



R e v i s e d F I N A L

**US 301 Waldorf Area Transportation Improvements Project
Charles and Prince George's Counties, Maryland**

***Alternatives Retained for Detailed Study (ARDS)
Concurrence/Comment Package***



Federal Highway Administration



Maryland State Highway Administration

December 10, 2007



Executive Summary

Project Description: This project involves the development of transportation improvements to alleviate current and projected traffic congestion around the Waldorf, MD area. The project extends from the US 301/MD 5 interchange area at T.B. in Prince George's County to the intersection of US 301 with Washington Avenue and Turkey Hill Road north of the Town of La Plata in Charles County. Improvements are focused on three major alternatives: an Upgrade of US 301 alternative and alternatives which provide an Eastern Bypass and Western Bypass around the Waldorf Area.

Project Purpose Statement: The purpose of this project is to: improve local traffic operation along US 301 in the Waldorf area; facilitate the safe and efficient flow of through traffic and commuter traffic between the Waldorf area and the Washington D.C. metropolitan area while providing a cost-effective and environmentally sensitive multi-modal transportation system to support existing and future travel demand, land use, and development efforts that are consistent with smart growth planning policies; and promote and secure environmental stewardship.

Purpose of Package: The purpose of this package is to request Interagency Working Group (IAWG) concurrence on the Alternatives Retained for Detailed Study (ARDS) for the US 301 Waldorf Area Transportation Improvements Project, in accordance with the Maryland Streamlined Environmental and Regulatory Process for Transportation Projects (*SHA 2000*).

Preliminary Alternatives Considered: Three basic build alternatives were initially developed: upgrade existing US 301, an Eastern Bypass, and a Western Bypass. For each alternative, several options were considered, some of which were carried over from previous US 301 Waldorf area work to ensure they were given adequate consideration. New options were also developed in response to changes in land use and transportation infrastructure conditions in the Waldorf area since the previous study was placed on hold in 2001.

The following table summarizes the alternatives and options that have been considered and evaluated against the project purpose and need, as well as the conceptual natural, community and cultural impacts that would be associated with construction of those options. It includes the results of the IAWG process, whereby certain option segments or alternatives were dismissed prior to detailed study because preliminary evaluations determined that they would not be viable. The table is followed by a detailed description of each alternative, the process by which alternatives were dismissed, and a final summary.



Alternatives Retained For Detailed Study	Alternatives/Options Not Recommended for Detailed Study
Upgrade Alternatives	
Alternative 2 Modified	Alternative 1
Alternative 3	Alternative 1A
Alternative 4	Alternative 2
	Alternative 2A
Eastern Bypass Alternative	
Timothy Branch Options	
Option 4	Option 1
	Option 2
	Option 3
Mattawoman East Options	
Option 1	Option 2
Option 3	
Option 4	
Jordan Options	
Option 3	Option 1
Option 5	Option 2
	Option 4
	Option 6
Billingsley East Options	
Option 2	Option 1
Option 2A	Option 3
Option 5A	Option 4
Option 5B	Option 5
	Option 6
Kerrick Options	
Option 1	Option 2
Option 4	Option 3
	Option 5
Forest Grove Options	
Option 2	Option 1
Option 3B	Option 3A
Eastern Corridor MD 5 Options	
Option 1	
Option 2	
MD 5 East Connectors	
Option 1	
Option 2	
Western Bypass Alternative	
TB West Options	Chaddsford Options
Option 1	Option 1
Option 2	Option 2
Option 3	



Alternatives Retained For Detailed Study	Alternatives/Options Not Recommended for Detailed Study
Mattawoman West Options	
Option 1	Option 1A
Option 1B	Option 1C
	Option 2
	Option 3
	Option 4
Piney Branch West Options	
Option 1C	Option 1
	Option 1A
	Option 1B
	Option 2
Billingsley West Options	
Option 2	Option 1
	Option 3

No-Build Alternative: No improvements to transportation system or operations beyond routine maintenance and safety improvements and other minor improvements currently planned for the area. Implementation of the No-Build Alternative would not provide increased capacity or substantially reduce crash rates.

Transportation System Management (TSM)/Travel Demand Management (TDM) Alternative: Consideration of minor physical and operational improvements to the transportation network and implementation of travel demand management programs such as ride share, telecommuting, and improved access to transit services to more effectively utilize existing transportation network capacity.

Upgrade Alternatives: The US 301 Upgrade Alternatives seek to accommodate future traffic demand needs and transit operations while reducing direct and indirect access impacts to properties and business along US 301.

- **Alternative 1:** Seven grade-separated interchanges and fly-over ramp from US 301 southbound to MD 5 southbound.
- **Alternative 1A:** Identical to Alternative 1 with driveway/access consolidation along US 301.
- **Alternative 2:** Seven grade-separated interchanges, fly-over ramp from US 301 southbound to MD 5 southbound, one additional through-travel lane in each direction for the length of the project area, and driveway/access consolidation along US 301
- **Alternative 2A:** Identical to Alternative 2, except that the additional through-travel lanes would be for the exclusive use of transit vehicles.
- **Alternative 3:** Six-lane full access-control freeway from Cedarville/McKendree Road to Smallwood Drive with seven grade-separated interchanges, fly-over ramp from US 301



southbound to MD 5 southbound, one additional through-travel lane north of Cedarville/McKendree Roads and south of Smallwood Drive, and one-way service roads to provide turning movements and access to properties along US 301 within the access-controlled section from Cedarville/McKendree Roads to Smallwood Drive.

- **Alternative 4:** Identical to Alternative 3, except that additional access to properties along the US 301 corridor would be investigated from secondary roads (e.g. Western Parkway, MD 925).

Bypass Alternatives: There are two bypass alternatives – east and west. Each alternative is a combination of several option segments that cumulatively provide an effective alignment for providing transportation improvements while seeking to minimize impacts to natural, community and cultural resources. The bypass alternatives would consist of a six-lane full access-controlled facility with interchanges at the northern and southern tie-in points with US 301 and prioritized locations along the bypass alignment. For the Eastern Bypass, interchanges would be provided with MD 5 (Mattawoman-Beantown Road) and with Billingsley Road (Cross-County Connector). For the Western Bypass, interchanges would be provided with Prince George’s County’s proposed “Ring Road”, MD 228 (Berry Road), and Billingsley Road (Cross-County Connector).

- **Eastern Bypass Alternative:** From north to south, the Eastern Bypass alternative is comprised of a combination of available options. To form the Eastern Bypass, one option from each group (with the exception of the Eastern Corridor MD 5 Options) would be selected to provide a continuous north-south alignment. Selection of an Eastern Corridor MD 5 Option would eliminate the need for a Timothy Branch, Mattawoman East and Jordan option, since the Eastern Bypass alignment would tie to US 301 at a different location.

Timothy Branch Options	Mattawoman East Options	Jordan Options	Billingsley East Options	Kerrick Options	Forest Grove Options	Eastern Corridor MD 5 Options	MD 5 East Connectors
Option 1	Option 1	Option 1	Option 1	Option 1	Option 1	Option 1	Option 1
Option 2	Option 2	Option 2	Option 2	Option 2	Option 2	Option 2	Option 2
Option 3	Option 3	Option 3	Option 2A	Option 3	Option 3A		
Option 4	Option 4	Option 4	Option 3	Option 4	Option 3B		
		Option 5	Option 4	Option 5			
		Option 6	Option 5				
			Option 5A				
			Option 5B				
			Option 6				



- Western Bypass Alternative:** From north to south, the Western Bypass alternative is comprised of a combination of available options. To form the Western Bypass, one option from each group (with the exception of the TB West Options and Chaddsford Options) would be selected to provide a continuous north-south alignment. For the Western Bypass, either a TB West Option or a Chaddsford Option would be needed, but not both.

TB West Options	Chaddsford Options	Mattawoman West Options	Piney Branch West Options	Billingsley West Options
Option 1	Option 1	Option 1	Option 1	Option 1
Option 2	Option 2	Option 1A	Option 1A	Option 2
Option 3		Option 1B	Option 1B	Option 3
		Option 1C	Option 1C	
		Option 2	Option 2	
		Option 3		
		Option 4		

Options Dismissed Prior to the Alternates Public Workshop: Several segment options associated with the Eastern and Western Bypass alternatives were dismissed prior to the workshop. These options were dismissed primarily due to substantial impacts with existing or imminent development or substantial resource impacts in comparison to other viable options. Options dismissed prior to the alternates workshop are indicated below in **red strikethrough**:

Eastern Bypass Alternative

Timothy Branch Options	Mattawoman East Options	Jordan Options	Billingsley East Options	Kerrick Options	Forest Grove Options	Eastern Corridor MD 5 Options	MD 5 East Connectors
Option 1	Option 1	Option 1	Option 1	Option 1	Option 1	Option 1	Option 1
Option 2	Option 2	Option 2	Option 2	Option 2	Option 2	Option 2	Option 2
Option 3	Option 3	Option 3	Option 2A	Option 3	Option 3A		
	Option 4	Option 4	Option 3	Option 4	Option 3B		
		Option 5	Option 4	Option 5			
		Option 6	Option 5				
			Option 5A				
			Option 5B				
			Option 6				

Western Bypass Alternative

TB West Options	Chaddsford Options	Mattawoman West Options	Piney Branch West Options	Billingsley West Options
Option 1	Option 1	Option 1	Option 1	Option 1
Option 2	Option 2	Option 1A	Option 1A	Option 2
Option 3		Option 1B	Option 1B	Option 3
		Option 1C	Option 1C	
		Option 2	Option 2	
		Option 3		
		Option 4		

Alternatives Presented at the Alternates Public Workshop: Each of the upgrade alternatives (Alternatives 1, 1A, 2, 2A, 3 and 4) and bypass alternative options for both the Eastern and Western Bypass Alternatives that were not previously dismissed were



presented at the Alternates Public Workshop. Additionally, the No-Build and TSM/TDM alternatives were presented.

Additional Preliminary Alternatives Developed following the Alternates Public Workshop: Following the workshops, an additional upgrade alternative and an additional Eastern Bypass Timothy Branch Option were developed in response to additional traffic analysis efforts and agency concerns.

- Upgrade Alternative 2 Modified:** This upgrade alternative is a variation of Alternative 2 which uses the proposed grade-separated interchanges and flyover ramp and eliminates signalized at-grade intersections between the proposed interchanges to effectively eliminate at-grade left turns between Cedarville/McKendree Road and Smallwood Drive. No additional through-travel lanes would be constructed. Access to roadside properties would be provided through use of the existing continuous right-turn auxiliary lane, with all left turn movements across US 301 accommodated at the proposed grade-separated interchanges.
- Timothy Branch Option 4:** This eastern bypass alternative segment option was developed as a combination of Timothy Branch Options 2 and 3, to provide an option which provided a perpendicular crossing of Timothy Branch and avoided use of the existing US 301 roadway.

Alternatives Not Recommended for Detailed Study: The following alternatives and options in ~~blue-strikeout~~ are not recommended to be carried forward for detailed Stage II studies

No-Build Alternative

~~TSM/TDM Alternative~~ (Note: While not recommended for detailed study as a stand-alone alternative, TSM/TDM strategies will be incorporated in the development of all of the build alternatives (both upgrade and bypass alternatives)).

Upgrade Alternatives

Alternative 1	Alternative 1A	Alternative 2	Alternative 2A	Alternative 2 Modified	Alternative 3	Alternative 4
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Eastern Bypass Alternative

Timothy Branch Options	Mattawoman East Options	Jordan Options	Billingsley East Options	Kerrick Options	Forest Grove Options	Eastern Corridor MD 5 Options	MD 5 East Connectors
Option 1	Option 1	Option 1	Option 1	Option 1	Option 1	Option 1	Option 1
Option 2	Option 2	Option 2	Option 2	Option 2	Option 2	Option 2	Option 2
Option 3	Option 3	Option 3	Option 2A	Option 3	Option 3A		
Option 4	Option 4	Option 4	Option 3	Option 4	Option 3B		
		Option 5	Option 4	Option 5			
		Option 6	Option 5				
			Option 5A				
			Option 5B				
			Option 6				



Western Bypass Alternative

TB West Options	Chaddsford Options	Mattawoman West Options	Piney Branch West Options	Billingsley West Options
Option 1	Option-1	Option 1	Option-1	Option-1
Option 2	Option-2	Option-1A	Option-1A	Option 2
Option 3		Option 1B	Option-1B	Option-3
		Option-1C	Option 1C	
		Option-2	Option-2	
		Option-3		
		Option-4		

Alternatives Retained for Detailed Study: The following alternatives and segment options are proposed to be retained for detailed Stage II studies:

- No-Build Alternative
- Upgrade Alternative 2 Modified
- Upgrade Alternative 3
- Upgrade Alternative 4
- Eastern Bypass Alternative with the following segment options:
 - Timothy Branch Option 4
 - Mattawoman East Options 1, 3 and 4
 - Eastern Corridor MD 5 Options 1 and 2 and MD 5 East Connectors 1 and 2
 - Jordan Options 3 and 5
 - Billingsley East Options 2, 2A, 5A and 5B
 - Kerrick Options 1 and 4
 - Forest Grove Options 2 and 3B
- Western Bypass Alternative with the following segment options:
 - TB West Options 1, 2 and 3
 - Mattawoman West Options 1 and 1B
 - Piney Branch West Option 1C
 - Billingsley West Option 2



ALTERNATIVES RETAINED FOR DETAILED STUDY

Project Name & Limits: US 301 Waldorf Area Transportation Improvements Project

From the US 301/MD 5 interchange area at T.B. in Prince George's County to the intersection of US 301 with Washington Avenue and Turkey Hill Road north of the Town of La Plata in Charles County

Having reviewed the attached Alternatives Retained for Detailed Study concurrence/comment package and the summary presented above, the following agency (by signing this document):

Federal Highway Administration National Marine Fisheries Service
 Environmental Protection Agency MD Dept of the Environment
 US Army Corps of Engineers MD Dept of Natural Resources
 US Fish & Wildlife Service

Concurs (without comments) **Concurs (w/ minor comments)** **Does Not Concur**

Comments / Reasons for Non-Concurrence:

Note: Do not provide "conditional" concurrence. You should either concur with the information as provided (without comments or with minor comments) or not concur until revisions are made or additional information is provided.

MD Historical Trust MD Department of Planning Charles County
 Prince George's County Tri-County Council of S. MD MNCPPC

Provides Comments (below or attached) **Has No Comments**

Comments:

Additional Information Needed:

Signature: _____ Date: _____



US 301 Waldorf Area Transportation Improvements Project Charles and Prince George's Counties, Maryland

Alternatives Retained for Detailed Study (ARDS) Concurrence/Comment Package

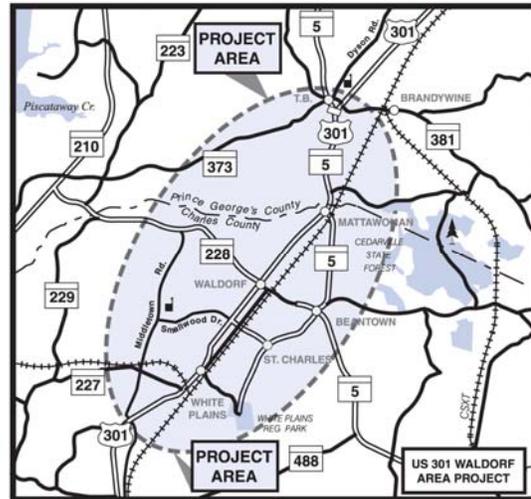
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I. Introduction

The US 301 Waldorf Area Transportation Improvements Project is a proposed multi-modal highway improvement to improve mobility in the greater Waldorf area, which includes lands in Charles and Prince George's counties of southern Maryland. The project extends from the US 301/MD 5 interchange area at T.B. in Prince George's County to the intersection of US 301 with Washington Avenue and Turkey Hill Road north of La Plata in Charles County.

US 301 is a six-lane facility with a grass median between the US 301/MD 5 interchange and Mattawoman-Beantown Road. There is a fourth northbound lane from the Cedarville/McKendree intersection south to the intersection with Mattawoman-Beantown Road. There are also three additional southbound lanes that turn left onto Mattawoman-Beantown Road. From this point south to Billingsley Road, there are three through lanes and an auxiliary lane in both directions. South of Billingsley, there are two through lanes and an auxiliary lane. There is a grass median between north and south lanes from the intersection of Mattawoman-Beantown Road to the southern terminus of the project. At several of the key intersections in the Waldorf Area, including Billingsley Road and Acton Lane, there are a total of 10 travel lanes - 2 left turn lanes and 3 through lanes— plus an auxiliary lane in both directions.



A. Project History

As one of the most important roadways in southern Maryland, the US 301 corridor is at the forefront of current and projected growth in the region. Citizens and elected officials have long realized the need for transportation mobility improvements in response to escalating residential and commercial development and travel demand in the region.

In 1993, an effort to address transportation and land use issues began with the creation of the US 301 Transportation Study Task Force. This 76-member group was comprised of civic leaders, environmental advocates, business representatives and elected officials. The Task Force spent three years studying the relationships among transportation, environmental resource, land use and economic development issues and recommended further study of a variety of highway and transit alternatives, land use management options, and other associated initiatives within the Waldorf region.

In response to the work of the US 301 Transportation Study Task Force, the Maryland State Highway Administration (SHA) and the Federal Highway Administration (FHWA) began to formally develop transportation improvement strategies for US 301 along two large corridors: the Northern Corridor from US 50 to the US 301/MD interchange at T.B.; and the Southern



Corridor along US 301 from the US 301/MD 5 interchange at T.B. to the Governor Nice Bridge over the Potomac and along MD 5 to the Capital Beltway (I-495).

