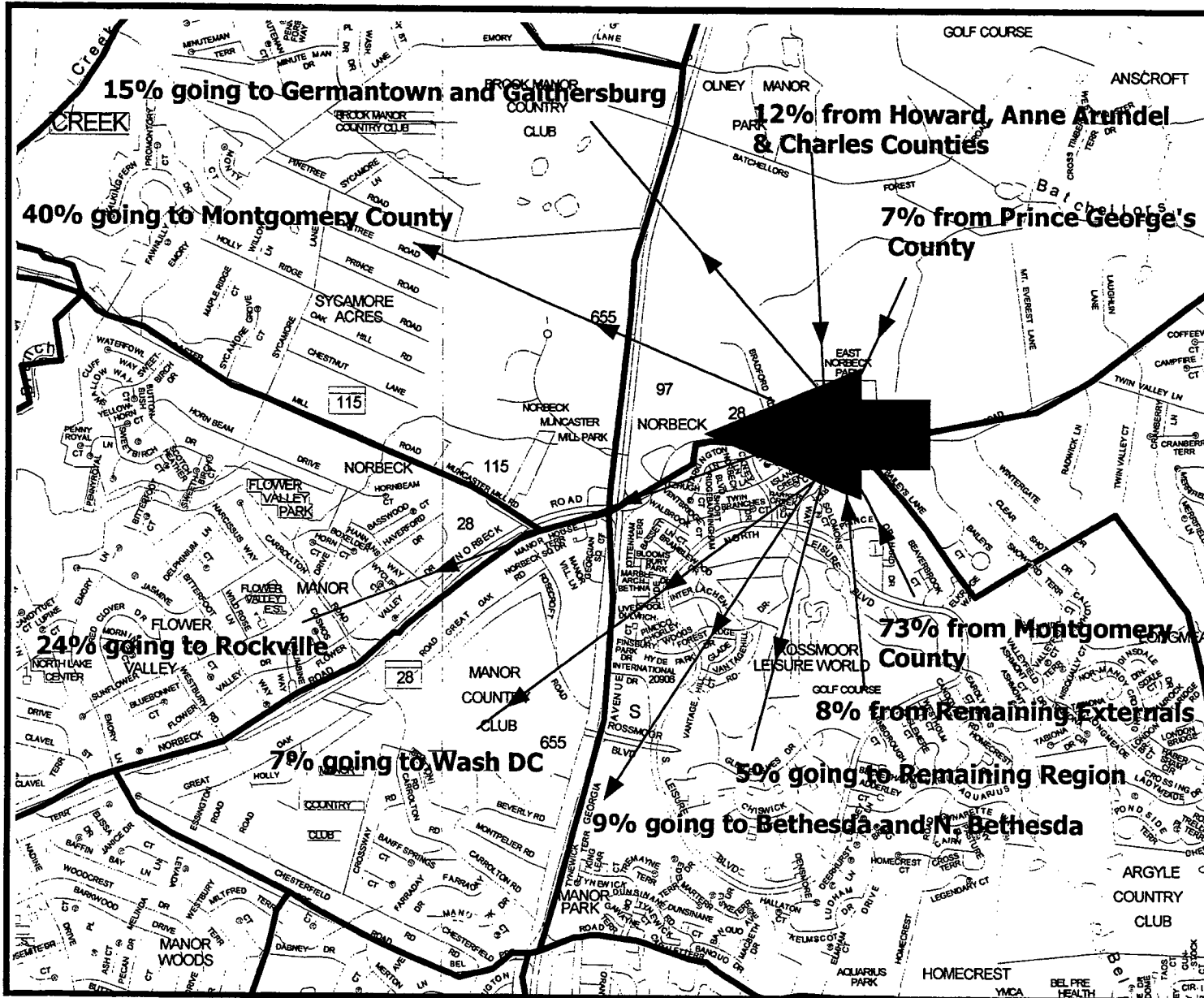
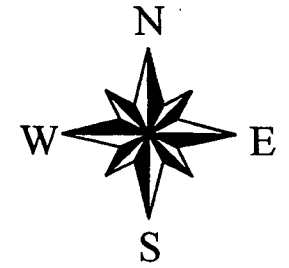
- cc: C. Loehr
- D. Cochran
- J. Davis
- J. Zyontz
- T. Schmieler

**APPENDIX A:
SELECT LINK ANALYSES RESULTS**

MD 28 @ MD 97 Study

Westbound Select Link Results

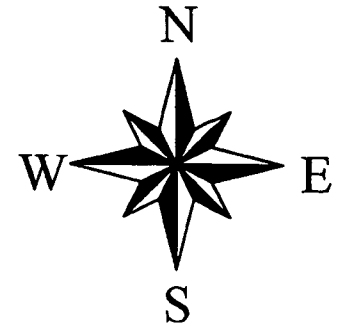
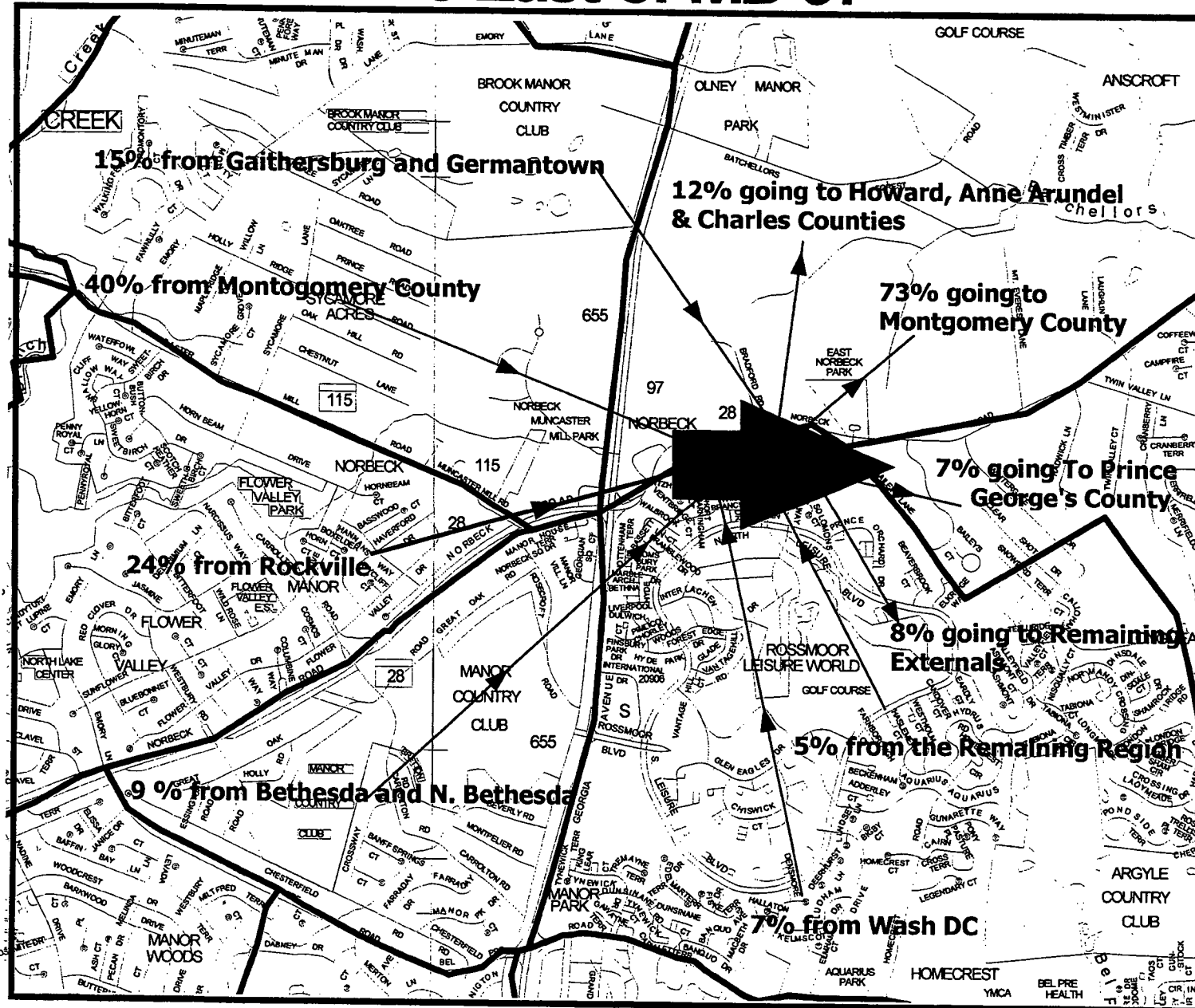
MD 28 East of MD 97