Initial project development for the Northern Corridor was completed with a Record of Decision on the Tier I Northern Corridor Environmental Impact Statement (EIS) in 2001. Subsequently, a number of smaller “breakout” project have been developed to implement needed improvements along the Northern Corridor.

Following completion of the Northern Corridor Tier I EIS, work began on the Southern Corridor which was studied as several sub-corridors based on purpose and needs established by the Task Force. However, work on the Southern Corridor improvements project was placed on hold in 2001 prior to the completion of project development and, therefore, no preferred transportation alternatives were identified and no formal recommendations were promoted by the FHWA or the SHA.

The FHWA and the SHA has reinitiated development of transportation solutions in the US 301 Southern Corridor by beginning two distinct transportation development projects – the MD 5 Corridor Transportation Study and the US 301 Waldorf Area Transportation Improvements Project.

In January of 2006, SHA initiated engineering and environmental analysis efforts for the US 301 Waldorf Area Transportation Improvements Project with the convening of an Interagency Work Group (IAWG) kickoff workshop in Waldorf, MD.

B. Project Purpose

The purpose of the US 301 Waldorf Area Transportation Improvements Project is to: improve local traffic operation along US 301 in the Waldorf area; facilitate the safe and efficient flow of through traffic and commuter traffic between the Waldorf area and the Washington metropolitan area while providing a cost-effective and environmentally sensitive multi-modal transportation system to support existing and future travel demand, land use, and development efforts that are consistent with smart growth planning policies; and promote and secure environmental stewardship.

C. Project Need

This project arose from the need to reduce current and future transportation problems caused by congestion and travel delays along US 301, by improving mobility, system levels of service and safety.

1. Mobility/Current and Future Travel Demand and Congestion

The US 301 corridor through the Waldorf area serves a variety of traffic types that can compete and conflict with one another. In this area, US 301 serves as:

- a major commuter route to the Washington D.C. and Baltimore metropolitan regions,
- a “main thoroughfare” in Waldorf accommodating local and regional commercial shopping and businesses,



- one of only a few major gateways to and from the peninsula of the southern Maryland region, and
- a regional traffic thoroughfare serving both tourist and commercial through traffic.

The needs and expectations of local traffic can differ from those of interregional and interstate through-travelers and can lead to conflicts. There is a need to manage the mix of traffic types currently utilizing US 301.

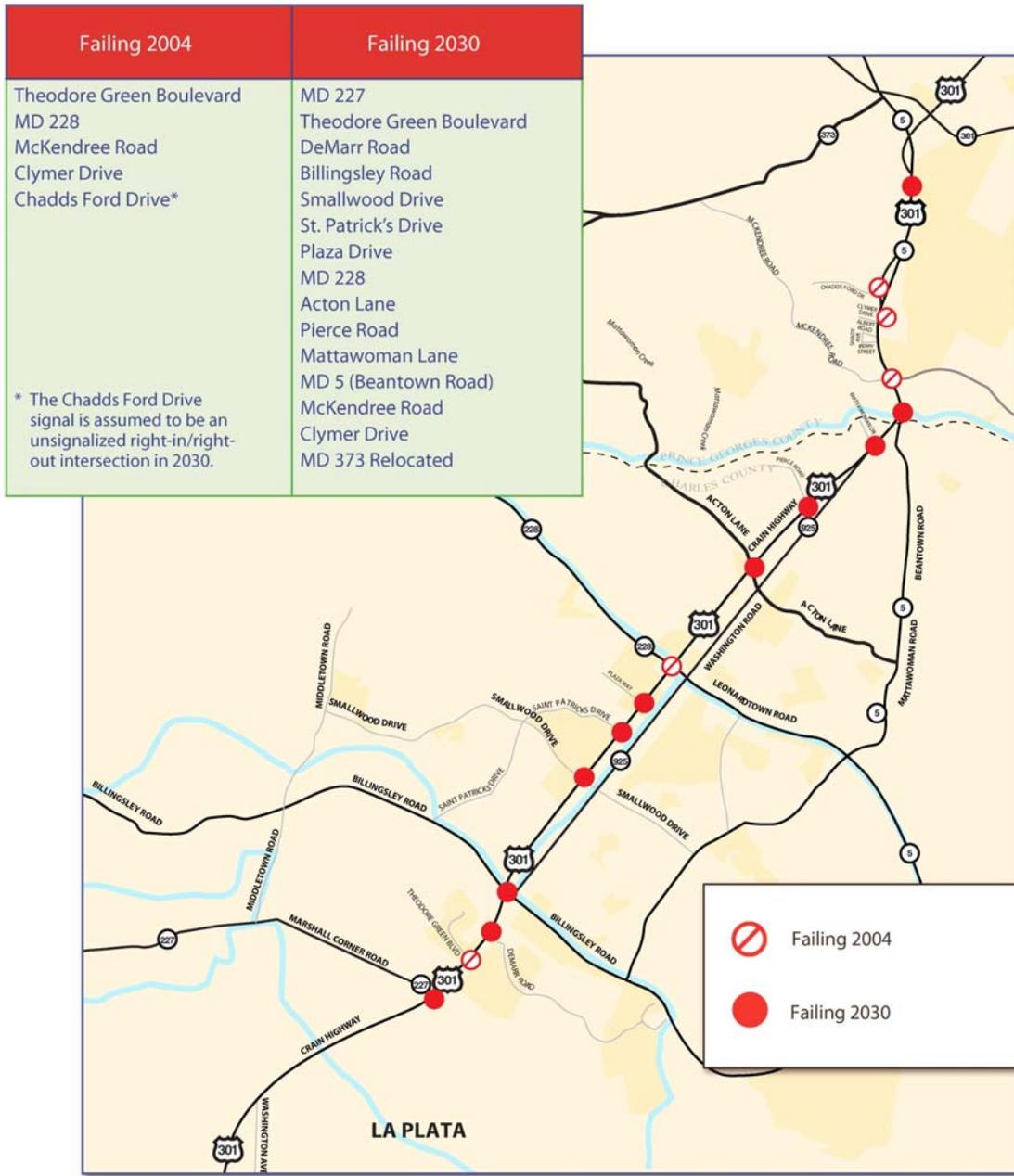
The area surrounding US 301 in the Waldorf area has experienced considerable residential, commercial, and employment growth over the past 30 years. The heavy peak period traffic volumes, delays and congestion are not confined to US 301, but also occur on the many cross roads as they intersect with US 301. There are heavy local east-west movements within Waldorf, and all side street junctions with US 301 in Waldorf are at-grade crossings, with many controlled by traffic signals. Therefore, traffic in Waldorf must cross US 301 utilizing at-grade intersections to travel east-west across the area. High traffic volumes, delays, and congestion are not confined to weekday peak periods. During weekend traffic peak periods, especially during the summer months, tourist traffic combined with the commercial traffic in the corridor leads to heavy mid-day traffic volumes and congestion.

Average Daily Traffic Volumes

Location	2004 ADT	2030 ADT	% Increase	# of lanes at location
US 301 North of Turkey Hill Road/Washington Avenue	42,700	61,800	45%	4
US 301 North of MD 227	46,500	69,900	50%	4
US 301 South of Billingsley Road	48,600	70,400	45%	4
US 301 South of MD 228	52,100	71,000	36%	6
US 301 North of MD 228	59,300	69,300	17%	7
MD 228 West of US 301	43,700	47,600	9%	4
MD 5 Business East of US 301	36,700	41,500	13%	4
MD 5 Relocated East of US 301	26,600	38,200	44%	4
US 301 North of Cedarville Road	83,500	109,000	31%	6
MD 5 North of T.B.	56,600	79,200	40%	4
US 301 North of T.B.	25,000	35,600	42%	4

The existing pattern of growth and development centered along US 301 has greatly contributed to the increased travel demand and congestion on US 301 through the Waldorf area. Weekday peak period delays and congestion have become particularly prevalent at some signalized intersections, with seven intersections currently operating at or over design capacity during one or both peak periods. Vehicular congestion and delays are expected to worsen with the continued growth projected in the Waldorf area and the southern Maryland region. The number of intersections along US 301 through the Waldorf area projected to operate at or over design capacity during one or both weekday peak periods is expected to more than double to fifteen by 2030.

Failing Signalized Intersections in the Waldorf Area



The number of failing signalized intersections in the Waldorf area is expected to increase from five in 2004 to fifteen by 2030. This will result in increased delays to traffic on US 301 and on cross streets. A signalized intersection fails when traffic volumes traveling through the intersection exceed the designed capacity of the intersection.



Many commercial businesses have access directly onto US 301 resulting in numerous driveways/curb cuts on the highway, especially through the central portion of the corridor from Billingsley Road to Mattawoman-Beantown Road (MD 5). There are also numerous breaks in the median to allow left and/or U-turns at intersections and at mid-block locations. There is a need to better manage access controls along US 301 to prevent additional mobility friction and crash potential caused by the mixing of heavy mainline through traffic volumes with turning and cross traffic accessing the many driveways and cross streets on the highway.

The Town of La Plata, although not within the project limits, was identified in the 1993-1996 US 301 Task Force report as an area where measures should be initiated to improve safety and traffic flow. The Task Force report also emphasized that further study should be carried out to provide for a potential limited access roadway in this area. To ensure that future transportation options within the Town of La Plata area are protected, SHA is committed to continuing an aggressive access management approach to limit access points and preserve right-of-way along US 301 as part of the indirect and cumulative effects (ICE) analysis for this Waldorf area project. SHA will work with the local jurisdictions as closely as possible to embark on and carry out the access management approach. SHA also will use its existing statutory authorities and regulatory controls to implement access management and to preserve right-of-way along US 301.

Transit services are provided along the US 301 corridor by Charles County and the Maryland Transit Administration (MTA). Charles County operates the VanGO bus service, which provides loop routing through the county, with several lines operating in the project area. MTA bus lines utilize park and ride facilities in Waldorf and the surrounding region and take passengers to and from the Washington D.C. area. These lots and MTA buses are often filled to capacity.

A goal of this project is to improve existing transit services and to accommodate future high-level transit. Addressing the demand for transit services throughout the project area will assist in decreasing the need for added roadway capacity. Alternatives developed for this project will provide transportation options which accommodate increased use of transit. This will be accomplished by providing quality access and operational capabilities for transit services, such as an adequate transit support network and accommodating the plans of multimodal transit agencies.

2. Safety

None of the roadway sections studied along US 301 for this project exhibit total crash rates that are significantly higher than the average statewide rates. *However*, four out of the five studied sections between Turkey Hill Road/Washington Avenue in the south and the US 301/MD 5 interchange at T.B. to the north, did have *individual* crash types that are significantly higher than statewide rates. Three of the sections have rear end crash rates that are significantly high, and two sections had truck related crash rates that are also significantly high. The section just south of the US 301/MD 5 interchange at T.B. has four crash types that are significantly high, and currently also has a high concentration of congested intersections, the highest traffic volumes in the corridor, and eight of the 11 fatal crashes recorded for the study period. The high incidences



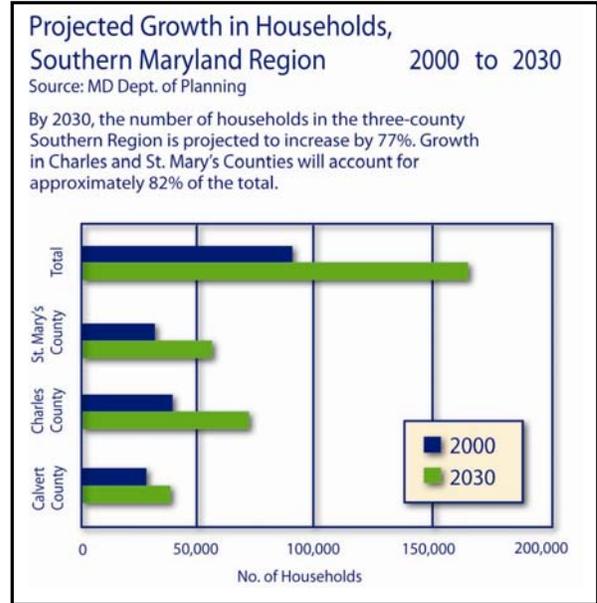
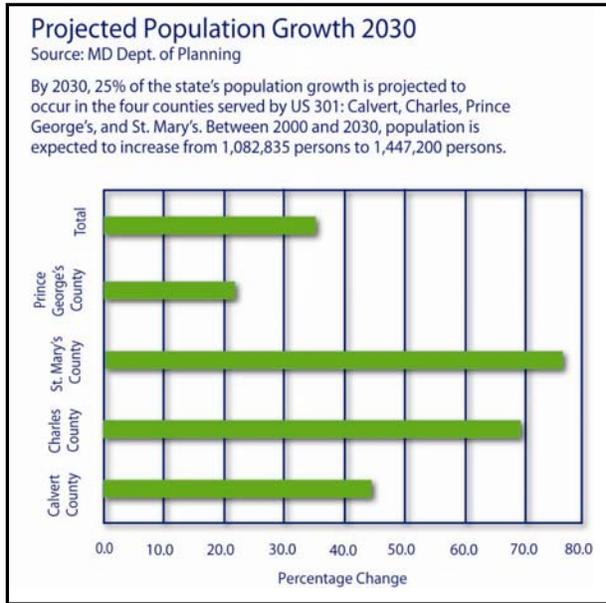
of specific crash types within the US 301 Waldorf project area are likely due to the combination of congested conditions, frequent driveway and at-grade intersection access points and median crossovers, combined with high through volumes mixed with cross street and turning traffic volumes. The need to provide safe pedestrian and bicycle travel along US 301 and adjacent roadways through the Waldorf area has also been identified in local planning studies (Waldorf Sub-Area Plan, Charles County, 2004).

US 301 Crash History Summary

US 301 Sections	3 year Average Total Crash Rate (per 100 million vehicle miles)	Statewide Average Total Crash Rate for Similar Roadways (per 100 million vehicle miles)	Individual Crash Types Significantly Higher than Statewide Rates
Washington Avenue to MD 227	78.3	107.5	None
MD 227 to Billingsley Road	221.6	247.9	Rear End, Truck Related
Billingsley Road to MD 228	245.5	247.9	Rear End
MD 228 to the Charles/Prince George's County line	226.2	247.9	Sideswipe, Fixed Object
Prince George's/Charles County Line to the US 301/MD 5 interchange at T.B.	79.5	93.8	Opposite Direction, Rear End, Truck Related, Fatal

3. Support Existing and Future Local, Regional, and State Land Use and Development Patterns Consistent with Maryland's Smart Growth Policy

Over the past 30 years (between 1970 and 2000), the population of the southern Maryland region, which includes Charles, Calvert and St. Mary's Counties, has grown faster in terms of the percentage of growth (143 %) than any other region in Maryland, with much of that increase occurring in the Waldorf area of Charles County. The Waldorf area is expected to continue to increase in population at a relatively high rate for the next several decades, with the southern Maryland region forecasted to again grow faster than any other region in Maryland.



The rate at which the Waldorf area has experienced residential, commercial, and employment growth in recent years, along with the existing geographic pattern of the development, has greatly contributed to the increased travel demand and congestion on the area roadways, including US 301. Much of the commercial and employment development in Waldorf is centered along US 301, with much of the traffic generated by those businesses needing to use US 301 for access. Much of the working population in Waldorf and southern Maryland must also use US 301 to reach jobs that are located outside of the County, as the transportation alternatives to leave Charles County are limited to a few major facilities such as US 301. This pattern of growth and development will continue to contribute to even greater future traffic volumes and travel demand on the area transportation network.

Locally, Charles County has designated the Waldorf area as an area where more intensive development is being encouraged, with the recently approved County Comprehensive Plan calling for a future western bypass of US 301 in addition to short term upgrades of existing US 301. Within Prince George's County, the Brandywine area, which is situated between the Charles County line and the US 301/MD 5 interchange at T.B., is also targeted for future commercial, industrial, and residential growth. The current Prince George's County's Sub-Region V Master Plan also recommends improvements to existing US 301 and designates a conceptual alignment for a future Western Bypass of US 301 in this area. *Note: Prince George's County is currently updating the Region V Master Plan and is expected to shift planning policy to support an upgrade of US 301 as the favored option for transportation improvements in this area.*

From a statewide planning perspective, smart growth initiatives aim to direct state resources to support growth in Priority Funding Areas (PFAs), preserve valuable resources and open spaces,



and discourage sprawling development in rural areas. Much of the land adjacent to US 301 is within or adjacent to PFAs, as both the Waldorf and Brandywine areas are designated as PFAs. On the other hand, the Western Bypass corridor is partially inside PFAs while much of the land along Eastern Bypass corridor is outside PFAs. Multimodal transportation improvements along US 301 through Waldorf are needed to support local, regional, and statewide land use planning and implementation of 'smart growth' principles for the area.

4. Homeland Security

US 301 is part of the U.S. Strategic Highway Network (STRAHNET) and is a major route providing connectivity between key military installations, including Andrews Air Force Base, the U.S. Naval Radio Receiving Station, the GLOBECOM Radio Receiving Station, and the U.S. Naval Surface Weapons Station – Dahlgren Lab, and Fort A.P. Hill Military Reservation. US 301 also serves as a major evacuation route for the Washington, DC metropolitan area. The improvements to this roadway will enhance the ability to reach military bases and evacuate the Washington, DC metropolitan area in the event of an emergency.

5. Environmental Stewardship

SHA is committed to adopting a broader, proactive philosophy toward protecting and enhancing the environment during the development of transportation improvement projects. Environmental stewardship is an approach that seeks to maximize the enhancement, protection, and improvement of natural, community and cultural resources and will be used in the US 301 Waldorf Area Transportation Improvements Project. It represents an opportunity for SHA and its partners to enhance the environment; resulting in an overall improvement as compared to before the project was implemented.

Environmental stewardship goes beyond those measures necessary to comply with Federal and State environmental mitigation requirements and is voluntarily provided by SHA. Selected environmental stewardship measures in the Waldorf area will strive to address priority natural and community resource needs. The identification and benefits evaluation of environmental stewardship opportunities will be determined by a Natural Resources Work Group and a Community Resources Work Group. These groups will work with federal, state and local agencies and organizations and public stakeholders to identify a prioritized list of potential natural, community and cultural improvements for consideration by SHA.

D. Legislative Context

The project is being developed in compliance with the intent of the National Environmental Policy Act (NEPA) (42 USC 4321-4347), the Council on Environmental Quality (CEQ) regulations implementing the procedural requirements of NEPA (40 CFR 1500-1508) and FHWA requirements for implementing NEPA into agency decision making (23 CFR 771). This project is also being developed in accordance with the Maryland Environmental Policy Act (MD Code, Natural Resources, Title 1, Subtitle 3) and Maryland Department of Transportation Order 11.01.06.02. As a unique legislative requirement in Maryland, a major transportation project such as the US 301 project is required to be developed in a manner that is consistent with the



Maryland Economic Growth, Resource Protection and Planning Act of 1992 and the Priority Funding Area Law of 1997.

E. Agency Coordination and Public Involvement

The US 301 Waldorf Area Transportation Improvements Project team initiated coordination with federal, state, regional and local agencies at the beginning of the project to ensure early identification of pertinent issues and concerns and to formalize an ongoing process for agency coordination and involvement throughout project development.

To facilitate an effective partnership with resource and regulatory interests, two coordination groups were established to guide project development. A Principals Plus One (P+1) group and an Interagency Working Group (IAWG) were established to guide the project team through the project development process. The purpose of the P+1 group is to seek consensus on issues of policy related to key project milestones and provide a forum for conflict resolution with agency policy makers. The P+1 group is convened prior to major project milestones to ensure project development proceeds in an efficient manner and that project decisions consider pertinent policies and issues of federal, state, regional and local agencies prior to finalization.

The IAWG serves to provide technical input and expertise on resource issues, and to advise the project team on the execution of detailed studies and preparation of information for the environmental documentation and permit applications. The IAWG meets on a monthly basis to review project progress and to discuss resource issues and decisions. Members of the IAWG have also participated in numerous other meetings and field reviews to further the intentions of the agency coordination process in ensuring development of a project which is responsive to a wide range of resource issues. Members of the IAWG are:

US Fish and Wildlife Service
US Army Corps of Engineers
National Marine Fisheries Service
US Environmental Protection Agency
Federal Highway Administration
Maryland Department of the Environment
Maryland Department of Natural Resources
Maryland Historical Trust
Maryland Department of Planning
Maryland Transit Administration
Charles County – Department of Planning and Growth Management
Prince George's County – Department of Public Works and Transportation
Maryland National Capital Park and Planning Commission
Tri-County Council for Southern Maryland

Continuous and active public involvement plays an important role in the project development process. Active communication with the public helps to reveal community needs and concerns and is an invaluable tool in developing effective transportation improvements. To facilitate helpful information exchange, the project team has developed and continues to refine the following public involvement activities:



- Public meetings: Public meetings will be held at key stages in the project planning process to help insure proposed improvements are responsive to the needs of the community. Three public open house alternatives workshops were conducted in March of 2007 to introduce the public to the project, to solicit input on the preliminary alternatives being considered, and to help the project team identify and understand important environmental and community issues. Additional public open house meetings are proposed to be held in the fall of 2007 to present the alternatives retained for detailed study to the public.
- Project website: Throughout the development of the project, the website www.US301Waldorf.org will have the latest news and updates concerning the project schedule, alternative descriptions and mapping, and public involvement activities. The website also allows individuals to submit comments and questions.
- Informational materials: Periodically, informational materials (newsletters, meeting announcements, etc) will be provided to interested citizens and others who are part of the project mailing list. The project team continuously updates a mailing list to ensure project informational materials and announcements are delivered to affected citizens in the Waldorf area.
- Targeted Stakeholder Outreach: The project team has actively sought out opportunities to meet with community and civic associations and similar groups to discuss the project. These meetings allow the project team to provide updated information, address specific issues, answer questions, and listen to and understand community concerns. Stakeholder outreach events will be held throughout the project to ensure the issues of a wide range of community interests are considered.

F. Project Financing

SHA is currently investigating the concept of tolls on the proposed build alternatives. If the toll concept is determined to be reasonable, SHA would then begin coordination efforts with the Maryland Transportation Authority (Authority) to further study toll options. The Authority owns, operates, and maintains all toll facilities in the State of Maryland, and as such, would need to be a partner on these efforts.

II. Alternatives

The following alternatives were developed and analyzed during the preliminary alternatives evaluation phase. The preliminary alternatives developed included several carried over from previous US 301 studies in the Waldorf Area and new alternatives developed in response to changes in land use since 2001. Efforts to minimize conceptual natural, community and cultural impacts to resources of concern were based on a comprehensive resource database that was supplemented by additional information gathered from technical field studies, design investigations and the input of the IAWG. The SHA and the IAWG collaborated on alignment shifts and evaluation of additional options to ensure consideration of a reasonable range of alternatives and essential potential resource impacts.



A. No-Build Alternative

With the implementation of the No-Build Alternative, no substantial physical improvements would be made to transportation facilities beyond those currently planned for the Waldorf area. Minor improvements would occur as part of typical maintenance and safety operations; however, they would not measurably affect roadway capacity or reduce crash rates. Possible improvements may include roadway resurfacing, lane re-striping, signage, and lighting. Evaluation of the No-Build Alternative provides a benchmark that assists in comparing existing conditions against a proposed highway alternative to more fully comprehend the potential benefits and impacts associated with proposed transportation improvements.

B. TSM/TDM Strategies Alternative

These strategies are a combination of transportation system management (TSM) and travel demand management (TDM) techniques above and beyond those improvements considered as part of the No-Build Alternative.

TSM is a relatively low-cost transportation improvement strategy consisting of minor physical and operational enhancements to the existing transportation network facilities.

TDM strategies include voluntary and pricing programs designed to increase the number of people traveling in a vehicle or to affect the time or need for travel. As such, it does not include major physical improvements such as new roadways or transit facilities, but rather attempts to maximize the use of the existing transportation system by managing travel demand, expanding accessibility to transit services and maximizing the operational capacity of the transportation network.

Examples of regional TSM/TDM strategies include:

- Improved pedestrian and bicycle facilities
- Flashing yellow traffic signals from 12 a.m. to 5 a.m. to eliminate unnecessary mainline traffic stopping
- Regional ridesharing programs through the Tri-County Council of Southern Maryland
- Increased availability/capacity of park and ride lots
- Promotion of telecommuting programs

While TSM/TDM strategies were identified as a separate preliminary alternative, these types of strategies will also be incorporated into the development of build alternatives (for both upgrade and bypass alternatives).



C. Preliminary Upgrade Alternatives Description

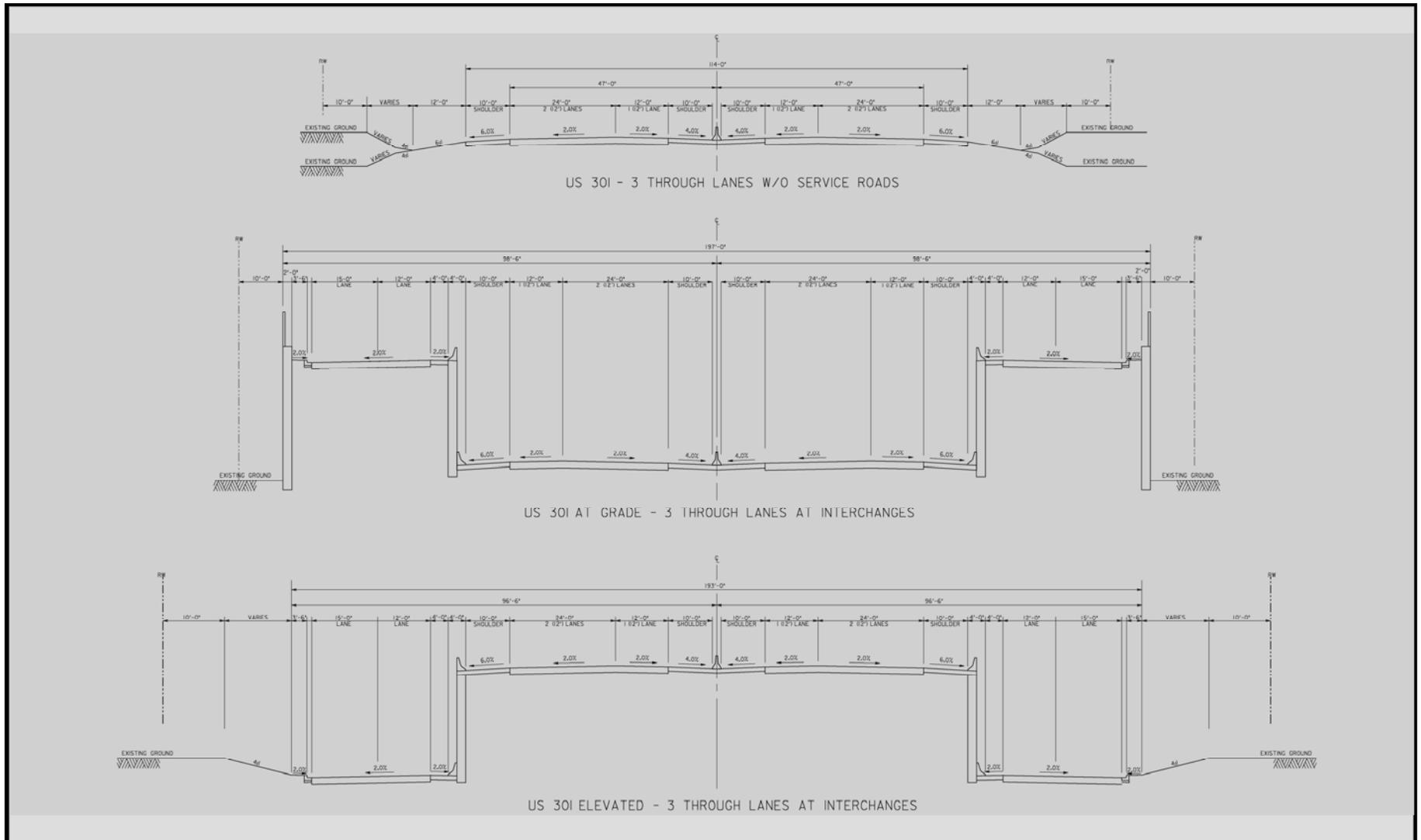
Each of the upgrade alternatives involve potential improvements along existing US 301 for the entire length of the project area. Under each upgrade alternative, grade-separated interchanges are proposed at:

- MD 5 (T.B. split)
- Cedarville Road/McKendree Road
- MD 5 - Mattawoman Beantown Road
- Acton Lane
- MD 228 – Berry Road/MD 5 Business-Leonardtown Road
- Smallwood Drive
- Billingsley Road (Cross County Connector)

For each of these proposed grade-separated interchanges, design options for both US 301 over and US 301 under the cross roads will be investigated to consider roadway operations, environmental and community impacts, constructability and cost. Typical sections for the upgrade alternatives are illustrated on the following page and include both interchange design options.

The upgrade alternatives are located primarily within the Waldorf and Brandywine PFAs. Only a small segment between Brandywine and Waldorf and another south of Billingsley Road to the project's southern limit are not included in a PFA.

US 301 Upgrade Alternatives Typical Sections





Alternative 1: This alternative proposes upgrading seven intersections along US 301 to grade-separated interchanges and adding a flyover ramp movement from US 301 southbound to MD 5 (Mattawoman-Beantown Road) southbound at the existing triple left turn lanes. No changes to the existing number of travel lanes along US 301 or MD 5 is proposed. Existing at-grade intersections with traffic signals would remain where no grade-separation is proposed.

Alternative 1A: This alternative is similar to Alternative 1 in regards to the number and location of proposed grade-separated interchanges, the construction of a flyover ramp to connect US 301 southbound to MD 5 (Mattawoman-Beantown Road) southbound, and no change in the number of existing travel lanes. Existing at-grade intersections with traffic signals would remain where no grade-separation is proposed.

Additionally, under this alternative driveways and parking lot entrances along US 301 would be consolidated to decrease the number of access points along the corridor to improve safety and mobility. Alternative means of access would be provided to property owners who would no longer have direct access to US 301 in the vicinity of the proposed grade-separated interchanges.

Alternative 2: This alternative would incorporate all the improvements proposed under Alternative 1 and 1A (in regards to the number and location of proposed grade-separated interchanges, the construction of a flyover ramp to connect US 301 southbound to MD 5 (Mattawoman-Beantown Road), and the consolidation of access points along the corridor) and combine those improvements with one additional travel lane in each direction between the US 301/MD 5 interchange at T.B. and the US 301/Washington Avenue/Turkey Hill road intersection.

Remaining signalized at-grade intersections would be analyzed to determine the proper configuration of through-travel and turning lanes. Under this alternative, the outermost travel lanes would function much like the continuous right-turn auxiliary lanes currently in place between MD 5 (Mattawoman-Beantown Road) and Smallwood Drive. However, transit vehicles would be permitted to use these auxiliary lanes during peak traffic periods for through travel.

Alternative 2A: This alternative is identical to Alternative 2, with the exception that the additional auxiliary travel lanes provided would be for the exclusive use of transit vehicles. At the remaining at-grade intersections, signal prioritization improvements would be provided at traffic signals to increase mobility and decrease overall travel time for transit services along US 301.

Alternative 2 Modified: This alternative is a revision of Alternative 2 (in regards to the number and location of proposed grade-separated interchanges, the construction of a flyover ramp to connect US 301 southbound to MD 5 (Mattawoman-Beantown Road), but remaining signal controls at existing at-grade intersections would be removed, effectively eliminating all at-grade left turn movements between MD 5 (Mattawoman-Beantown Road) and Smallwood Drive. Under Alternative 2 Modified, access to properties would continue to be provided from the



existing continuous right-turn auxiliary lane, however to cross over US 301 (i.e. to make left turns) drivers would need to use one of the proposed grade-separated interchanges.

Alternative 3: This alternative proposes to expand US 301 to a six-lane, full access-controlled freeway facility from just north of Cedarville Road/McKendree Road in Prince George's County to just south of Smallwood Drive in Charles County. North of Cedarville Road/McKendree Road and south of Smallwood Drive, one additional through-travel lane would be provided in each direction on US 301.

Similar to the other upgrade alternatives, this alternative would involve construction of seven grade-separated interchanges and a fly-over ramp to accommodate US 301 southbound to MD 5 southbound traffic movements. In addition, Alternative 3 would include one-way service roads parallel to each side of US 301 which would provide access to properties directly along US 301. Under this alternative, at-grade intersections and associated traffic signals would be removed along US 301 and all turning movements to cross roads and service roads would be accommodated via grade-separated interchanges.

Alternative 4: Alternative 4 is similar to Alternative 3, with the exception that additional access to properties along US 301 would be designed using existing secondary roadways (e.g. Western Parkway and MD 925) in addition to access provided via the one-way service roads. Also under Alternative 4, no service road would be provided between Acton Lane and Mattawoman/Beantown Road for northbound traffic. This would provide improved local access by reducing the need for motorists to use the US 301 roadway to reach local businesses to which access may be limited to only the service road under Alternative 3.

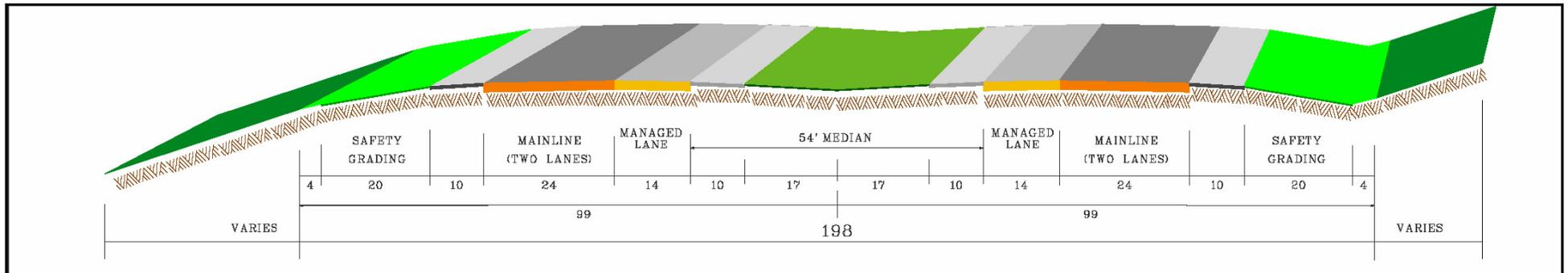
D. Preliminary Bypass Alternatives Description

The bypass alternatives were developed with the intention of locating feasible roadway alignments that avoided or minimized impacts to existing and planned development and environmentally sensitive resources, while maintaining conformance with state and federal highway design guidelines. The bypass alternatives are planned to consist of a full access-control facility with six travel lanes (three in each direction) and limited interchange connections with other roadways. The typical section for the bypass alternatives is on the following page.

Two basic bypass alternatives, an eastern Waldorf bypass alternative and a western Waldorf bypass alternative, have been developed with each having numerous alignment options. The northern segments of the eastern bypass alternative are located within the Brandywine PFA. The Charles County section of the western bypass alternative from the county line to just south of Piney Branch is located in the Waldorf PFA. However, a portion of the western bypass alternative is located outside of the Waldorf PFA, but within Charles County's Development District. Interchanges for the eastern bypass alternative are located just outside of the PFAs, as well as the county's development districts. The interchanges for the western bypass alternative are located outside of the PFAs as well; however, with the exception of the tie in at the southern limit of the project, they are located in either Prince George's County's Developing Tier or Charles County's Development District.