MD 28 @ MD 97 Study

Eastbound Select Link Results

MD 28 East of MD 97



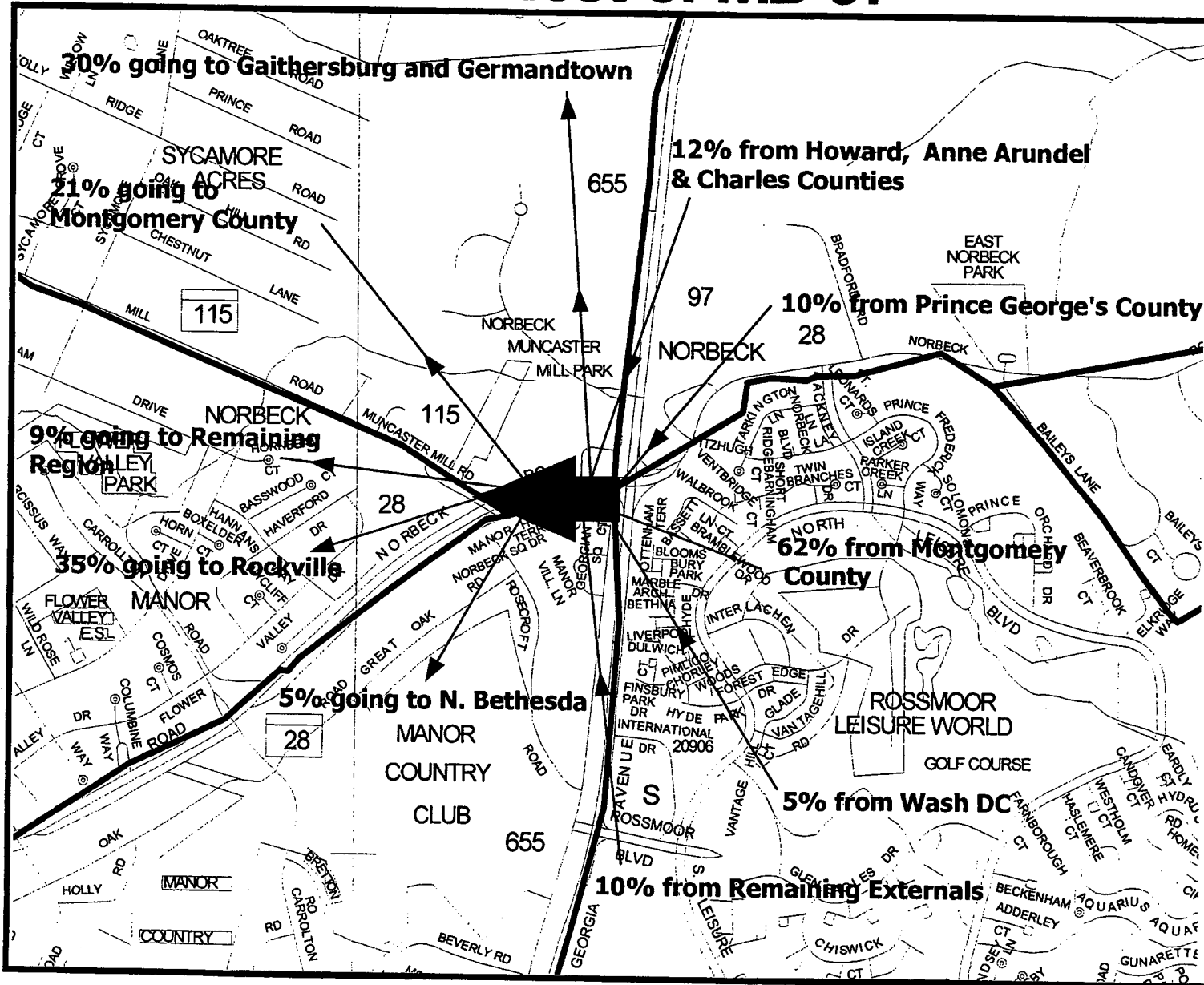
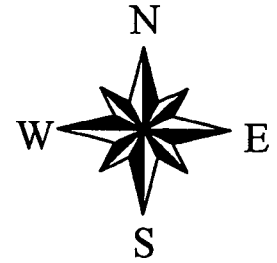
KEY:

➔ Direction/location of Select link

MD 28 @ MD 97 Study

Westbound Select Link Results

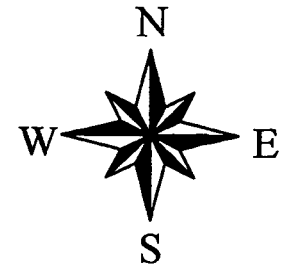
MD 28 West of MD 97



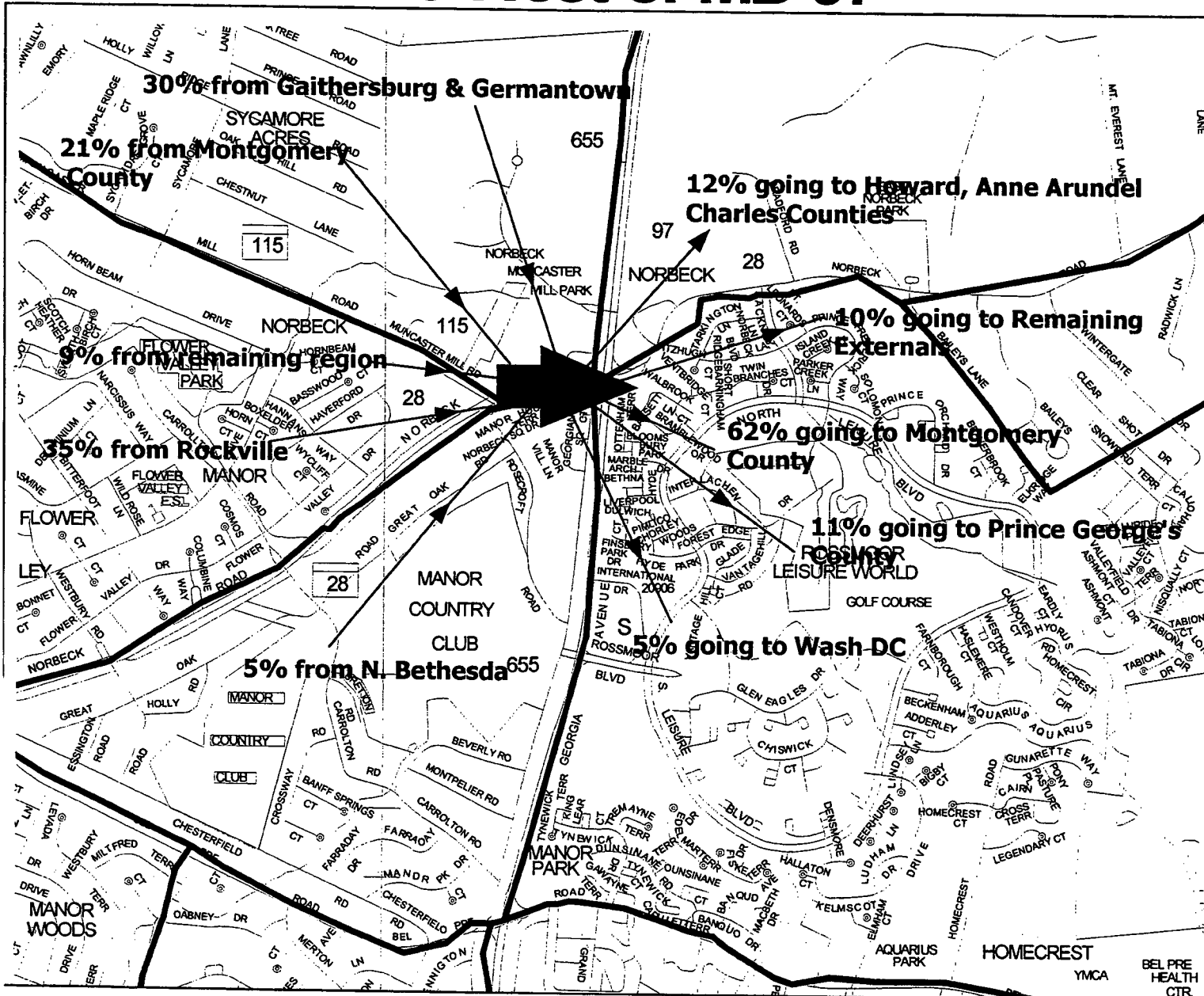
MD 28 @ MD 97 Study

Eastbound Select Link Results

MD 28 West of MD 97



KEY:
 Direction/location of Select link

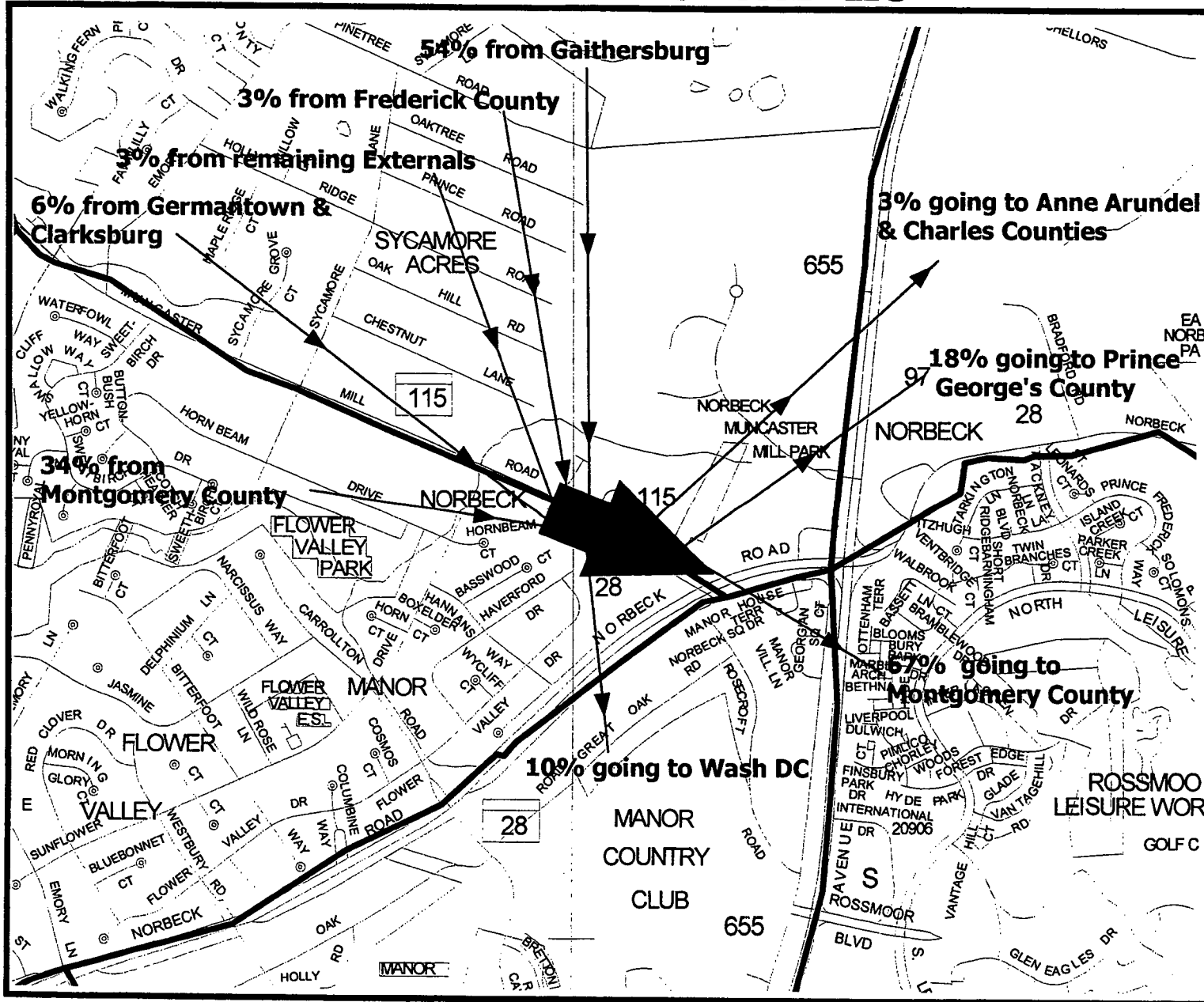
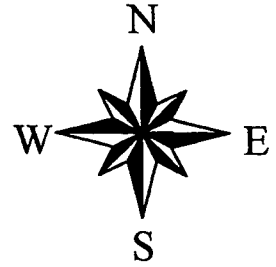