US 301 Bypass Alternatives Typical Section

For evaluation of the preliminary bypass alternatives, each alternative and option have been designed with a consistent roadway section width of 300 feet (which would conceptually accommodate the roadway and required medians, shoulders, side slopes and drainage features). This consistent section was used to provide an equal basis for comparative assessment of the potential issues and impacts associated with the bypass alternatives and available alignment options.





1. Eastern Bypass Alternative

The Eastern Bypass Alternative begins at the US 301/MD 5 interchange at T.B. and then progresses in a south-easterly direction, crossing Timothy Branch and the Mattawoman Creek in Prince George's County. From there, the options generally run south, paralleling to the west the GlobeCOM federal facility and the Cedarville State Forest in Charles County. The alternative continues south across Poplar Hill Road, where the options merge to cross a tributary of Zekiah Swamp and MD 5 (Leonardtown Road). The alternative continues in a southerly direction, staying to the east of the White Plains Regional Park. Beyond the park, Eastern Bypass Alternative options veer southwest across Kerrick Swamp and then merge as they connect with US 301 near Turkey Hill Road. For the Eastern Bypass Alternative, interchanges are proposed for the northern and southern tie-ins to US 301, with MD 5 (Leonardtown Road), and with Billingsley Road (the future Cross County Connector).

Timothy Branch Options: Four options comprise the Eastern Bypass Alternative from US 301/MD 5 interchange at T.B. through a crossing of the Timothy Branch floodplain, and ending just east of the Pope's Creek rail line corridor where they tie-in to the Mattawoman East Options and the MD 5 Eastern Corridor connector options.

Mattawoman East Options: These options connect to the Timothy Branch Options and cross the Mattawoman Creek into Charles County, passing west of Cedarville State Forest before connecting with the Jordan Options along St. Peter's Church Road. Four Mattawoman East Options were developed and analyzed as part of the preliminary alternatives evaluation.

Jordan Options: These options connect the Mattawoman East Options with the Billingsley East Options, crossing Jordan Swamp and MD 5 (Mattawoman-Beantown Road) east of the St. Charles community. A total of six Jordan Options were developed and analyzed as part of the preliminary alternatives evaluation.

Billingsley East Options: The Billingsley East Options cross Piney Branch Creek, several unnamed tributaries to Zekiah Swamp, and the proposed Cross County Connector (Billingsley Road) to connect the Jordan Options with the Kerrick Options. These options extend south of White Plains Regional Park and have been designed to maximize avoidance of a proposed Charles County high school and the Southern Maryland Baseball Stadium. Nine individual options were developed and analyzed to provide flexibility for minimizing impacts to proposed and existing development and sensitive natural resources.

Kerrick Options: Five preliminary Kerrick Options were developed and analyzed to link the Billingsley East Options with either the Forest Grove Options or to tie-back into US 301 near Rhodes Way, north of the Faith Baptist Church and the Forest Grove community. The major concern associated with these options was the crossing of the mainstem and an unnamed tributary of Kerrick Swamp.

Forest Grove Options: The Forest Grove Options provide a link between US 301 and some of the Kerrick Options. These options tie-in with US 301 across from the Faith Baptist Church or farther to the south near the Washington Avenue/Turkey Hill Road intersection.



MD 5 Eastern Corridor Bypass Options: Two options provide another connection alignment for linking Eastern Bypass Alternative options with US 301 and/or the US 301/MD 5 interchange at T.B. via the MD 5 (Mattawoman-Beantown Road) corridor east of Waldorf. These options consist of two separate alignment options for utilizing the MD 5 (Mattawoman-Beantown Road).

- MD 5 Options – Two alignment options were developed and evaluated as part of the preliminary alternatives evaluation. These options start at US 301 near the existing triple-lefts to MD 5 (Mattawoman-Beantown Road) and then proceed south using a portion of the existing roadway corridor to connect with Billingsley East Options near Piney Church Road. Under this option, the overall Eastern Bypass alternative would use the existing US 301 corridor for all traffic until splitting off to the east near the existing triple left turn movement to MD 5 (Mattawoman-Beantown Road).
- MD 5 Eastern Connector Options – Two additional connector options were evaluated to connect the MD 5 Options with US 301 in the northern portion of the project area. These connectors link the end of the Timothy Branch Options to the MD 5 Options east of US 301 near the existing triple left turns. Using these connectors, the overall Eastern Bypass Alternative would begin at the US 301/MD 5 interchange at T.B. rather than at the triple left movement to southbound MD 5 (Mattawoman-Beantown Road).

2. Western Bypass Alternative

The Western Bypass Alternative begins at the US 301/MD 5 interchange at T.B., then extends in a southwesterly direction and crosses Burch Branch. The alternative continues southwest past the Robin Dale Country Club and then crosses the Mattawoman Creek into Charles County. The alternative continues over MD 228 and then continues in a southwesterly direction and crosses Piney Branch and McDaniel Road. The alternative then veers to the west paralleling Piney Branch before turning south and crossing Middletown Road. It continues to the east of the Brookwood Estates community where it crosses Port Tobacco/Pages Swamp. The Western Bypass Alternative then continues east to tie back into US 301 near Turkey Hill Road. For the Western Bypass Alternative, interchanges are proposed for the northern and southern tie-ins to US 301, with Prince George's proposed "Ring Road", with MD 228 (Berry Road), and with Billingsley Road (the future Cross County Connector).

TB West Options: These options start from the US 301/MD 5 interchange at T.B and connect with the Mattawoman West Options to the south. The TB West Options run parallel to Accokeek Road, cross Burch Branch, and then end prior to crossing over McKendree Road. A total of three TB West Options were developed and analyzed as part of the preliminary alternatives evaluation.

Chaddsford Options: The Chaddsford Options provide a linkage between the US 301/MD 5 interchange at T.B and Mattawoman West Option 4 to the south. Each of the Chaddsford Options began at the US 301/MD 5 interchange, with one option progressing south along existing US 301/MD 5 and one option running to the west to avoid the William T. Robinson House, a Maryland Historical Trust inventory site deemed eligible for listing in the National



Register of Historic Places. The Chaddsford Options then merge at McKendree Road before connecting with Mattawoman West Option 4.

Mattawoman West Options: Seven Mattawoman West Options providing a crossing of the Mattawoman Creek west of US 301 were developed and analyzed as part of the preliminary alternatives evaluation. The Mattawoman West Options connect with the TB West and Chaddsford Options to the north, cross the county boundary at the Mattawoman Creek, and then proceed to the south to connect with a proposed interchange at MD 228 (Berry Road). These seven options use three basic locations for crossing the Mattawoman Creek: one crossing location near the existing Acton Lane crossing and two crossing locations to the west running between the Rolling Meadows Development and the Hunt Club Estates developments on the Charles County side of the creek.

Piney Branch West Options: These options serve to connect the Western Bypass Alternative alignment south of the proposed MD 228 (Berry Road) interchange with the Billingsley West Options. Five options were developed and analyzed during the preliminary alternatives evaluation to provide the best option for crossing the mainstem and associated unnamed tributaries to Piney Branch and McDaniel and Middletown roads. These options essentially cross between the Alford and Sun Valley developments to cross Piney Branch, and then turn west to run parallel to the stream until reaching Middletown Road. From there, the Piney Branch Options turn south along the west side of Middletown Road before connecting with the Billingsley West Options northwest of Westlake High School.

Billingsley West Options: The three Billingsley West Options evaluated provide a connection between the Piney Branch West Options and US 301 via a single Western Bypass Alternative alignment south of the Indian Head-White Plains railroad. The Billingsley West Options provide opportunities to minimize impacts to scattered residential parcels and to Cat Pond, a Maryland Wetland of Special State Concern.

III. Environmental Inventory

The diversity of natural environmental and community resources in the Waldorf area provides a substantial and positive contribution to the quality of life in the region. Within the undeveloped portions of the project area, the high-quality ecological environment provides water quality benefits, habitat for fish and wildlife, and substantial aesthetic and recreational contributions. These same features have made the Waldorf area a community of choice for an increasing number of residents. Meeting the transportation needs of a growing community while protecting and enhancing important environmental and community features in the area will be a challenge for the US 301 Waldorf Area Transportation Improvements Project.

A. Natural Environment

The Waldorf area is located within the Lower Potomac and Middle Potomac watersheds in southern Maryland. The majority of streams in the study area are classified as Use 1 streams, which means that they are in the 100-year floodplain and managed in such a way as to achieve



water quality that supports water contact recreation and the protection of aquatic life. Major streams include:

- Zekiah Swamp
- Mattawoman Creek
- Timothy Branch
- Burch Branch
- Piney Branch
- Pages Swamp
- Kerrick Swamp
- Port Tobacco Creek

Wetlands of Special State Concern in the study area include the Cat Pond wetland system west of US 301 and numerous wetland systems to the east along Mattawoman Creek and the Zekiah Swamp mainstem and its tributaries - Jordan Swamp, Piney Branch, and Kerrick Swamp. They are regulated by the Maryland Department of the Environment (MDE) for the water quality benefits they provide and as important fish and wildlife habitat. The Mattawoman Creek is an important spawning area for white perch and herring, which are anadromous fish (breeding upstream, similar to salmon) from tidal portions of the Potomac River and Chesapeake Bay.

There are also large areas of contiguous forest cover that could support Forest Interior Dwelling Species (FIDS). These plants and animals depend on large mature hardwood or mixed forest areas such as those in the project area for suitable nesting, cover, and food sources.

The US Fish and Wildlife Service (USFWS) and the Maryland Department of Natural Resources (DNR) have noted the potential presence of several Federal and State threatened and endangered plant, insect and fish species in the study area. Valuable and unique wildlife habitats capable of supporting these approximately 23 species are known to exist within the study area. Detailed field studies will be conducted to determine the actual presence of any threatened and endangered species during the next project phase.

The following permits and approvals will be required to mitigate impacts associated with the construction of any new roadways.

- USACE – Clean Water Act Section 404 Permit
- MDE - Approved Sediment and Erosion Control Plan
- MDE - Approved Stormwater Management Plan
- MDE - Clean Water Act Section 401 Water Quality Certification
- MDE – Non-tidal Wetland and Waterways Permit
- MD DNR Approved Reforestation Plan
- MD DNR - Roadside Tree Permit
- State Board of Public Works- Priority Funding Areas law compliance



B. Community Resources

Land uses in the Waldorf area include high density commercial development along the US 301 corridor, including major retail and entertainment venues that serve as the central shopping district for much of Southern Maryland. Low-to-medium density residential development, scattered rural residential, agricultural, and forest areas are found both east and west of the corridor. Community features in the study area include a number of schools and places of worship. There is also a variety of public park and recreation areas, including Cedarville State Forest, White Plains Regional Park, and the Robert Stethem Memorial Complex.

Portions of the study area fall within two Priority Funding Areas (PFAs). Lands to the east of US 301 between Charles County and MD 381/Brandywine Road are designated as part of the Brandywine PFA in Prince George's County. The majority of the study area is within the Waldorf, Charles County PFA, which extends roughly from Middletown Road on the west to Mattawoman–Beantown Road on the east.

Major residential developments are currently planned along portions of both the Eastern Bypass and Western Bypass alternatives. While alignment options have been proposed to minimize impacts to both existing and proposed development, residential and/or commercial displacements would be necessary for the construction of either bypass alternative. The SHA has been working with Prince George's and Charles Counties to identify and tract development proposals, and have invested effort in protective reservation agreements and outright purchases with developers to ensure the viability of both the Eastern and Western Bypass alternatives for consideration in the NEPA process and to minimize adverse community impacts.

Special land use and economic studies are planned as part of the next project phase. The land use study will examine the regional land use implications associated with the construction of a bypass around the Waldorf area. The economic analysis will examine the impacts to commercial businesses along US 301 as a result of a transportation improvement that would alter the pattern or volume of traffic along the corridor.

In compliance with Federal Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority and Low-Income Populations," SHA is taking steps to identify and avoid disproportionate adverse effects on minority and low income populations within the study area. Environmental justice populations are found in Charles County along the northern portion of the Upgrade alternatives and along portions of both the Eastern and Western bypass alternatives. An environmental justice outreach program will be implemented to ensure the project team has an understanding of issues important to environmental justice populations and that those communities are provided with project information. Efforts to assess and avoid potential environmental justice issues will continue throughout the duration of the project.

C. Cultural Resources

As part of the NEPA process, requirements of Section 106 of the National Historic Preservation Act of 1966 must be met to consider the affect of transportation improvements on culturally important resources. This regulation requires government agencies to consider the effects of

transportation projects on historic properties, including buildings, districts, archaeological and cultural sites that are eligible for inclusion on the National Register of Historic Places.

Based upon known information, there are 40 known *architectural* resources of importance within 1,000 feet of the preliminary alternatives and alignment options being considered. Of these 40 architectural resources:

- One (1) is currently listed on the National Register of Historic Places;
- Five (5) have been previously determined to be eligible for listing in the National Register of Historic Places;
- Thirty (30) resources have been previously determined to not be eligible for listing in the National Register of Historic Places; and
- The eligibility of the remaining four (4) resources for listing in the National Register of Historic Places has not been determined.

Based upon known information, there are 34 known *archaeological* resources of importance within 1,000 feet of the preliminary alternatives and alignment options being considered. Of these 34 archaeological resources:

- None (0) are currently listed in or have been determined to be eligible for listing in the National Register of Historic Places;
- Twenty-eight (28) resources have been previously determined to not be eligible for listing in the National Register of Historic Places; and
- The eligibility of the remaining six (6) resources for listing in the National Register of Historic Places has not been determined

Coordination with the Maryland Historical Trust (MHT) will continue throughout the detailed studies stage to reevaluate the eligibility of known resources as necessary and to identify and evaluate currently unknown resources.

D. Conceptual Environmental impacts

A preliminary assessment of conceptual environmental impacts which could result from implementation of the preliminary alternatives has also been completed. A more detailed evaluation of potential environmental impacts, including ways to minimize and mitigate them, will be developed in conjunction with Federal, State and local regulatory and resource agencies during Stage II activities.

Based on SHA policy regarding the US 301 Waldorf Area Transportation Improvements Project, major floodplain and wetlands areas associated with major stream crossings would be spanned by a structure(s), thereby minimizing direct impacts on those important water resources. SHA will continue to work with the resource agencies throughout Stage 2 to determine the final criteria for determining the “major” crossings. However, for the purpose of comparing conceptual environmental impacts, impacts for each alternative and option have been developed assuming all resources within the upgrade alternative footprint or 300-foot section footprint for the bypass alternatives are displaced by construction of a roadway.

IV. Alternatives Not Recommended for Detailed Study

Based upon consideration of the project purpose and needs, resultant traffic operations, and a full-range of potential environmental impacts, the following alternatives and segment options are not recommended to be carried forward for detailed study (See Appendix A). Detailed comparative evaluations of each alternative and segment option are provided in Appendix B.

TSM/TDM Strategies: The implementation of these strategies alone was found to not satisfy the purpose and need of the US 301 Waldorf Area Transportation Improvements Project. These strategies would not provide the needed operational or capacity improvements needed to improve levels of service or improve safety. Failing at-grade intersections would remain in the corridor and adversely affect mobility. However, TSM/TDM concepts will be designed as part of the upgrade and bypass alternatives to maximize the efficiency of transportation improvements and provide for improved access and functionality of transit services.

Upgrade Alternative 1 and Alternative 1A: Future traffic operations under these upgrade alternatives would not meet the purpose and need for the project. Under these alternatives, failing conditions would occur for the majority of intersections along US 301 in the project area in the year 2030 and safety concerns associated with the numerous at-grade intersections would not be substantially improved. Additionally, these alternatives would require displacement of 31 – 33 commercial businesses and potentially affect access to many others.

Upgrade Alternatives 2 and 2A: These alternatives, similar to Upgrade Alternatives 1 and 1A, do not meet the project purpose and needs. Even with the additional through-travel lane providing increased capacity, failing conditions at the remaining at-grade intersections would remain due to the demand volume for left-turn movements across US 301. In addition to not achieving mobility improvements, these alternatives would directly displace 38-41 businesses, potentially affect access to many others, and not fully address safety issues. Based on a sensitivity analysis assuming a 'mid-level' transit service which would increase the number of transit trips, the reduction in vehicle trips would only provide minimal improvement in mobility along US 301 and have no substantial improvement in the number of failing at-grade intersections.

Eastern Bypass Alternative – Timothy Branch Options 1, 2 and 3: These options are recommended to be dropped from detailed study primarily due to their impact upon proposed major developments (Brandywine Crossings and the Villages at Timothy Branch) in the area. Additionally, Timothy Branch Option 1 would use existing US 301 for part of its alignment and this sharing of traffic was noted as a potential conflict.

Based on the concerns of the IAWG associated with potential multiple crossings of Timothy Branch from this project and the proposed Prince George's County Ring Road, SHA and the agencies participated in a field view of this area to determine an optimal location for a crossing of Timothy Branch for both roadway alignments. Based on this location and efforts to minimize impacts upon proposed development, an additional Timothy Branch Option (Option 4) was developed to represent the optimal alignment option for this area.



Eastern Bypass Alternative – Mattawoman East Option 2: This option crosses the Mattawoman Creek at a confluence point with an unnamed tributary and results in the second longest crossing of available options in the Mattawoman East Options group. This option would also have the greatest direct impact on the Cedarville State Forest of the available Mattawoman East options. Based on other available options that have shorter crossings of the Mattawoman Creek and avoid use of the Cedarville State Forest, it is recommended that Mattawoman East Option 2 not be carried forward into detailed studies.

Eastern Bypass Alternative – Jordan Options 1, 2, 4 and 6: In comparison to other available Jordan Options, these options would require longer stream crossings and/or greater wetlands impacts. Additionally, based on agency field views of this area, the lands along Option 6 are characterized as higher quality habitat from an aquatic resource and wildlife habitat perspective than lands along other available options to the northwest.

Eastern Bypass Alternative – Billingsley East Options 1, 3, 4, 5 and 6: Billingsley East Options 1 would have the greatest community impacts of the available options at this location, generating 40 residential displacements. The watershed of Piney Branch Bog, a DNR Maryland DNR Heritage Conservation Fund site, would be adversely affected through the implementation of Billingsley East Options 3, 4 and 5. These options would also involve residential and/or commercial displacements. Option 6 would impact the greatest quantity of wetland and floodplain habitat of the available options in this area and would also cause more residential displacements than other available options.

Eastern Bypass Alternative – Kerrick Options 2, 3, and 5: These options are proposed to be dismissed from consideration primarily because the options from Billingsley East linking to these Kerrick options are not recommended for detailed study. In addition, these Kerrick options do not utilize the optimal crossing of Kerrick Swamp developed with the IAWG through field reviews of the area.

Eastern Bypass Alternative – Forest Grove Options 1 and 3A: These options link with Kerrick Option 2 to the east, which has been proposed to be dropped from further consideration. Therefore, Forest Grove Options 1 and 3A are no longer viable. These options would also cause greater wetland impacts than the other Forest Grove Options which remain viable.

Western Bypass Alternative – Chaddsford Options 1 and 2: Chaddsford Options 1 and 2 would generate substantial residential displacements (110 for Option 1 and 36 for Option 2) and commercial displacements (6 for Option 2). These options would also only connect with Mattawoman West Option 4, which is not recommended for detailed study.

Western Bypass Alternative – Mattawoman West Options 1A, 1C, 2, 3 and 4: Substantial coordination with the IAWG was completed to determine the optimal location for a crossing of the Mattawoman Creek west of US 301. None of these options would use that crossing location and are therefore not recommended for detailed study. Options 2, 3 and 4 would also generate substantial residential displacements (approximately 41) on the Charles County side of the creek.



Western Bypass Alternative – Piney Branch Options 1, 1A, 1B and 2: Similar to the Mattawoman West area, the SHA and the IAWG completed extensive review and evaluation of the Piney Branch Options to help determine a viable option which minimized impacts to the important aquatic habitat of Piney Branch and associated tributaries and also to existing and proposed residential development. Piney Branch Options 1, 1A, 1B and 2 are not recommended for detailed study as other less environmentally damaging and more viable alignment options are available at this location. Furthermore, Option 1B would require the use of a “broken-back” geometric curve, which would pose operational and safety concerns.

Western Bypass Alternative – Billingsley West Options 1 and 3: At this location, the major environmental issue is the minimization of impacts to the watershed of Cat Pond, a Maryland Wetland of Special State Concern. Option 3 would generate substantial residential displacements (approximately 45) and have greater wetland impacts in comparison to other available options. Option 1 would have slightly greater impacts to wetland resources and cross closer to existing residences than other available options.

V. Alternatives Recommended for Detailed Study

These recommendations have been developed in concert with the IAWG through monthly project meetings and field views. Based on that cooperative process, the SHA and the IAWG have developed the following alternatives and alignment options which are both viable and advantageous from an environmental perspective. In addition to roadway improvements, the upgrade alternatives would also include sidewalks or paths to improve non-motorized mobility. Transit will also be considered as the upgrades are evaluated, including accommodations for future bus rapid transit, park and ride lots, and the potential for transit-exclusive lanes. Both bypass alternatives have been retained as preliminary traffic analysis indicates that when compared to the 2030 no-build alternative, the western bypass could reduce traffic by approximately 40% on US 301; while an eastern bypass could reduce traffic by approximately 30%. Recommendations for the bypass alternative options are made with the understanding that additional shifts in alignments can be considered as more detailed information becomes available to further minimize resource impacts.

No-Build Alternative: While not a viable solution for meeting the purpose and needs for the project, the No-Build Alternative is recommended for detailed study as a benchmark for comparing existing conditions against a proposed build alternative to more fully comprehend the potential benefits and impacts associated with proposed transportation improvements.

Upgrade Alternative 2 Modified: This upgrade alternative provides mobility improvements by eliminating at-grade signalized intersections through the corridor and the associated travel delay. While improving overall mobility, this alternative would have substantial direct and indirect impacts on existing business along US 301. There is also a potential safety issue due to the lack of separation between the high-speed, through-travel lanes and the slower auxiliary lanes used for local access. As this alternative meets the project purpose and need at the preliminary stage, it is recommended that Alternative 2 Modified be retained for detailed study.



Upgrade Alternative 3: Similar to Upgrade Alternative 2 Modified, this alternative provides mobility improvements by eliminating at-grade signalized intersections through the corridor. It also reduces some of the safety concerns associated with Upgrade Alternative 2 by creating a separation between through traffic and local access traffic via service roads. However, by utilizing a service road concept, this alternative would result in greater direct impacts to corridor businesses and similar indirect impacts on access in comparison to Upgrade Alternative 2 Modified. As this alternative meets the project purpose and need at the preliminary stage, it is recommended that Alternative 3 be retained for detailed study.

Upgrade Alternative 4: This alternative is essentially identical to Upgrade Alternative 3, except that no northbound service road would be provided between Acton Lane and Mattawoman/Beantown Road. Access to businesses along US 301 between Action Lane and Mattawoman/Beantown Road would be provided from local roads, primarily MD 925. As this alternative meets the project purpose and need at the preliminary stage, it is recommended that Alternative 4 be retained for detailed study.

Eastern Bypass Alternative – Timothy Branch Option 4: This option provides the best balance between avoiding impacts to proposed development, use of the optimal Timothy Branch crossing identified by the IAWG, and potential integration with the proposed Prince George's County Ring Road.

Eastern Bypass Alternative – Mattawoman East Options 1, 3 and 4: This set of options is recommended for detailed study to ensure alternatives are available to avoid impacts on Cedarville State Forest and the Piscataway Indian Cultural Center, while minimizing impacts to the Mattawoman Creek.

Eastern Bypass Alternative – Eastern Corridor MD 5 Options 1 and 2: The Eastern Corridor MD 5 Options are recommended for detailed study to further evaluate the viability and potential environmental advantages of this corridor option.

Eastern Bypass Alternative – MD 5 East Connectors Options 1 and 2: The MD 5 Connector Options are recommended for detailed study to further evaluate the viability and potential environmental advantages of this corridor option. These connectors will also be considered as an additional option for inclusion with the upgrade alternatives.

Eastern Bypass Alternative – Jordan Options 3 and 5: Additional detailed study in the Jordan Options area is needed to identify optimal stream crossing locations and the location of potential species of concern. These Jordan Options are recommended to be carried forward for detailed study with the understanding that these alignments may require substantial shifts in reaction to new information.

Eastern Bypass Alternative – Billingsley East Options 2, 2A, 5A and 5B: Due to the number of resource issues associated with the Billingsley East location, it is recommended that Options 2, 2A, 5A and 5B be retained for detailed study.



Eastern Bypass Alternative – Kerrick Options 1 and 4: These options use the optimal Kerrick Swamp crossing identified by the SHA and the IAWG and retain linkages with retained options from both the Billingsley East and Forest Grove option groups.

Eastern Bypass Alternative – Forest Grove Options 2 and 3B: These options would generate less wetland impacts than other available options at this location and maintain linkages with retained options from the Kerrick Options group.

Western Bypass Alternative – TB West Options 1, 2 and 3: It is recommended that each of these options be retained for detailed study as none exhibit a substantial advantage and there are currently no pending development proposals which would jeopardize any of these options.

Western Bypass Alternative – Mattawoman Options 1 and 1B: These options are recommended to be retained for detailed study as they utilize the optimal Mattawoman Creek stream crossing identified by the SHA and the IAWG, based on additional upland habitat quality surveys and field views.

Western Bypass Alternative – Piney Branch Option 1C: The SHA and the IAWG carefully considered a number of options at this constrained location. This option is recommended to be retained for detailed study as the option which provides the best balance between natural resource and community impacts. As additional engineering and environmental information becomes available, additional alignment shifts for Option 1C will be carefully developed in concert with the IAWG.

Western Bypass Alternative – Billingsley West Option 2: Billingsley West Option 2 is recommended for detailed study as the option at this location which has the least wetland impact and maximizes avoidance of the Cat Pond watershed.



Appendix A: Alternatives Retained and Dismissed



Legend

Conceptual Interchange Locations	JD Wetlands
Development Districts	NWI-DNR Wetlands
Priority Funding Areas	Floodplains
Study Area Corridor	State and County Parks
County Boundary	Dismissed Alternatives
Ring Road	

**US 301 - Waldorf Area
Retained and Dismissed
Alternatives**

Date Created: July 19, 2007



Appendix B: Detailed Alternative Evaluations



Upgrade Alternatives 1 and 1A Alternatives Evaluation

Each of these proposed upgrade alternatives consists of six (6) new grade-separated interchanges (listed below), including a flyover ramp movement from U.S. 301 southbound to MD 5 (Mattawoman Beantown Road). Cedarville/McKendree Road

- MD 5 (Mattawoman Beantown Road)
- Acton Lane
- MD 228/MD 5 Business
- Smallwood Drive
- Billingsley Road (Cross County Connector)

No additional lanes are proposed and the remaining at-grade intersections would still be available. All traffic signals except those replaced by interchanges would also remain.

The primary difference between Alternative 1 and 1A is that Alternative 1A includes the introduction of a variety of access management techniques along the corridor, such as shared driveways and controlled entry and exit (e.g. right in/right out). Alternative access would be provided to property owners who would no longer have direct access from US 301 in the vicinity of the new interchanges.

The alternatives are located in both Charles and Prince George's Counties. With the exception of a small section in Prince George's County south of the McKendree/Cedarville Road intersection and another in Charles County south of MD 227 to Turkey Hill Road, the alignments fall within the Waldorf and Brandywine Priority Funding Areas.

Stage 1 analysis of cultural resources along the corridor indicates that there are no properties listed on the National Register of Historic Places. There is a property located along U.S. 301 in Prince George's County just north of the logical termini of the project but within 1,000 feet of the alignment, the T.B. Colored School, that is eligible for listing. However, this property has been altered and is currently being used in a commercial operation. An analysis of archeological sites is ongoing and is expected to be complete within the month.

Neither alternative impacts a Maryland Green Infrastructure corridor or hub. As the corridor is virtually built-out, there are no impacts to potential FIDS habitat.

Along U.S. 301, the alternatives use the existing crossing over the Mattawoman Creek. However, a new crossing (approximately 700 feet) for the flyover movement will be required. Ramps for the proposed interchange at MD 5 (Mattawoman Beantown Road) will also impact the stream as they will widen the existing footprint of U.S. 301 by approximately 24 feet on each side. At this point, Mattawoman Creek and its associated floodplain are approximately 700 feet wide on the west side of U.S. 301 and 800 feet wide on the east side. Total floodplain impacts of the new ramps and flyover would be approximately 2 acres. No wetlands are located along this alignment.

While there are few natural resource impacts associated with these two alternatives, there are significant community resource impacts. Between 31 and 33 commercial establishments could be displaced, depending on whether U.S. 301 travels over or under the intersecting roadway at the proposed interchanges.



Upgrade Alternatives 1 and 1A Alternatives Evaluation

Traffic analysis of the travel demand forecasts developed for U.S. 301 for the year 2030 shows that the majority of the at-grade intersections would be operating at Level of Service F as listed below. Two of these, Clymer Drive and Theodore Green Boulevard, are currently operating at capacity.

- Turkey Hill Road
- MD 227
- Theodore Green Boulevard
- Demarr Road
- St. Patricks Drive
- Plaza Drive
- Holly Lane
- Holly Tree Lane
- Pierce Drive
- Clymer Drive
- MD 373 Relocated

Summary of Impacts

(Options that are shaded are proposed to be dismissed from further study)

Resources Impacted	Upgrade Alternatives	
	1	1A
Wetlands (acres)	0	0
Stream crossings (feet) - Flyover <i>width of flood plain and associated wetlands</i>	700	700
Stream crossings (feet) - Ramps <i>width of flood plain and associated wetlands</i>	800	800
Floodplains (acres)	2.0	2.0
Potential FIDS habitat (acres)	0	0
Potential residential displacements (#)	0	0
Potential commercial displacements (#)	31-33	31-33
Cultural Resource Sensitivity Class	na	na
# of NR Listed, Eligible or Undetermined Architectural Sites w/in 1,000 ft.	1	1
# of NR Undetermined Archeological Sites w/in 1,000 ft.	0	0

Proposed Resolution: It is proposed that each of these alternatives be dismissed from detailed study as neither satisfies the purpose and need statement of the project. Specifically, they do not improve local traffic operations along U.S. 301 in the Waldorf area.



Upgrade Alternatives 2 and 2A Alternatives Evaluation

These proposed upgrade alternatives consist of seven (7) new grade-separated interchanges (listed below), including a flyover ramp movement from US 301 southbound to MD 5 (Mattawoman Beantown Road)

- MD 5 (TB Split)
- Cedarville/McKendree Road
- MD 5 (Mattawoman Beantown Road)
- Acton Lane
- MD 228/MD 5 Business
- Smallwood Drive
- Billingsley Road (Cross County Connector)

Alternative 2 — This alternative combines these intersection improvements with one additional travel lane in each direction between the US 301/MD 5 interchange at T.B. and the US 301/Washington Avenue/Turkey Hill Road intersection. Remaining signalized at-grade intersections would be analyzed to determine the proper configuration of through-travel and turning lanes. Under this alternative, the outermost travel lanes would function much like the continuous right-turn auxiliary lanes currently in place between MD 5 (Mattawoman-Beantown Road) and Smallwood Drive. However, transit vehicles would be permitted to use these auxiliary lanes during peak traffic periods for through travel.

Alternative 2A — This alternative is identical to Alternative 2, with the exception that the additional auxiliary travel lanes would be for the exclusive use of transit vehicles. At the remaining signalized, at-grade intersections, signal prioritization improvements would be provided to increase mobility and decrease overall travel time for transit services along US 301.

Upgrade alternatives 2 and 2A are located in both Charles and Prince George's Counties. The alignments fall almost entirely within the Waldorf and Brandywine Priority Funding Areas, with the exception of a small section in Prince George's County south of the McKendree/Cedarville Road intersection and another in Charles County south of MD 227 to Turkey Hill Road.

Stage 1 analysis of cultural resources along the corridor indicates that there are no properties listed on the National Register of Historic Places. There is a property located along US 301 in Prince George's County within 1,000 feet of the alignment, the T.B. Colored School, which is eligible for listing. However, this property has been altered and is currently being used in a commercial operation. Analysis of archeological sites is ongoing and will continue into Stage 2.

Neither alternative impacts a Maryland Green Infrastructure corridor or hub. There are no impacts to potential FIDS habitat, as the corridor is virtually built-out.

Along US 301 the alternatives would use the existing crossing over Mattawoman Creek, which would need to be widened by approximately 40 feet to accommodate the additional lanes and the ramps for the proposed interchange at MD 5 (Mattawoman/Beantown Road). A new crossing (approximately 700 feet) for the flyover movement would also be required. Total floodplain impacts over Mattawoman Creek would be approximately 2 acres. No wetlands are located along this alignment.



Upgrade Alternatives 2 and 2A Alternatives Evaluation

Although this analysis indicates the potential acreage of floodplains and wetlands impacted by each alternative, it should be noted that the floodplains and wetlands associated with major stream crossings would be spanned by a structure(s). The actual minimization of floodplain and wetland impacts will be evaluated during the detailed engineering/environmental studies phase.

While there would be few natural resource impacts associated with these two alternatives, there would be significant community resource impacts. Between 46 and 66 displacements would occur depending on whether US 301 goes over the intersecting roadways (46) or remains at grade (66) at the proposed interchanges.

Traffic analysis of the travel demand forecasts developed for US 301 for the year 2030 shows that the six of the remaining at-grade intersections would be operating at Level of Service F as listed below. Two of these, Clymer Drive and Theodore Green Boulevard, are currently operating at capacity. MD 373 Relocated

- Clymer Drive
- St. Patricks Drive
- Demarr Road
- Theodore Green Boulevard
- MD 227

Summary of Impacts

(Options that are shaded are proposed to be dismissed from further study)

Resources Impacted	Upgrade Alternatives	
	2	2A
Wetlands (# of acres)	0	0
Stream crossings (feet) - Flyover <i>width of flood plain and associated wetlands</i>	700	700
Stream crossings (feet) - Ramps <i>width of flood plain and associated wetlands</i>	800	800
Floodplains (acres)	2.0	2.0
Potential FIDS habitat (acres)	0	0
Potential residential displacements (#)	6	6
Potential commercial displacements (#)	40-60	40-60
Cultural Resource Sensitivity Class	na	na
# of NR Listed, Eligible or Undetermined Architectural Sites w/in 1,000 ft.	1	1
# of NR Undetermined Archeological Sites w/in 1,000 ft.	0	0

Proposed Resolution: It is proposed that each of these alternatives be dismissed from detailed study as neither satisfies the purpose and need statement of the project. Specifically, they do not improve local traffic operations along U.S. 301 in the Waldorf area, which is due primarily to the remaining traffic signals. In addition, there would be significant community impacts, including 6 residential and a minimum of 40 business displacements, associated with these proposed alternatives.



Timothy Branch Options Alternatives Evaluation

Four Timothy Branch Options were developed to connect US 301 to the Mattawoman East Options along the proposed Eastern Bypass Alternative. They are located entirely within Prince George's County and are in the Brandywine Priority Funding Area. No interchanges are associated with these options.