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MD 28 @ MD 97 Study

Southbound Select Link Results

MD 115 North of MD 28



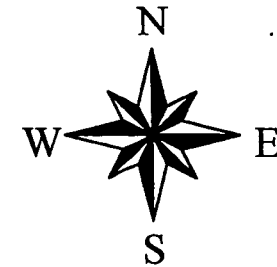
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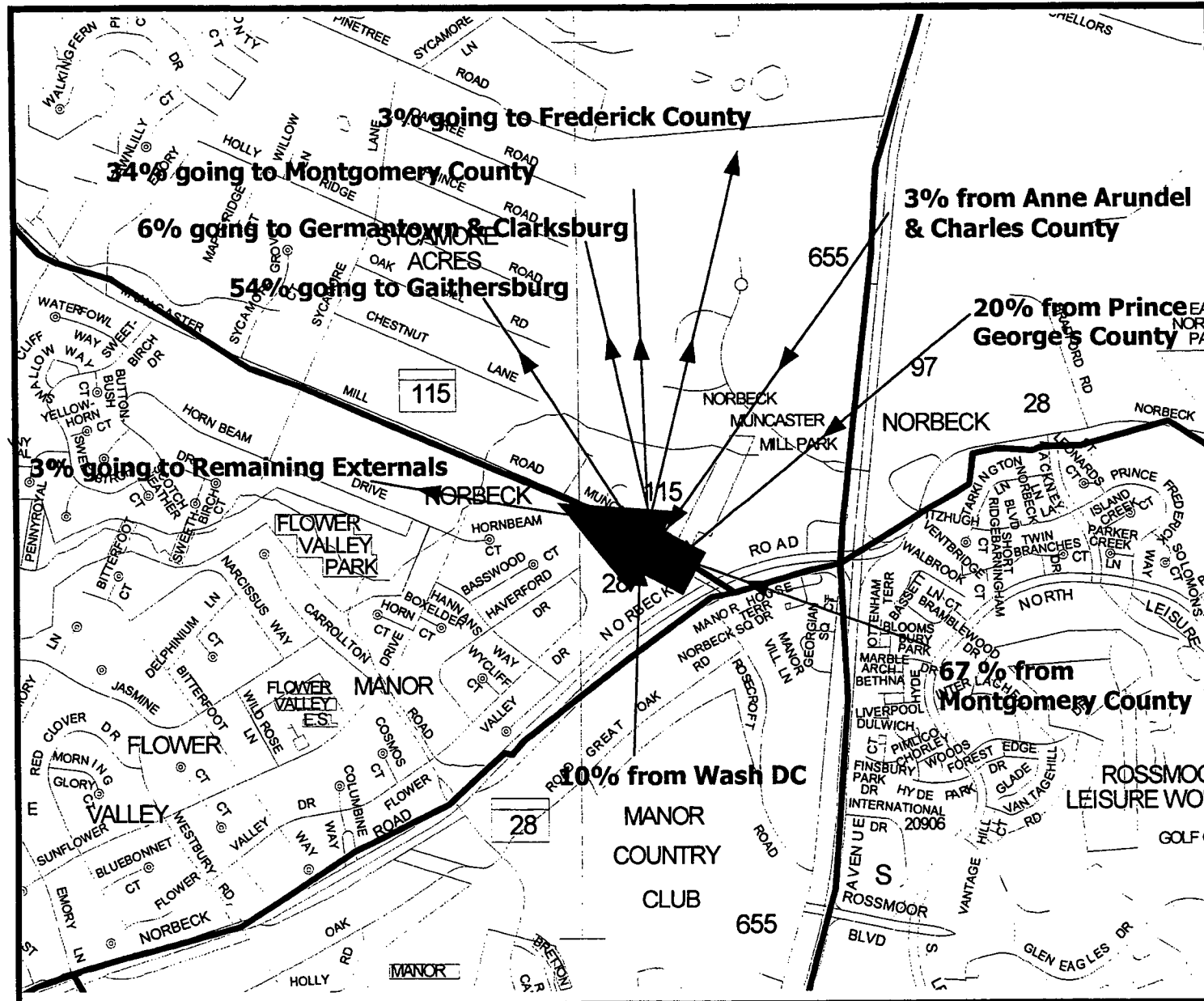
MD 28 @ MD 97 Study

Northbound Select Link Results

MD 115 North of MD 28



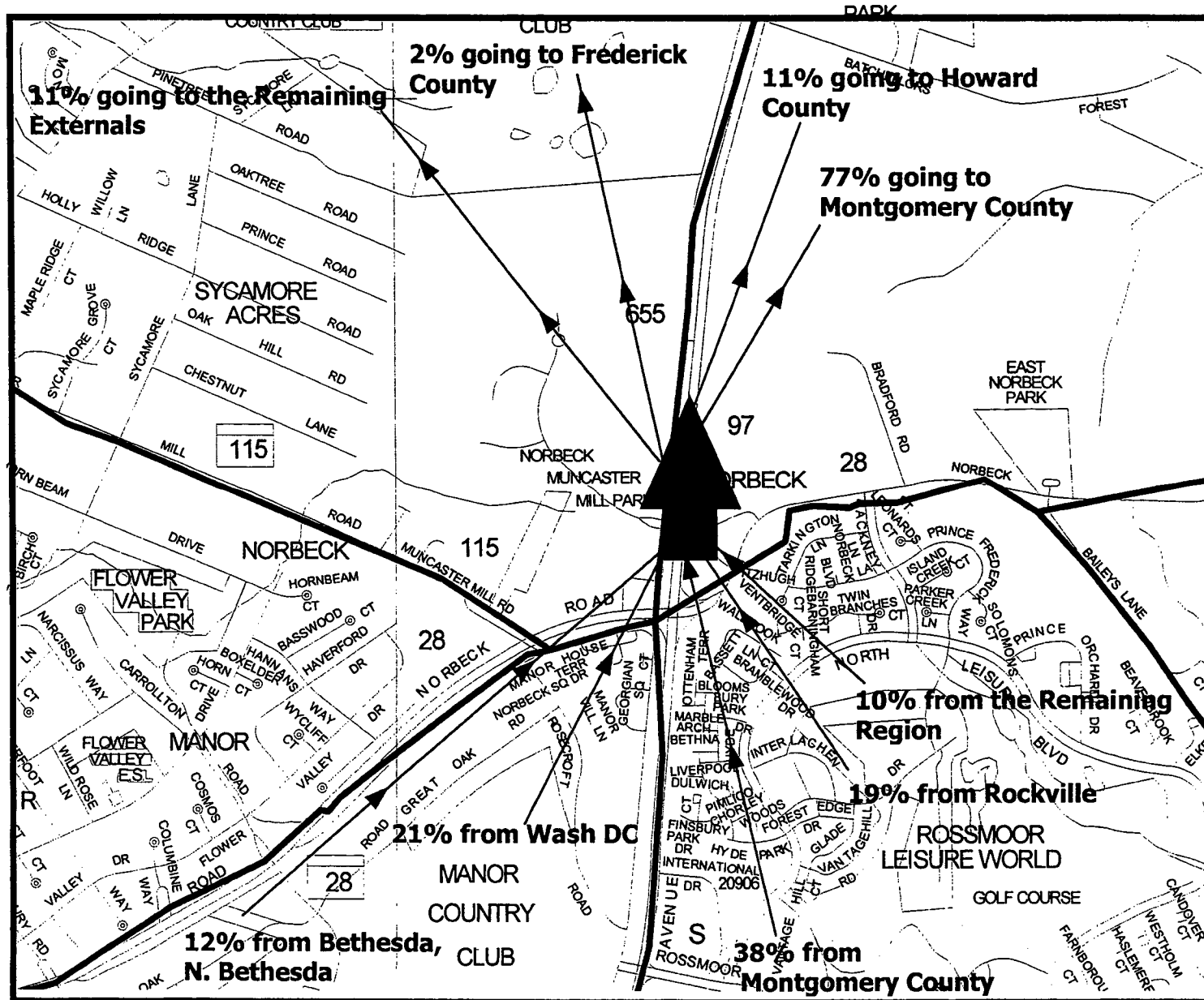
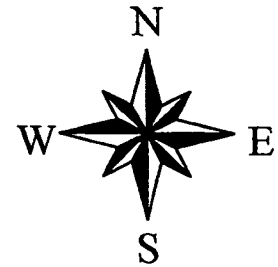
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MD 28 @ MD 97 Study