Each of the options impacts a Maryland Green Infrastructure corridor near the T.B. Split, as well as a small corner of a Green Infrastructure hub located just east of Timothy Branch. The threat level for impact to potential FIDS habitat is high for Options 2 and 3; however, Option 1 is located in an area that has already been developed.

This portion of the study area contains two historic architectural resources: the Marlow-Macpherson House (PG: 85A-16), which has been demolished, and the T.B. Colored School (PG: 85A-26), which is intact but altered. Timothy Branch Options 1 and 3 would pass very close to the T.B. Colored School, which is standing but has been altered and is used in an existing commercial operation along US 301.

Two previously identified archeological sites are also located in this portion of the study area; however, one has been determined as not eligible for the National Register of Historic Properties. The remaining site, 18PR416 (Pheasant's Thicket), has not had a formal determination of eligibility. This site is believed to be associated with a late 18th- early 19th-century farmstead, and lies 815 feet from the closest point of the Timothy Branch Option 1. As a result, it is unlikely that this resource would be directly impacted. Each of the three options exhibits a medium cultural sensitivity score.

Although this analysis indicates the potential acreage of floodplains and wetlands impacted by each option, it should be noted that the floodplains and wetlands associated with major stream crossings would be spanned by a structure(s). The actual minimization of floodplain and wetland impacts will be evaluated during the detailed engineering/environmental studies phase.

Option 1 – The alignment of this option requires a single crossing of Timothy Branch, a tributary of Mattawoman Creek. The crossing is approximately 450 feet wide. Wetland impacts total 2.3 acres and floodplain impacts are anticipated to be 3.2 acres. Approximately 11 acres of potential FIDS habitat would also be adversely impacted by this alignment. Community impacts include 4 residential displacements and would go directly through the former Brandywine Industrial Park, which has recently been rezoned as commercial to accommodate a new retail development – Brandywine Crossing Shopping Center.

Option 2 – This option avoids the proposed shopping center, but crosses Timothy Branch at an angle where the creek and its associated floodplains and wetlands are approximately 550 feet wide. Approximately 3.7 acres of wetlands and 4.3 acres of floodplains would be impacted. It is estimated that 40 acres of potential FIDS habitat would also be impacted by this option. Community impacts include 3 potential displacements: 2 residential and one commercial. In addition, there will likely be impacts to the southern portion of a proposed mixed-use development – The Villages at Timothy Branch.

Option 3 – This option would impact 2.4 acres of wetlands, 2.8 acres of floodplains, and 33 acres of potential FIDS habitat. The alignment requires a 370 foot crossing of Timothy Branch. This option impacts a segment of the proposed Prince George's County Ring Road and there is



Timothy Branch Options Alternatives Evaluation

the potential for a single commercial displacement. It would also impact the southern end of the proposed Villages at Timothy Branch mixed-use development.

Option 4 – This option would impact 2.5 acres of wetlands, 2.8 acres of floodplains, and 37.6 acres of potential FIDS habitat. The alignment requires a 440-foot crossing of Timothy Branch. This option impacts a segment of the proposed Prince George’s County Ring Road and there is the potential for a single commercial displacement. It would also impact the southern end of the proposed Villages at Timothy Branch mixed-use development.

Summary of Impacts

(Options that are shaded are proposed to be dismissed from further study)

Resources Impacted		Timothy Branch Options			
		1	2	3	4
Wetlands (acres)		2.3	3.7	2.4	2.5
Stream crossings (feet)	Timothy Branch	450	550	370	440
Floodplains (acres)		3.2	4.3	2.8	2.8
Potential FIDS habitat (acres)		11.0	40.3	32.9	37.6
Potential residential displacements (#)		4	2	0	0
Potential commercial displacements (#)		8	0	1	1
Cultural Resource Sensitivity Class		Med	Med	Med	Med
# of NR Listed, Eligible or Undetermined Architectural Sites w/in 1,000 ft.		2	2	2	2
# of NR Undetermined Archeological Sites w/in 1,000 ft.		1	0	0	0

Proposed Resolution:

It is proposed that Option 1 be dismissed from detailed study due to the significant impact it would have existing community resources and the imminent development of Brandywine Crossings. Based on current plans, seven retail parcels, a major big box store, and a significant amount of the associated parking area would be impacted. Wetland and floodplain impacts for the three options are comparable, and even though Options 2 and 3 appear to have significantly more impact on potential FIDS habitat, it should be noted that the proposed Villages at Timothy Branch mixed-use development will have a similar or even greater impact.

Field reviews with some members of the IAWG revealed that it would be possible to adjust the alignments of either Option 2 or 3 in order to minimize both community and natural environment impacts. The agencies identified a candidate location for a crossing where the proposed Prince George’s County Ring Road intersects, just to the north of Option 3 and which has a narrower floodplain. In addition, the alignment for this crossing would traverse recently cleared forest to the east and farm fields to the west.



Timothy Branch Options Alternatives Evaluation

At the request of the IAWG, the project team reevaluated this area to develop an alternative using a single crossing of Timothy Branch for both the proposed Eastern Bypass and the county's Ring Road, as well as to engineer a crossing that is as perpendicular to the stream bed as possible. This option has been identified as Option 4 and is proposed to be carried forward for detailed study; Options 2 and 3 are therefore proposed to be dismissed from detailed study. In addition, during the detailed studies phase the project team will evaluate the potential for using an existing storm water management pond to handle a portion of the runoff from any road improvements.



Mattawoman East Options Alternatives Evaluation

Each of the Mattawoman East Options is approximately 1.8 miles in length and connects the Timothy Branch Options with the Eastern Corridor Option near the Prince George's/Charles County line. The southern connection with the Eastern Corridor Option is located at the proposed Plantation Pines development property. This property is in the process of being purchased by the SHA as a means to preserve the ability to consider an eastern Waldorf bypass. These options are outside of the Prince George's County – Brandywine Priority Funding Area (PFA) and within the county's designated Rural Tier Development District.

Each of the options runs through the fringe of a Maryland Green Infrastructure hub that currently has significant gaps. Threats to potential FIDS habitat is defined as high with these areas being partially developed, except for those areas identified as protected within the Cedarville State Forest.

Only one previously identified historic architectural resource was found to fall within the 1,000-foot alignment buffer in this portion of the study area: 9120 Cedarville Road (PG: 85B-12). Although the MIHP property files contained no information on this resource, a field check showed that the property in the mapped location did represent an intact residential complex, which will need to be evaluated during subsequent survey efforts.

For Mattawoman East Option 1, PG85B-12 falls within the 1000-foot buffer but this option exhibits low cultural resource sensitivity. PG85B-12 falls within the current alignments of Mattawoman East Options 2 and 4, which both exhibit medium cultural resources sensitivity. Despite a high cultural sensitivity score, Mattawoman East Option 3 avoids direct impact to the previously identified structure.

Although this analysis indicates the potential acreage of floodplains and wetlands impacted by each option, it should be noted that the floodplains and wetlands associated with major stream crossings would be spanned by a structure(s). The actual minimization of floodplain and wetland impacts will be evaluated during the detailed engineering/environmental studies phase.

Option 1 – This option crosses the Mattawoman Creek at a point where the creek and its associated floodplains and wetlands are 875 feet wide, which is the widest crossing of all the Mattawoman East options. It impacts 9.3 acres of wetlands and 5.1 acres of floodplains. A total of 12 acres of potential FIDS habitat would also be impacted. Five residential displacements would occur with this option, but there are no residences within 500 feet of the centerline of the proposed alignment.

Option 2 – This option crosses at the confluence of the Mattawoman Creek main stem and an unnamed tributary, resulting in a crossing of approximately 740 feet. A total of 5.2 acres of wetlands, as well as 5.1 acres of floodplains, will be impacted. The potential FIDS habitat that would be impacted is less than 10 acres. This option would result in five residential displacements and there are an additional 2 residents within 500 feet of the centerline of the proposed alignment. Option 2 would also directly impact lands within the Cedarville State Forest.

Option 3 – This option impacts 6.6 acres of wetlands. The natural/environmental impacts also include 4.4 acres of floodplains and 10.1 acres of potential FIDS habitat. The Mattawoman Creek main stem crossing for this option would be approximately 620 feet in length. Option 3 would cause five potential residential displacements and two additional residences would



Mattawoman East Options Alternatives Evaluation

remain within 500 feet of the centerline of the proposed alignment. It also crosses Cedarville Road twice and could impact the Piscataway Indian Cultural Center property.

Option 4 – This option impacts a total of 4.3 acres of wetlands; while floodplain impacts would be approximately 2.1 acres. It also includes a 340-foot crossing of the Mattawoman Creek main stem. There are approximately 23 acres of potential FIDS habitat that would be impacted. Five residential displacements would occur; however, there are no commercial displacements or residences within 500 feet of the centerline of the proposed alignment. Option 4 would also directly impact lands within the Cedarville State Forest.

Summary of Impacts

(Options that are shaded are proposed to be dismissed from further study)

Resources Impacted	Mattawoman East Options				
	1	2	3	4	
Wetland (acres)	9.3	5.2	6.6	4.3	
Stream Crossings (feet) <i>width of flood plain and associated wetlands</i>					
	Mattawoman Creek	875	740	620	340
Floodplains (acres)	5.1	3.9	4.4	2.1	
Potential FIDS habitat (acres)	12.4	9.9	10.1	23.0	
Potential residential displacements (#)	5	5	5	5	
Potential commercial displacements (#)	0	0	0	0	
Number of residences within 500 ft (#)	0	2	2	0	
Cultural Resource Sensitivity Class	Low	Med	High	Med	
# of NR Listed, Eligible or Undetermined Architectural Sites w/in 1,000 ft.	1	1	0	1	
# of NR Undetermined Archeological Sites w/in 1,000 ft.	0	0	0	0	

Proposed Resolution

Option 1 requires the widest crossing of the Mattawoman Creek and the greatest wetland and floodplain impacts. However, this option does not have any Section 4(f)/6(f) concerns and is therefore proposed to be retained for detailed study.

Option 2 crosses the Mattawoman Creek at a confluence point with an unnamed tributary and results in the second longest crossing of the available options. This option would also have the greatest impact on the Cedarville State Forest. Since there are other options that are less impactful, it is proposed that Mattawoman East Option 2 be dismissed from detailed study.

Option 3 also crosses the Mattawoman Creek at a location that is approximately 620 feet wide and must cross Cedarville Road at two separate locations. The alignment would also have minor impacts to the Piscataway Indian Cultural Center, although it would avoid impacts to the Cedarville State Forest and to the historic structure (PG85B-12) along Cedarville Road. Option 4 has the least impactful crossing of Mattawoman Creek and its community impacts are comparable to the other available options. However, this option presents Section 4(f)/6(f) concerns. Therefore, it is proposed that Mattawoman East Options 3 and 4 be retained for detailed study to provide flexibility in addressing potential Section 4(f)/6(f) and cultural resource issues.



Jordan Options Alternatives Evaluation

These options are approximately 2.5 – 2.6 miles in length and link the Eastern Corridor Option to the north with the Billingsley East Options to the south. Options 1, 2 and 4 are options carried over from previous US 301 Waldorf studies. Options 3, 5 and 6 are newer options designed to provide flexibility in determining a suitable crossing of Jordan Swamp.

All of the options involve crossing the mainstem of Jordan Swamp, a wide, high-value floodplain which is a major tributary to the Zekiah Swamp. To date, a preferred crossing of Jordan Swamp has not been identified in the field by the IAWG resource agencies. A portion of the main stem of Jordan Swamp is designated as a Wetland of Special State Concern in this area. Options 3 and 5 lie just upstream and are the only options that would not impact the designated area. The area crossed by the Jordan Options is also a sensitive species project review area as designated by Maryland DNR, thereby indicating concern for potential impacts to currently undocumented threatened or endangered species and habitat.

Two historic architectural resources were identified in this portion of the study area: the Clarence V. Burch House (CH-611) and Old St. Peter's Cemetery–Reeves Chapel Site (CH-620). A number of previously identified archeological sites were also identified; however, all but one has been previously determined not eligible for the NRHP. The remaining site 18CH208 has not had a formal determination of eligibility. It is a prehistoric period site of an unknown cultural period that lies within the current alignment of Jordan Option 3, and approximately 690 feet from Jordan Options 1, 2, 4, 5 and 6.

Jordan Options 1 and 2 avoid impacts to the identified historic properties and have relatively low sensitivity scores. The current alignment of Option 3 is located only 190 feet from the CH-611 and lies within the area of 18CH208. This option also exhibits higher cultural resource sensitivity than the other Jordan options. Jordan Options 4, 5 and 6 each are characterized by medium sensitivity for potential cultural resources. Although CH-620 falls within the 1,000 ft. buffer for Jordan Options 4 & 6, it is located approximately 860 feet from the closest point of the alignment and as a result the potential impacts should be relatively minor. Jordan Options 4, 5 and 6 are approximately 690 feet from 18CH208.

Currently, there are no pending development proposals in this area with the exception of mining operations and all of the options pass outside of the Charles County - Waldorf Priority Funding Area and the Charles County Development District. Effects on Maryland Green Infrastructure lands would be comparable among the options, as all pass through the hub area associated with Jordan Swamp. Potential FIDS habitat areas exhibit overall medium threat and are currently only partially developed.

Although this analysis indicates the potential acreage of floodplains and wetlands impacted by each option, it should be noted that the floodplains and wetlands associated with major stream crossings would be spanned by a structure(s). The actual minimization of floodplain and wetland impacts will be evaluated during the detailed engineering/environmental studies phase.

Option 1 – Option 1 begins at the connection with the Eastern Corridor Option and swings east crossing Jordan Swamp east of the power line. Wetland impacts would be approximately 11.1 acres, with 4.5 acres of floodplain impacts associated with the Jordan Swamp mainstem crossing. Potential FIDS habitat impacts would be approximately 30 acres. Implementation of



Jordan Options Alternatives Evaluation

Option 1 would result in 3 residential displacements with four existing residences located within 500 feet of the centerline of the alignment.

Option 2 – Option 2 crosses Jordan Swamp just east of the power line. Wetland impacts would be approximately 11.1 acres, with 2.8 acres of floodplain impact associated with the Jordan Swamp mainstem crossing. Potential FIDS habitat impacts would be similar to other options, approximately 23 acres. Community impacts would be limited to one residential displacement and four homes are located within 500 feet of the centerline of the proposed alignment.

Option 3 – Option 3 swings to the west, crosses MD 5 and a tributary of Jordan Swamp, and then crosses its mainstem. Wetland impacts for this option would be approximately 14.5 acres. Floodplain impacts under this option (10.5 acres) would be more than double other Jordan Options, as this option requires an additional major stream crossing and a much wider crossing of the main stem of Jordan Swamp. Impacts to potential FIDS habitat would be 19.5 acres. Option 3 would also require three residential displacements; with four residences within 500 feet of the centerline of the proposed alignment.

Option 4 – Option 4 parallels the power line to the north of Jordan Swamp. Wetland impacts for this option would be approximately 9.7 acres, with 4.5 acres of Jordan Swamp mainstem floodplain impacts. Potential FIDS habitat impacts of 29 acres would be comparable with other Jordan Options. Community impacts would include one residential displacement, with 5 residences within 500 feet of the centerline of the proposed alignment.

Option 5 – Option 5 runs west of the power line. Approximately 13.84 acres of wetland impacts would occur under this option. Floodplain impacts under this option are approximately 2.8 acres. Impacts to potential FIDS habitat would be approximately 29 acres. Community impacts include three residential displacements and 4 homes located within 500 feet of the centerline of the proposed alignment.

Option 6 – Option 6 runs east of the power line. Wetland impacts would be approximately 6.9 acres, with approximately 2.5 acres of floodplain impact. Potential FIDS habitat impacts are similar to other options, approximately 28 acres. Community impacts are similar to Option 5, with 4 potential residential displacements and 5 homes located within 500 feet of the centerline of the proposed alignment.



Jordan Options Alternatives Evaluation

Summary of Impacts

(Options that are shaded are proposed to be dismissed from further study)

Resources Impacted		Jordan Options					
		1	2	3	4	5	6
Wetlands (acres)		11.0	11.1	14.5	9.7	13.8	6.9
Stream crossings (feet) <i>width of flood plain and associated wetlands</i>	Jordan Swamp mainstem	1,100	850	630	1,100	400	1,400
	Unnamed tributary to Jordan Swamp	0	100	1,100	0	0	0
	TOTAL	1,100	950	1,730	1,100	400	1,400
Floodplains (acres)		4.5	2.8	10.5	4.5	2.8	2.5
Potential FIDS habitat (acres)		29.9	23.0	19.5	28.7	29.0	27.8
Potential residential displacements (#)		3	1	3	1	3	4
Potential commercial displacements (#)		0	0	0	0	0	0
Number of residences within 500 ft (#)		4	4	4	5	4	5
Cultural Resource Sensitivity Class		Med	Low	High	Med	Med	Med
# of NR Listed, Eligible or Undetermined Architectural Sites w/in 1,000 ft.		0	0	1	1	0	1
# of NR Undetermined Archeological Sites w/in 1,000 ft.		1	1	1	1	1	1

* Incomplete JD wetland information as a portion of this option lies outside the original JD area

Proposed Resolution:

Due to the comparable overall impacts associated with the Jordan Options and the lack of a preferred Jordan Swamp crossing location, it is proposed that Options 3 and 5 be retained for detailed study. There will be flexibility during detailed studies to adjust these alignments to minimize impacts associated with a Jordan Swamp crossing, potential species and habitat concerns and community impacts. While the preliminary stream, wetland and floodplain impacts for Option 3 are greater than those associated with Options 5 and 6, the quality of those resources along Option 3 may be of lesser value, which may represent a more preferable crossing from an environmental perspective. The IAWG representatives indicated that the relative habitat values for both terrestrial and aquatic resources was higher for Option 6 than for Option 5. Additional detailed study is necessary to fully understand and determine the environmental and cultural resource impacts associated with these options.

Options 1, 2, 4 and 6 are proposed to be dismissed from detailed study with Options 3 and 5 being retained essentially as “placeholders” for additional detailed engineering and environmental study in the next stage of the project.



Billingsley East Options Alternatives Evaluation

These options range from 2.4 to 5.6 miles in length and link the Jordan Options to the north with the Kerrick Options to the south/west. The Billingsley East Options involve substantial natural resource concerns. Of most importance is the potential high quality habitat associated with the Piney Branch watershed and connected wetland areas, which are also part of a major Maryland Green Infrastructure hub. Each of these options crosses Piney Branch, which is a major tributary to Zekiah Swamp, a Maryland Wetland of Special State Concern. The Maryland DNR has designated a large portion of this area as a sensitive species project review area, indicating concern for potential impacts to both known and currently undocumented threatened or endangered natural heritage species and habitat. In order to minimize potential impacts to Piney Branch Bog, a Maryland DNR Heritage Conservation Fund site, several shifts in the alignments of the original preliminary options have been investigated at this preliminary stage resulting in the development of new Billingsley East Options (Options 2A, 5A and 5B). Potential FIDS habitat is characterized as exhibiting a medium-high threat, with potential habitat areas ranging in current context from undeveloped to developed.

Two of the three historic architectural resources located in this portion of project study area do not represent existing standing structures. Middleton House (CH-615) has been completely demolished and Piney Church-Site of 1754 Log Church (CH-76) is the reported site of a non-existent early church. On the third property, Widows Pleasure (CH 558 & NR-1083), the main house was found to have been demolished, although the remaining elements of the agricultural complex were found standing and the property may retain sufficient integrity to retain NRHP eligibility. Option 1 was found to have significantly lower cultural resource sensitivity than the other Billingsley East options. Billingsley East Options 2, 2A 3, 4, 5A, and 5B were found to fall within the medium sensitivity class, suggesting that cultural resource sensitivity is not a significant differentiation attribute. Billingsley Option 6 is the option in this area with an existing potential historic standing structure within a 1,000-foot buffer of the current alignment and high cultural resource sensitivity.

Although this analysis indicates the potential acreage of floodplains and wetlands impacted by each option, it should be noted that the floodplains and wetlands associated with major stream crossings would be spanned by a structure(s). The actual minimization of floodplain and wetland impacts will be evaluated during the detailed engineering/environmental studies phase.

Options 2, 2A, 3 and 4 are located outside of the Charles County – Waldorf Priority Funding Area (PFA). Option 1 skirts the Waldorf PFA near the St. Charles development and Options 5, 5A, 5B and 6 cross through the PFA designation associated with the Piney Reach Business Park. All of the options are in the Charles County Development District.

Option 1 – This option crosses the main stem of Piney Branch (approximately 730 feet in length) and then continues due west with no other stream crossings before connecting with Kerrick Options 2 and 3. Wetland impacts are for this option 6.8 acres of jurisdictional wetlands, as it passes directly through a large and diverse wetland complex (PFO/PSS/PEM) north of Billingsley Road. Floodplain impacts are less than other available options, due to the narrow crossing of the Piney Branch main stem and the lack of other stream crossings. Approximately 42 acres of potential FIDS habitat would be impacted by this option, although much of the forest cover in this area has already been converted by residential development. This option would also impact the watershed of Piney Branch Bog. Substantial community impacts would also



Billingsley East Options Alternatives Evaluation

occur as this alignment would pass through The Meadows at Forgotten Farm and Sheffield Neighborhood residential developments, potentially affecting a total of 108 building lots. In addition to these direct impacts, there are also 16 lots within 500 feet of the centerline of the proposed alignment in the Meadows at Forgotten Farm and 24 lots in the Sheffield Neighborhood.

Option 2 – This option requires a 710-foot crossing of the mainstem of Piney Branch. It also crosses unnamed tributaries of Piney Branch and Kerrick Swamp as it continues southwest to its connection with Kerrick Option 5. Billingsley East Option 2 would have approximately 6.9 acres of wetland impact. Floodplain impacts would be approximately 2.4 acres under this option. In addition, approximately 82 acres of potential FIDS habitat would be impacted, although much of the forest cover in this area has already been converted for residential development. The watershed of Piney Branch Bog would also be affected. Substantial community impacts would occur under this option, including residential displacements in The Meadows at Forgotten Farm (31 lots), Gleneagles North (52 lots) and two other existing residences, as well as effects on a portion of the Piney Reach Business Park and the proposed Charles County high school site. There are also 18 lots in the Meadows and 16 in Gleneagles that fall within 500 feet of the centerline of the proposed alignment.

Option 2A – This option was developed to reduce the potential community and natural resource concerns associated with Billingsley East Options 2, 3 and 4. Option 2A crosses the mainstem of Piney Branch at a narrower point (520 feet) than Options 1 and 2, crosses unnamed tributaries to Piney Branch and Kerrick Swamp, and then continues southwest to its connection with Kerrick Options 1 and 4. Wetland impacts under Option 2A would be approximately 7.7 acres, with floodplain impacts of approximately 2.4 acres. Potential FIDS habitat impacts would be approximately 56 acres, although much of this area has been affected by recent residential development. Option 2A was designed to minimize impacts to the Piney Branch Bog watershed area and the proposed Charles County high school site, although it would generate residential displacements at The Meadows at Forgotten Farm (13 lots), Gleneagles North (19 lots) and four existing residences. It would also affect a portion of the Piney Reach Business Park. As with Option 2, there are 18 lots in the Meadows, 16 in Gleneagles, and two existing residences that fall within 500 feet of the centerline of the proposed alignment.

Option 3 – Option 3 crosses the main stem of Piney Branch (740 feet) and largely parallels Option 2A before connecting with Kerrick Option 5. Wetland impacts under Option 3 would be approximately 5.2 acres, with floodplain impacts of approximately 4.9 acres. Impact to potential FIDS habitat under this option would be approximately 103.5 acres, although much of this area is proposed or approved for development. This option would also impact the watershed of Piney Branch Bog. Residential displacements would occur at The Meadows at Forgotten Farm (13 lots), Gleneagles North (9 lots), and four existing residences. It would also affect a portion of the Piney Reach Business Park and the proposed Charles County high school site. There are also a number of lots within 500 feet of the centerline of the proposed alignment; 5 in the Meadows, and 11 in Gleneagles North.

Option 4 - Option 4 largely parallels Option 3, with similar potential resource impacts. It would use the same alignment to cross the mainstem of Piney Branch and would have similar crossings of unnamed tributaries to Piney Branch and Kerrick Swamp. Wetland impacts under



Billingsley East Options Alternatives Evaluation

this option would be approximately 4.6 acres, with floodplain impacts of 6.6 acres. Potential FIDS habitat impacts (104.4 acres) and conversion pressure under Option 4 mirror those for Option 3. The watershed of Piney Branch Bog, The Meadows at Forgotten Farm (13 lots), three existing residences, the Piney Reach Business Park, and the proposed Charles County high school site are also impacted. There are five lots in the Meadows development that fall within 500 feet of the centerline of the proposed alignment.

Option 5 – Option 5 crosses the mainstem of Piney Branch at a location similar to Options 1 and 2, resulting in a stream crossing of approximately 810 feet. From the Piney Branch crossing, Option 5 swings south, paralleling Piney Branch and ultimately crossing south of the proposed Charles County high school site and entertainment complex. This option would cross the same unnamed tributaries to Piney Branch and Kerrick Swamp as Options 2 through 4. Wetland impacts for this option would be approximately 6.2 acres. Floodplain impacts for this option are projected to be 6.5 acres. Potential FIDS habitat impacts would be approximately 94 acres with this area under less conversion pressure for residential development than Options 1 through 4. This option would impact the Piney Branch Bog watershed, two existing residences and the Piney Reach Business Park, but would avoid the proposed Charles County high school site and entertainment complex. There are no residences within 500 feet of the centerline of the proposed alignment.

Option 5A – Option 5A was designed to minimize some of the natural and community impacts associated with Option 5. This option would largely mirror Option 5, but would connect with Kerrick Options 1 and 4, similar to Option 2A. It avoids the watershed of Piney Branch Bog and the proposed Charles County high school site and entertainment complex, but would impact a portion of the Piney Reach Business Park and two existing residences. Wetland impacts under Option 5A would be approximately 7.2 acres. Floodplain impacts for Option 5A of 4.1 acres are also less than those associated with Option 5. Potential FIDS habitat impacts would be approximately 118 acres.

Option 5B – Option 5B was designed as an alternative to Option 6. It uses the alignment of Option 5A from the Piney Branch main stem to just south of the proposed Charles County high school and entertainment complex site. At this point, it would follow the alignment of Option 6 to its connection with Kerrick Options 1 and 4. This option would provide flexibility in avoiding potential natural heritage concerns in this area. Wetland impacts associated with Option 5B would be approximately 10.3 acres. Floodplain impacts between 5A and 5B are projected to be similar (4.1 acres). Impacts on FIDS habitat are projected to be approximately 147 acres, greater than each of the other Billingsley East Options except Option 6. There are no residential or commercial impacts associated with this option.

Option 6 – Option 6 crosses the main stem of Piney Branch and turns immediately south, paralleling the stream for approximately 1 mile before turning west at a point just south of the Charles County sanitary landfill. This option would impact approximately 4.88 acres of NWI/DNR wetlands. Floodplain impacts under this option would be approximately 8.8 acres, which is more than any of the Billingsley East Options. This is due to the longitudinal floodplain crossings along Piney Branch. Potential FIDS impacts of 160 acres are also the highest compared to other options. Imminent development that would convert potential FIDS habitat is



Billingsley East Options Alternatives Evaluation

not present. Community resource impacts include the Piney Reach Business Park and 5 residences, although there are no residences within 500 feet of the centerline of the alignment.

Summary of Impacts

(Options that are shaded are proposed to be dismissed from further study)

Resources Impacted		Billingsley East Options								
		1	2	2A	3	4	5	5A	5B	6
Wetlands (acres)		6.8	6.9	7.7	5.2	4.6	6.2	7.2	10.4	4.9*
Stream crossings (feet) <i>width of flood plain and associated wetlands</i>	Piney Branch mainstem	730	710	520	740	780	810	840	830	740
	Unnamed tributary to Piney Branch	0	290	430	300	330	260	100	100	400
	Unnamed tributary to Kerrick Swamp (through White Plains Regional Park)	0	320	330	230	210	270	290	150 and 440	390
	Unnamed tributary to Kerrick Swamp	0	125	50	170	170	140	100	100	100
	TOTAL	730	1,445	1,130	1,440	1,490	1,480	1,330	1,620	1,630
Floodplains (acres)		2.4	2.4	2.4	4.9	6.6	6.5	4.1	4.1	8.8
Potential FIDS habitat (acres)		41.9	82.0	56.0	103.5	104.4	93.5	118.6	146.9	160.3
Potential residential displacements (#)		108	85	36	26	16	2	2	0	5
Potential commercial displacements (#)		2**	2**	1***	2**	2**	1***	1***	0	1***
Number of residences within 500 ft (#)		40	34	34	16	5	0	0	0	0
Cultural Resource Sensitivity Class		Low	Med	High						
# of NR Listed, Eligible or Undetermined Architectural Sites w/in 1,000 ft.		1	2	2	1	1	1	1	1	2
# of NR Undetermined Archeological Sites w/in 1,000 ft.		1	0	0	0	0	0	0	0	0

* No JD wetland information is available as a portion of this option lies outside the original JD area

** Impacts to Piney Reach Business Park and the proposed High School site.

***Impacts to Piney Reach Business Park only



Billingsley East Options Alternatives Evaluation

Proposed Resolution:

Billingsley East Options 1, 3 and 4 involve major community resource impacts, would affect the Piney Branch Bog watershed, and do not provide a substantial advantage in terms of potential natural resource impacts in comparison to other available options. Option 5, while avoiding many of the impacts upon residential development and the proposed high school and entertainment complex, would impact the watershed area of Piney Branch Bog. Therefore, Billingsley East Options 1, 3, 4 and 5 are proposed to be dismissed from detailed study.

Billingsley East Option 6 would involve a major parallel crossing of Piney Branch and would involve the most floodplain impacts of the Billingsley East Options. Therefore, Billingsley East Option 6 is proposed to be dismissed from detailed study.

Options 2, 2A, 5A and 5B would minimize impacts to potential heritage species and habitat concerns associated with Piney Branch Bog (except for Option 2) and appear to provide the best overall balance between natural resource and community impacts in comparison to other available Billingsley East Options. It is proposed that these options be retained for detailed study, with the understanding that flexibility be retained to adjust the alignments of these options to minimize impacts to heritage species and habitats that may be discovered during detailed engineering/environmental studies.



Kerrick Options Alternatives Evaluation

The Kerrick Options are located in the southeastern portion of the study area. These options tie the Billingsley East Options to the east with the Forest Grove Options to the west, which tie into US 301. They are located inside both the Charles County - Waldorf PFA and the Charles County Development District.

Similar to the Billingsley East Options, Maryland DNR has expressed concerns regarding potential threatened and endangered species and habitats which are not yet documented in this area. Each of the options crosses through the western edge of a Maryland Green Infrastructure hub that is primarily associated with Kerrick Swamp. Threats to potential FIDS habitat is defined as medium-high to high, with most potential habitat areas being at least partially developed.

The only previously identified cultural resources found within the alignment buffers for the Kerrick options have been previously determined to be not eligible for the NRHP. Options 2 and 3 were found to have the highest cultural resources sensitivity scores. Options 4 and 5 were found to have the lowest relative sensitivity, although this factor was not viewed as a significant differentiating attribute in comparison to Option 1, which was found to have a medium cultural sensitivity.

Although this analysis indicates total potential acreage of floodplains and wetlands impacted, it should be noted that the floodplains and wetlands associated with major stream crossings within the study area will be spanned by a structure(s). The actual minimization of floodplain and wetland impacts will be evaluated during the detailed engineering/environmental studies phase.

Option 1 - This option impacts wetland areas that total approximately 3.6 acres, approximately 2.8 acres of floodplains, and approximately 31.4 acres of potential FIDS habitat. This crossing of the Kerrick Swamp is consistent with the preference of some IAWG agencies in that it minimizes impacts of the crossing on water and wetland resources. Option 1 also involves an additional crossing of an unnamed tributary to Kerrick Swamp. There are three residential displacements associated with this alignment and approximately 25 other residences within 500 feet of the centerline of the proposed alignment.

Option 2 – This option directly impacts two developments: The Heritage at St. Charles (at least 72 proposed lots) and Glen Eagles North (4 proposed office buildings and their associated parking areas). Construction of The Heritage at St. Charles development is already underway, while the Glen Eagles North development currently has preliminary plan approval from Charles County. This option would also displace 13 existing residences and an additional 16 residences are within 500 feet of the centerline of the proposed alignment. It requires a 375-foot crossing of Kerrick Swamp, crossings of two unnamed tributaries, and impacts 10.0 acres of wetlands, 2.3 acres of floodplains, and approximately 65 acres of potential FIDS habitat.

Option 3 – This option also directly impacts The Heritage at St. Charles (34 proposed lots) and Glen Eagles North (4 proposed office buildings and their associated parking areas). This option would also displace five existing residences. It crosses the Kerrick Swamp at the same location as Option 1, crosses the same unnamed tributaries, and impacts 3.8 acres of wetlands. Floodplain impacts total 2.7 acres, while impacts to potential FIDS habitat are estimated to be 40 acres.



Kerrick Options Alternatives Evaluation

Option 4 – Option 4 uses the same Kerrick Swamp crossing location as Options 1 and 3, and crossing the unnamed tributary of Kerrick Swamp to the west of the main stem. Wetlands impacted by this alignment total 1.4 acres and there are 2.3 acres of floodplains impacted. Impacts to potential FIDS habitat associated with this option are estimated to be 26 acres. There are two potential residential displacements anticipated with this alignment, but no commercial displacements or residences within 500 feet of the proposed centerline.

Option 5 – This alignment requires the widest crossing of Kerrick Swamp at 650 feet. Floodplain impacts are also the greatest with this option, totaling 2.9 acres. However, impacts to potential FIDS habitat are the least with this option, totaling 20.6 acres. A total of 6.9 acres of wetlands are also impacted. This option potentially displaces two existing residences, but there are no commercial displacements or residences within 500 feet.

Summary of Impacts

(Options that are shaded are proposed to be dismissed from detailed study)

Resources Impacted		Kerrick Options				
		1	2	3	4	5
Wetlands (acres)		3.6	10.0	4.8	1.4	6.9
Stream crossings (feet)	Unnamed Tributary 1	0	240	140	0	0
	Kerrick Swamp mainstem	280	375	400	280	650
	Unnamed Tributary 2	1,400	245	430	150	0
	TOTAL	1,680	860	970	430	650
Floodplains (acres) <i>width of flood plain and associated wetlands</i>		2.8	2.3	2.7	2.3	2.9
Potential FIDS habitat (acres)		31.4	64.9	40.5	25.7	20.6
Potential residential displacements (#)		3	85	39	2	2
Potential commercial displacements (#)		0	4	4	0	0
Number of residences within 500 ft (#)		25	16	0	0	0
Cultural Resource Sensitivity Class		Med	High	High	Low	Low
# of NR Listed, Eligible or Undetermined Architectural Sites w/in 1,000 ft.		0	0	0	0	0
# of NR Undetermined Archeological Sites w/in 1,000 ft.		0	0	0	0	0

Proposed Resolution:

During field views, a location for a crossing of the Kerrick Swamp preferred by some of the IAWG agencies was identified. To ensure this crossing was retained as part of a viable option, the alignment of Kerrick Options 1 and 4 were slightly revised. This location provides a fairly narrow crossing across a transitional, open canopy habitat that avoids potentially more valuable, mature forest habitats located to the north and south. As these options also appear to have the least overall natural and community impacts, it is proposed that Kerrick Options 1 and 4 be retained for detailed study, with the acknowledgement that the Kerrick Swamp crossing location may be adjusted during detailed studies due to heritage species and habitat concerns.