Northbound Select Link Results

MD 97 North of MD 28

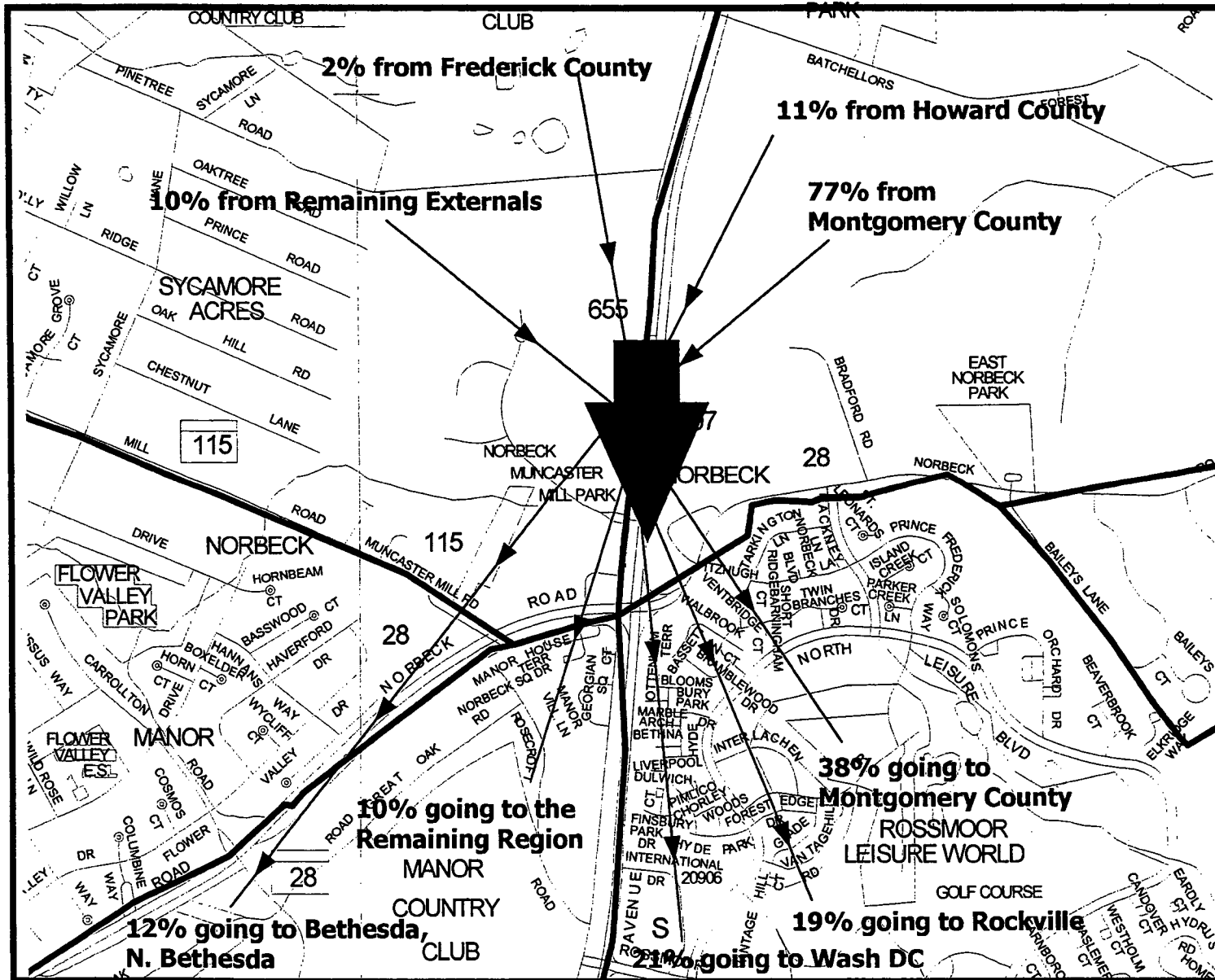
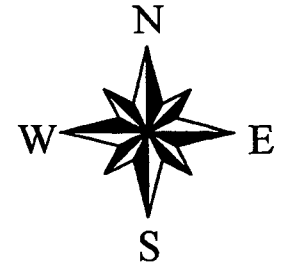


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MD 28 @ MD 97 Study

Southbound Select Link Results

MD 97 North of MD 28

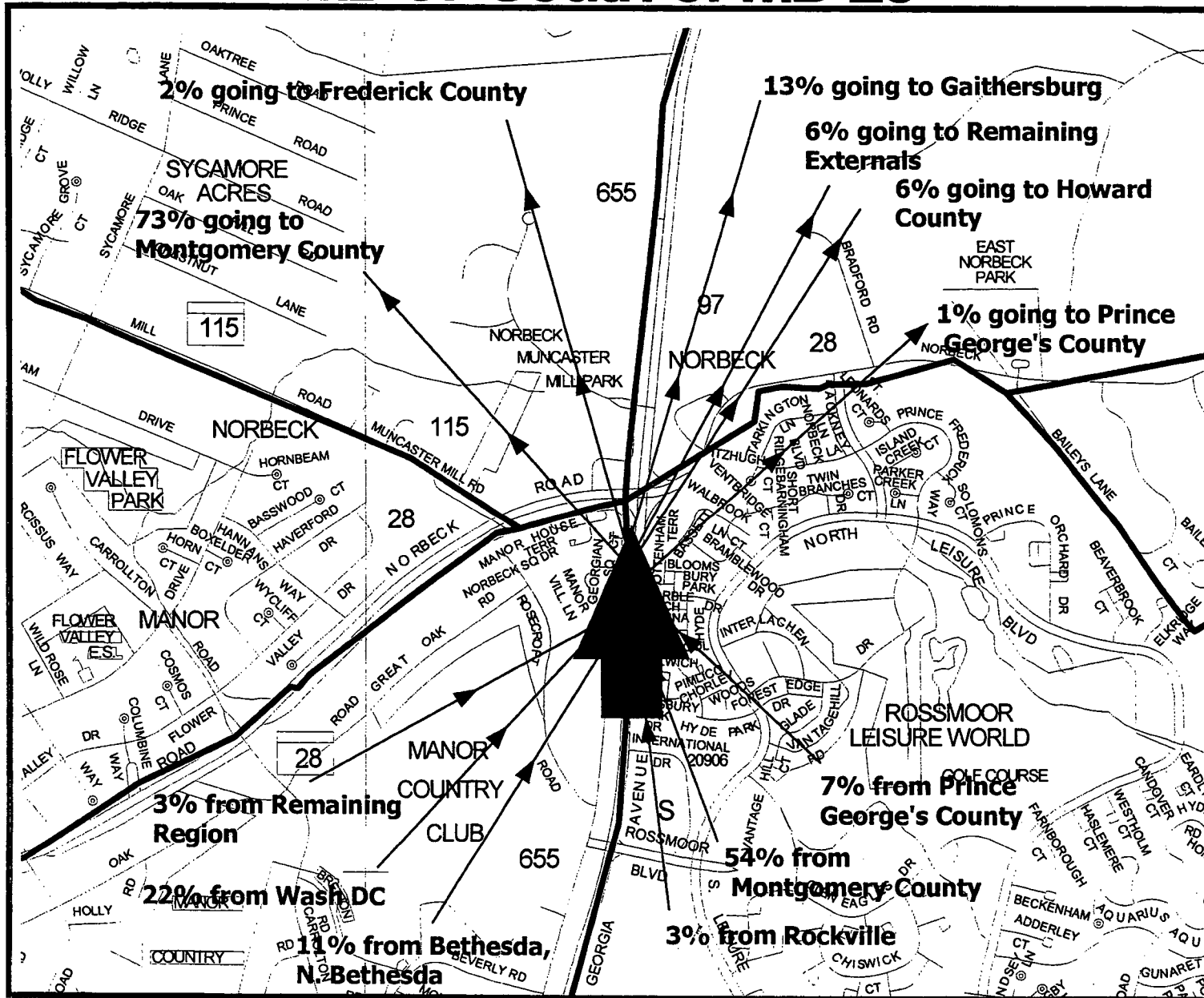
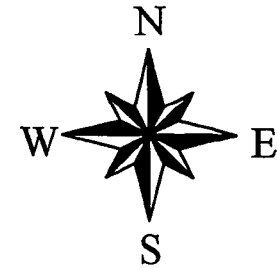


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MD 28 @ MD 97 Study

Northbound Select Link Results

MD 97 South of MD 28

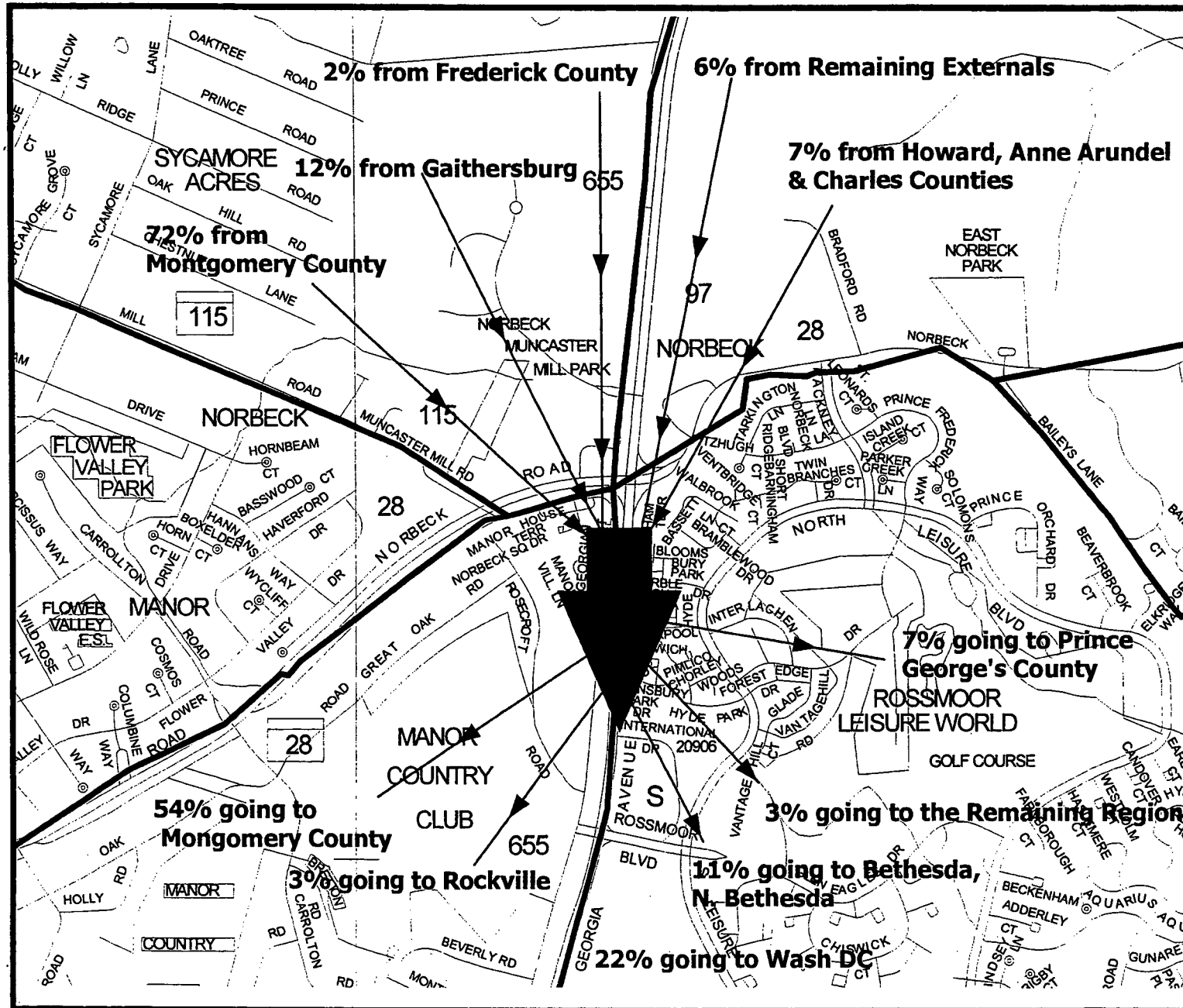
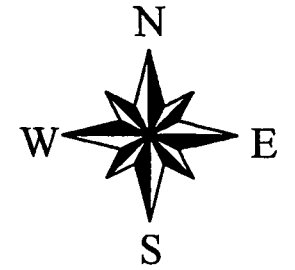


KEY:
 Direction/location of Select link

MD 28 @ MD 97 Study

Southbound Select Link Results

MD 97 South of MD 28



KEY:
 Direction/location of Select link

MD 97 Northbound North of MD 28

COMING FROM	GOING TO
21%-Washington DC	2%-frederick County
12%-Bethesda and N. Bethesda	11%-Remaining Externals
19%-Rockville	11%-Howard County
38%-Montgomery County	76%- Montgomery County
10%-Misc trips from remaining region	
100%-TOTAL	100%-TOTAL

MD 97 Southbound North of MD 28

COMING FROM	GOING TO
2%-Frederick County	21%-Washington DC
11%-Howard County	12%-Bethesda and N. Bethesda
77%-Montgomery County	19%-Rockville
10%-Misc trips from remaining region	38%-Montgomery County
	10%-Misc trips to the remaining region
100%-TOTAL	100%-TOTAL

MD 97 Northbound South of MD 28

COMING FROM	GOING TO
22%- Washington DC	2%-frederick County
11%-Bethesda and N. Bethesda	12%-Gaithersburg
3%-Rockville	6%-Remaining Externals
54%-Montgomery County	6%-Howard County
7% Prince George's County	73%-Montgomery County
3%-Misc trips from remaining region	1%- Prince George's County
100%-TOTAL	100%-TOTAL

MD 97 Southbound South of MD 28

COMING FROM	GOING TO
2%-Frederick County	22%-Washington DC
7%-Howard County, Anne Arundel and Charles Counties	11%-Bethesda and N. Bethesda
72%-Montgomery County	3%-Rockville
6%-Misc trips from remaining externals	54%-Montgomery County
	7%- Prince George's County
13% Gaithersburg	3%-Misc trips to the remaining region
100%-TOTAL	100%-TOTAL

MD 28 Westbound East of MD 97

COMING FROM	GOING TO
12%-Howard, Anne Arundel and Charles Counties	15%-Germantown, Gaithersburg, Clarksburg
7% Prince George's County	23%-Rockville
74%-Montgomery County	7%-Washington DC
7%-Misc trips from remaining externals	9%-Bethesda and N. Bethesda
	40%-Montgomery County
	5%- Remaining Region
100%-TOTAL	100%-TOTAL

MD 28 Eastbound East MD 97

COMING FROM	GOING TO
15%-Germantown, Gaithersburg,	12%-Howard, Anne Arundel and Charles Counties
24%-Rockville	7%-Prince George's County
40%-Montgomery County	73%-Montgomery County
5% Bethesda, N. Bethesda	8%-Misc trips remaining externals
7% from Washington DC	
5%-Misc trips from remaining Region	
100%-TOTAL	100%-TOTAL

MD 28 Westbound West MD 97

COMING FROM	GOING TO
12%-Howard, Anne Arundel and Charles Counties 2%-Frederick County	30%-Germantown, Gaithersburg,
11%-Prince George's County	5%-Bethesda and N. Bethesda
63%-Montgomery County	35%-Rockville
9%-Misc trips from remaining externals	21%-Montgomery County
5% Washington DC	9%-Remaining Region
100%-TOTAL	100%-TOTAL

MD 28 Eastbound West MD 97

COMING FROM	GOING TO
30%-Germantown, Gaithersburg,	12%-Howard, Anne Arundel and Charles Counties
35%-Rockville	11%-Prince George's County
21%-Montgomery County	62%-Montgomery County
9%-Misc trips from remaining Region	10%-Misc trips from remaining externals
5% Bethesda, N. Bethesda	5% Washington DC
100%-TOTAL	100%-TOTAL

MD 115 Southbound North of MD 28

COMING FROM	GOING TO
54%-Gaithersburg	12%-Washington Dc
3%-Frederick County	18%-Prince George's County
6%-Germantown and Clarksburg	3%-Anne Arundel and Charles Counties
34%-Montgomery County	67%-Montgomery County
3% remaining ext	
100%-TOTAL	100%-TOTAL

MD 115 Northbound North MD 28

COMING FROM	GOING TO
3%- Anne Arundel and Charles Counties	3%-Frederick County
20%-Prince George's County	34%-Montgomery County
67%-Montgomery County	6%-Germantown and Clarksburg
10%-Washington DC	54%-Gaithersburg
	3% Remaining Externals
100%-TOTAL	100%-TOTAL



**APPENDIX B:
TERRESTIAL AND AQUATIC SPECIES TABLES**

TABLE B-1
BIRDS OBSERVED OR POTENTIALLY OCCURRING WITHIN THE STUDY AREA

Common Name	Scientific Name	Occurrence
Great Blue Heron	<i>Ardea herodias</i>	Potential
Black Vulture	<i>Coragyps atratus</i>	Potential
Turkey Vulture	<i>Cathartes aura</i>	Observed
Canada Goose	<i>Branta canadensis</i>	Potential
Sharp-shinned Hawk	<i>Accipiter striatus</i>	Potential
Cooper's Hawk	<i>Accipiter cooperii</i>	Potential
Red-shouldered Hawk	<i>Buteo lineatus</i>	Observed
Red-tailed Hawk	<i>Buteo jamaicensis</i>	Potential
American Woodcock	<i>Scolopax minor</i>	Potential
Rock Dove	<i>Columba livia</i>	Potential
Mourning Dove	<i>Zenaida macroura</i>	Observed
Yellow-billed Cuckoo	<i>Cuculus americanus</i>	Potential
Eastern Screech-Owl	<i>Otus asio</i>	Potential
Great Horned Owl	<i>Bubo virginianus</i>	Potential
Barred Owl	<i>Strix varia</i>	Potential
Chimney Swift	<i>Chaetura pelagica</i>	Potential
Ruby-throated Hummingbird	<i>Archilochus colubris</i>	Potential
Red-bellied Woodpecker	<i>Melanerpes carolinus</i>	Observed
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>	Potential
Downy Woodpecker	<i>Picoides pubescens</i>	Observed
Hairy Woodpecker	<i>Picoides villosus</i>	Potential
Northern Flicker	<i>Colaptes auratus</i>	Observed
Eastern Wood-Pewee	<i>Contopus virens</i>	Potential
Eastern Phoebe	<i>Sayornis phoebe</i>	Potential
Great-crested Flycatcher	<i>Myiarchus crinitus</i>	Potential
White-eyed Vireo	<i>Vireo griseus</i>	Potential
Red-eyed Vireo	<i>Vireo olivaceus</i>	Potential
Blue Jay	<i>Cyanocitta cristata</i>	Observed
American Crow	<i>Corvus brachyrhynchos</i>	Observed
Fish Crow	<i>Corvus ossifragus</i>	Potential
Carolina Chickadee	<i>Poecile carolinensis</i>	Observed
Tufted Titmouse	<i>Baeolophus bicolor</i>	Observed
Red-breasted Nuthatch	<i>Sitta canadensis</i>	Potential
White-breasted Nuthatch	<i>Sitta carolinensis</i>	Potential
Brown Creeper	<i>Certhia americana</i>	Potential
Carolina Wren	<i>Thryothorus ludovicianus</i>	Observed
House Wren	<i>Troglodytes aedon</i>	Potential
Winter Wren	<i>Troglodytes troglodytes</i>	Potential
Golden-crowned Kinglet	<i>Regulus satrapa</i>	Potential
Ruby-crowned Kinglet	<i>Regulus calendula</i>	Potential
Blue-gray Gnatcatcher	<i>Poliophtila caerulea</i>	Potential
Eastern Bluebird	<i>Sialia sialis</i>	Potential
Veery	<i>Catharus fuscescens</i>	Potential
Swainson's Thrush	<i>Catharus ustulatus</i>	Potential
Hermit Thrush	<i>Catharus guttatus</i>	Potential
Wood Thrush	<i>Hylocichla mustelina</i>	Potential
American Robin	<i>Turdus migratorius</i>	Observed
European Starling	<i>Sturnus vulgaris</i>	Observed

Common Name	Scientific Name	Occurrence
Gray Catbird	<i>Dumetella carolinensis</i>	Observed
Northern Mockingbird	<i>Mimus polyglottos</i>	Observed
Brown Thrasher	<i>Toxostoma rufum</i>	Potential
Cedar Waxwing	<i>Bombycilla cedrorum</i>	Potential
Nashville Warbler	<i>Vermivora ruficapilla</i>	Potential
Northern Parula	<i>Parula americana</i>	Potential
Yellow Warbler	<i>Dendroica petechia</i>	Potential
Chestnut-sided Warbler	<i>Dendroica pensylvanica</i>	Potential
Magnolia Warbler	<i>Dendroica magnolia</i>	Potential
Black-throated Blue Warbler	<i>Dendroica caerulescens</i>	Potential
Yellow-rumped Warbler	<i>Dendroica coronata</i>	Observed
Black-throated Green Warbler	<i>Dendroica virens</i>	Potential
Pine Warbler	<i>Dendroica pinus</i>	Potential
Prairie Warbler	<i>Dendroica discolor</i>	Potential
Palm Warbler	<i>Dendroica palmarum</i>	Potential
Bay-breasted Warbler	<i>Dendroica castanea</i>	Potential
Blackpoll Warbler	<i>Dendroica striata</i>	Potential
Black-and-white Warbler	<i>Mniotilta varia</i>	Potential
American Redstart	<i>Setophaga ruticilla</i>	Potential
Ovenbird	<i>Seiurus aurocapillus</i>	Potential
Northern Waterthrush	<i>Seiurus noveboracensis</i>	Potential
Louisiana Waterthrush	<i>Seiurus motacilla</i>	Potential
Common Yellowthroat	<i>Geothlypis trichas</i>	Potential
Hooded Warbler	<i>Wilsonia citrina</i>	Potential
Canada Warbler	<i>Wilsonia canadensis</i>	Potential
Scarlet Tanager	<i>Piranga olivacea</i>	Potential
Eastern Towhee	<i>Pipilo erythrophthalmus</i>	Potential
Chipping Sparrow	<i>Spizella passerina</i>	Potential
Fox Sparrow	<i>Passerella iliaca</i>	Potential
Song Sparrow	<i>Melospiza melodia</i>	Observed
Swamp Sparrow	<i>Melospiza georgiana</i>	Potential
White-throated Sparrow	<i>Zonotrichia albicollis</i>	Observed
Dark-eyed Junco	<i>Junco hyemalis</i>	Observed
Northern Cardinal	<i>Cardinalis cardinalis</i>	Observed
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	Potential
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	Potential
Rusty Blackbird	<i>Euphagus carolinus</i>	Potential
Common Grackle	<i>Quiscalus quiscula</i>	Potential
Brown-headed Cowbird	<i>Molothrus ater</i>	Potential
Baltimore Oriole	<i>Icterus galbula</i>	Potential
Purple Finch	<i>Carpodacus purpureus</i>	Potential
House Finch	<i>Carpodacus mexicanus</i>	Observed
American Goldfinch	<i>Carduelis tristis</i>	Potential
House Sparrow	<i>Passer domesticus</i>	Observed

TABLE B-2
MAMMALS OBSERVED OR POTENTIALLY OCCURRING
WITHIN THE STUDY AREA

Common Name	Scientific Name	Occurrence
Opossum	<i>Didelphis virginiana</i>	Potential
Short-tailed Shrew	<i>Blarina carolinensis</i>	Potential
Star-nosed Mole	<i>Condylura cristata</i>	Potential
Eastern Mole	<i>Scalopus aquaticus</i>	Potential
Little Brown Bat	<i>Myotis lucifugus</i>	Potential
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	Potential
Eastern Pipistrel	<i>Pipistrellus subflavus</i>	Potential
Big Brown Bat	<i>Eptesicus fuscus</i>	Potential
Red Bat	<i>Lasiurus borealis</i>	Potential
Hoary Bat	<i>Lasiurus cinereus</i>	Potential
Raccoon	<i>Procyon lotor</i>	Observed
Striped Skunk	<i>Mephitis mephitis</i>	Potential
Red Fox	<i>Vulpes vulpes</i>	Potential
Woodchuck	<i>Marmota monax</i>	Observed
Eastern Chipmunk	<i>Tamias striatus</i>	Potential
Gray Squirrel	<i>Sciurus carolinensis</i>	Observed
Southern Flying Squirrel	<i>Glaucomys volans</i>	Potential
Beaver	<i>Castor canadensis</i>	Potential
White-footed Mouse	<i>Peromyscus leucopus</i>	Potential
Woodland Jumping Mouse	<i>Napaeozapus insignis</i>	Potential
Eastern Cottontail	<i>Sylvilagus floridanus</i>	Observed
Whitetail Deer	<i>Odocoileus virginianus</i>	Observed

TABLE B-3
AMPHIBIANS AND REPTILES OBSERVED OR POTENTIALLY OCCURRING
WITHIN THE STUDY AREA

Common Name	Scientific Name	Occurrence
American Toad	<i>Bufo americanus</i>	Potential
Fowler's Toad	<i>Bufo woodhousei</i>	Potential
Northern Cricket Frog	<i>Acris crepitans</i>	Potential
Northern Chorus Frog	<i>Pseudacris triseriata</i>	Potential
Gray Treefrog	<i>Hyla chrysocelis</i>	Potential
Spring Peeper	<i>Hyla crucifer</i>	Observed
Wood Frog	<i>Rana sylvatica</i>	Potential
Bullfrog	<i>Rana catesbyana</i>	Potential
Green Frog	<i>Rana clamitans</i>	Observed
Southern Leopard Frog	<i>Rana sphenoccephala</i>	Observed
Pickerel Frog	<i>Rana palustris</i>	Potential
Spotted Salamander	<i>Ambystoma maculata</i>	Potential
Marbled Salamander	<i>Ambystoma opacum</i>	Potential
Northern Dusky Salamander	<i>Desmognathus fuscus</i>	Potential
Two-lined Salamander	<i>Eurycea bislineata</i>	Potential
Red-backed Salamander	<i>Plethodon cinereus</i>	Potential
Common Snapping Turtle	<i>Chelydra serpentina</i>	Potential
Eastern Box Turtle	<i>Terrapene carolina</i>	Observed
Painted Turtle	<i>Chrysemys picta</i>	Potential
Broadhead Skink	<i>Eumeces laticeps</i>	Potential
Five-lined Skink	<i>Eumeces fasciatus</i>	Potential
Eastern Ribbon Snake	<i>Thamnophis sauritus</i>	Potential
Common Garter Snake	<i>Thamnophis sirtalis</i>	Potential
Smooth Earth Snake	<i>Virginia valeriae</i>	Potential
Northern Water Snake	<i>Nerodia sipedon</i>	Potential
Brown Snake	<i>Storeria dekayi</i>	Potential
Ringneck Snake	<i>Diadophis punctatus</i>	Potential
Eastern Hognose Snake	<i>Heterodon platyrhinos</i>	Potential
Milk Snake	<i>Lampropeltis triangulum</i>	Potential
Black Rat Snake	<i>Elaphe obsoleta</i>	Potential
Black Racer	<i>Coluber constrictor</i>	Potential