Kerrick Options 2 and 3 only link with Billingsley East Option 1, which has been proposed to be dismissed from detailed study due to its significant community and natural resource impacts.



Kerrick Options Alternatives Evaluation

Therefore, Kerrick Options 2 and 3 are proposed to be dismissed from detailed study. Additionally, these options cross Kerrick Swamp along a non-preferred alignment and do not possess a clear advantage in terms of natural resource or community impacts in comparison to other available options.

Similarly, Kerrick Option 5 only links with Billingsley East Options 3, 4, 5 and 6 which have also been proposed to be dismissed from further consideration. Kerrick Option 5 also crosses Kerrick Swamp at a wider and less desirable location than Kerrick Options 1 and 4, and would generate the highest floodplain impacts. Therefore, Kerrick Option 5 is also proposed to be dismissed from detailed study.



Forest Grove Options Alternatives Evaluation

The Forest Grove Options connect the Kerrick Options to the east with existing US 301. There are no stream crossings associated the Forest Grove options and no floodplain impacts are anticipated. In addition, the options do not impact any Maryland Green Infrastructure areas. The majority of the Forest Grove Options lie just outside of the Charles County – Waldorf Priority Funding Area and the Charles County Development District. Threat to potential FIDS habitat is defined as medium to high for this area, although these areas are currently undeveloped.

No previously identified historic architectural resources were found to fall within the 1,000-foot alignment buffers in this portion of the study area. Option 2 was found to have the lowest cultural resources sensitivity, while Option 3A had the highest cultural resources sensitivity. Cultural resource sensitivity was not seen to be a significant differentiation attribute for Options 1 and 3B.

Option 1 – This option connects US 301 just north of New Life Wesleyan Church with Kerrick Options 2 and 3. It impacts approximately 5.8 acres of wetlands; more than any of the other Forest Grove Options. There are no floodplain impacts or stream crossings associated with this alignment. Impacts to potential FIDS habitat are expected to be approximately 10 acres.

Option 2 – This option connects US 301 just north of New Life Wesleyan Church with Kerrick Options 3, 4 and 5. Forest Grove Option 2 impacts 0.72 acres of wetlands and approximately 5.2 acres of potential FIDS habitat. There are two residences within 500 feet of the centerline of the proposed alignment.

Option 3A – Option 3A connects with Kerrick Option 2. This option impacts 2.6 acres of wetlands. Impacts on potential FIDS habitat would be greater than the other Forest Grove options at 32.3 acres.

Option 3B – This option connects with Kerrick Options 3, 4 and 5. There is less than a half acre of wetlands that would be impacted by this option. Community impacts include two residential displacements, with an additional nine residences located within 500 feet of the centerline of the proposed alignment.



Forest Grove Options Alternatives Evaluation

Summary of Impacts

(Options that are shaded are proposed to be dismissed from detailed study)

Resources Impacted	Forest Grove Options			
	1	2	3A	3B
Wetlands (acres)	5.8	0.7	2.6	0.4
Stream crossings (feet)	0	0	0	0
Floodplains (acres) <i>width of flood plain and associated wetlands</i>	0.0	0.0	0.0	0.0
Potential FIDS habitat (acres)	9.9	5.2	32.3	24.6
Potential residential displacements (#)	0	0	0	2
Potential commercial displacements (#)	0	0	0	0
Number of residences within 500 ft (#)	0	2	0	9
Cultural Resource Sensitivity Class	Med	Low	High	Med
# of NR Listed, Eligible or Undetermined Architectural Sites w/in 1,000 ft.	0	0	0	0
# of NR Undetermined Archeological Sites w/in 1,000 ft.	0	0	0	0

Proposed Resolution:

Forest Grove Options 1 and 3A link with Kerrick Option 2, which has been proposed to be dropped from further consideration. Additionally, Forest Grove Option 1 has the highest potential wetland impacts of the Forest Grove Options and 3A would have the greatest impact on potential FIDS habitat. Therefore, Forest Grove Options 1 and 3A are proposed to be dismissed from detailed study.

Forest Grove Options 2 and 3B are proposed to be retained for detailed study, as these options maintain their viability in terms of connecting with available Kerrick Options and do not pose extraordinary impacts in comparison to other Forest Grove Options.



Chaddsford Options Alternatives Evaluation

There are two Chaddsford options that connect Mattawoman West Option 4 with existing US 301. Both alignments originated from the previous US 301 study that was conducted in the late 1990s. These options fall within the Prince George's County Rural Tier Development District and the Prince George's County – Brandywine Priority Funding Area. Since that time, significant development has occurred in this area. As a result, major community impacts are associated with these options.

This portion of the study area was found to contain two historic architectural resources: the Marlow-Macpherson House (PG: 85A-16), which has been demolished and the T.B. Colored School (PG: 85A-26) which was found to be intact but altered. As these resources fall within the 1,000-foot buffer for both options and their cultural resources sensitivity scores were very similar, potential cultural resource impacts would not appear to be a significant differentiating attribute between either of these options.

Threats to potential FIDS habitat in the Chaddsford area is noted as high, with much of these potential habitat areas currently being developed.

Option 1 – This alignment directly impacts two developments, Brandywine Village and Chaddsford 1. Implementation of this option would result in the displacement of a minimum of 110 potential residential displacements, with 93 residences remaining within 500 feet of the centerline of the option. Although this option does not include any stream crossings, approximately 10 acres of wetlands and nearly 65 acres of potential FIDS habitat are impacted.

Option 2 – This option directly impacts Brandywine Village and the southern end of the future General Lafayette Boulevard. There would be 35 potential building lots affected in Brandywine Village, one existing residential displacement, and six commercial displacements associated with this alignment. There would also be 3 existing residences within 500 feet of the centerline of the proposed alignment. Option 2 crosses Timothy Branch at a point that is approximately 100 feet wide. This option would also impact approximately 29 acres of potential FIDS habitat. This alignment does not impact any floodplains; however there are 1.0 acres of wetland impacts.



Chaddsford Options Alternatives Evaluation

Summary of Impacts

(Options that are shaded are proposed to be dismissed from further study)

Resources Impacted	Chaddsford Options	
	1	2
Wetlands (acres)	10.1	1.0
Stream crossings (feet)	0	100
Floodplains (acres) <i>width of flood plain and associated wetlands</i>	0.0	0.0
Potential FIDS habitat (acres)	64.9	29.4
Potential residential displacements (#)	110	36
Potential commercial displacements (#)	0	6
Number of residences within 500 ft (#)	93	3
Cultural Resource Sensitivity Class	*	*
# of NR Listed, Eligible or Undetermined Architectural Sites w/in 1,000 ft.	2	2
# of NR Undetermined Archeological Sites w/in 1,000 ft.	0	1
*Note: The standard deviation calculation used to assign Sensitivity Class can only be used on sets of two or more options		

Proposed Resolution:

Both of the Chaddsford options were developed as part of the previous US 301 study. Since that time significant development has made these alignments no longer feasible. Due to the significant community impacts, it is proposed that both of the Chaddsford Options be dismissed from further study.



Mattawoman West Options Alternatives Evaluation

The Mattawoman West Options provide a connection between the TB West Options and the Western Corridor. The Mattawoman West Options are not located within the Brandywine Area - Prince George's County Priority Funding Area; however, the southernmost portions are within the Waldorf Area - Charles County Priority Funding Area. During the initial evaluations completed in March 2007, Options 2, 3 and 4 were dismissed from detailed study due to their potential community impacts. Due to recent changes in a development proposal located along the remaining options (Options 1, 1A, 1B, and 1C), the project team is proposing to also dismiss two of the remaining options in an effort to define a single alternative within a large proposed development area.

Although this analysis indicates the potential acreage of floodplains and wetlands impacted by each option, it should be noted that the floodplains and wetlands associated with major stream crossings would be spanned by a structure(s). The actual minimization of floodplain and wetland impacts will be evaluated during the detailed engineering/environmental studies phase.

Option 1 – The alignment of this option requires two stream crossings involving the Mattawoman Creek main stem and an unnamed tributary. The Mattawoman main stem crossing is approximately 2,100 feet wide and the unnamed tributary crossing is approximately 380 feet. Wetland impacts total 13.0 acres and floodplain impacts are anticipated to be 13.8 acres. Approximately 81 acres of potential FIDS habitat would also be adversely impacted by this alignment. Community impacts include two residential displacements and an additional residence remaining within 500 feet of the centerline of the proposed alignment.

Option 1A – This option makes a perpendicular crossing of the Mattawoman that is approximately 1,850 feet long. Approximately 15 acres of wetlands would be impacted by this alignment. Floodplain impacts are anticipated to be 8.7 acres and the impacts on potential FIDS habitat would be approximately 78 acres. There are two residential displacements associated with this alignment and one residence would remain within 500 feet of the centerline of the proposed alignment.

Option 1B – This option impacts a total of 16.1 acres of wetlands and would generate approximately 13.8 acres of floodplains impacts. There are two crossings of unnamed tributaries that are 140 feet and 200 feet in length. The alignment also crosses the Mattawoman Creek at a point where the creek and its associated floodplains and wetlands are approximately 2,100 feet across. There are approximately 84 acres of potential FIDS habitat that will be impacted by this alignment. There would also be two residential displacements and an additional residence is within 500 feet of the centerline of the proposed alignment.

Option 1C – This option is essentially a combination of Options 1A and 1B. It uses the northern alignment of 1B and the southern alignment of 1A to provide for a shorter crossing of the Mattawoman, while retaining a connection to the preferred Prince George's County alignment. Wetland impacts total 18.4 acres with this option and floodplain impacts total 10.7 acres. Approximately 75 acres of potential FIDS habitat would also be impacted. There are two residential displacements associated with this option and one residence is within 500 feet of the centerline of the proposed alignment.



Mattawoman West Options Alternatives Evaluation

Summary of Impacts

(Options that are shaded are proposed to be dismissed from further study)

Resources Impacted		Mattawoman West Options			
		1	1A	1B	1C
Wetlands (acres)		13.0	15.1	16.1	18.4
Stream crossings (feet) width of flood plain and associated wetlands	Unnamed Tributary 1	380	140	140	140
	Unnamed Tributary 2	0	200	200	200
	Unnamed Tributary 3	0	0	0	0
	Mattawoman Creek	2,100	1,850	2,100	1,850
	TOTAL	2,480	2,190	2,440	2,190
Floodplains (acres)		13.8	8.7	13.8	10.7
Potential FIDS habitat (acres)		81.2	78.7	84.2	75.2
Potential residential displacements (#)		2	2	2	2
Potential Commercial displacements(#)		0	0	0	0
Number of residences within 500 ft (#)		1	1	1	1
Cultural Resource Sensitivity Class		Med	Med	Med	Med
# of NR Listed, Eligible or Undetermined Architectural Sites w/in 1,000 ft.		0	0	0	0
# of NR Undetermined Archeological Sites w/in 1,000 ft.		0	0	0	0

Proposed Resolution:

It is proposed that Mattawoman West Options 1 and 1B be retained for detailed study as they provide the least impactful options in this area based on a balanced consideration of natural and community resources. While Options 1A and 1C include a shorter crossing of the Mattawoman Creek main stem (1,850 feet); they would impact more acres of mature forest habitat at the Mattawoman crossing (9 acres) in comparison to Options 1 and 1B (5 acres). The upland habitat along the Option 1/1B crossing is in a less mature transitional state in comparison to the more mature upland forest along the Option 1A/C crossing, according to a recently completed Forest Characterization report. Options 1 and 1B also impact fewer JD wetlands although they do have a slightly greater impact on potential FIDS habitat. Finally, Options 1 and 1B would have the least impact on the proposed development as they are located along the western edge of the property, as opposed to Options 1A and 1C, which go through the center of the property. Options 1 and 1B provide sufficient flexibility to adjust as needed during detailed studies to further minimize impacts associated with Mattawoman Creek and other resources.



Piney Branch West Options Alternatives Evaluation

These options are approximately 2.1 miles in length and link the Western Corridor Option to the north with the Billingsley West Options to the south.

The Piney Branch West Options involve natural resource and community impacts that have been a concern of the IAWG members. In order to minimize impacts at this preliminary stage, new options representing shifts in the alignments of the original preliminary options have been investigated to reduce the magnitude of potential impacts associated with implementation of these options. The corridor through which these options pass is constrained by Piney Branch to the north and the Autumn Hills development to the south. SHA is negotiating the purchase of approximately 60 acres from the Autumn Hills development to protect the Piney Branch floodplain and to ensure the availability of a potential alignment through this area.

No previously identified historic architectural resources were found within the 1,000-foot alignment buffers for the Piney Branch West options. Option 2 was found to have the highest cultural resource sensitivity score, with Option 1C having the lowest relative sensitivity. However, this factor was not seen to be a significant differentiating attribute for Options 1, 1A, and 1B which each exhibit medium cultural resources sensitivity.

To provide additional information on the potential natural resource impacts associated with the Piney Branch West Options, fish sampling was conducted in the Piney Branch mainstem and unnamed tributary #3 approximately 0.25 miles west of McDaniel Road. The sampling was conducted to provide a quality comparison between these two resources to determine available minimization options. Both streams received a narrative rating of 'good' based on the Fish Index of Biological Integrity (FIBI) measure of the Maryland Biological Stream Survey, indicating the presence of high quality fish communities relative to typical coastal plain streams in Maryland

Although this analysis indicates the potential acreage of floodplains and wetlands impacted, it should be noted that the floodplains and wetlands associated with major stream crossings within the study area will be spanned by a structure(s). Even with spanning, significant issues still exist regarding loss of vegetation beneath the structure, increased impervious surface, and potential changes to stormwater run-off and the hydrologic regimes of local streams. The actual minimization of floodplain and wetland impacts would be evaluated during the detailed engineering/environmental studies phase. However, state-of-the-art stormwater design will be required to protect instream and riparian habitat and existing flow regimes in the Piney Branch watershed. To ascertain how protection could be afforded to Piney Branch and its tributaries during and following highway construction, conceptual stormwater management options will be discussed with IAWG members during the upcoming detailed study phase for selection of the preferred alternate.

Only the extreme southern portions of these options near the connection point with the Billingsley West Options are outside of the current Charles County – Waldorf Priority Funding Area (PFA). The Piney Branch West Options are also located entirely within the Charles County Development District.

Impacts to Maryland Green Infrastructure lands would be comparable among the options, as all pass through the hub area associated with Piney Branch, although those lands are also under pressure from residential development. All of the potential FIDS habitat areas within this location



Piney Branch West Options Alternatives Evaluation

are facing a high threat for development, with habitat areas context ranging from undeveloped to developed.

Option 1 – This option was one of the original options for the Piney Branch West corridor. After crossing the Piney Branch mainstem, it closely parallels the stream to the west before turning south after crossing Middletown Road. Wetland impacts under this option would be approximately 4.2 acres, mainly associated with various stream crossing along the alignment. Floodplain impacts would be approximately 2.8 acres, the highest of the Piney Branch West Options due to the close proximity to Piney Branch. Potential FIDS habitat impacts would be approximately 47 acres, however much of that area is slated for residential development. Option 1 would maximize use of the property that SHA is in the process of buying to avoid impacts to the Autumn Hills development. There are two potential residential displacements associated with this option and there are 11 proposed residences that fall within 500 feet of the centerline of the proposed alignment.

Option 1A – This option was developed as an alternative to Option 1 and provides a greater separation distance between the proposed roadway and the mainstem of Piney Branch. Wetland impacts of approximately 4.6 acres would be similar to other options; however it would substantially reduce floodplain impacts (2.2 acres) in comparison to Option 1. The option would impact approximately 41 acres of potential FIDS habitat, which is also threatened by encroaching residential development in this area. By moving this alignment farther away from Piney Branch, community impacts would increase to include approximately 47 approved lots within the Autumn Hills development. An additional 18 approved lots fall within 500 feet of the center line of the proposed alignment.

Option 1B – This option was also developed as an alternative to Option 1 to minimize impacts on Piney Branch. The stream crossings are similar to the other Piney Branch West Options, impacting approximately 2.1 acres of floodplains and 53 acres of potential FIDS habitat. It would also impact 4.5 acres of wetlands. Option 1B would minimize direct impacts to residential properties in the Autumn Hills development in that it would only affect a storm water management pond on the northern edge of the property.

Option 1C – Option 1C was developed as a third alternative to Option 1 in an attempt to minimize impacts to Piney Branch. It would affect 4.0 acres of wetland and 2.6 acres of floodplains. Although this option provides greater separation from Piney Branch mainstem when compared to Option 1, like Option 1 it will result in direct crossings of several tributaries, including unnamed tributary 3 which possesses a high value fish community. Potential FIDS habitat impacts would be approximately 51 acres. In terms of community impacts, this option minimizes impacts to the approved Autumn Hills development, as it would only affect a storm water detention pond on the perimeter of the approved development and only 8 approved lots fall within 500 feet of the proposed alignment.

Option 2 – Wetland impacts under this option would be approximately 4.6 acres with 2.0 acres of floodplain impact. Potential FIDS habitat impacts would be approximately 56 acres. However, much of this area is already approved for residential development in the Autumn Hills community. This option would have the greatest community impacts of the Piney Branch West Options, directly impacting 154 approved housing lots in the Autumn Hills development and the



Piney Branch West Options Alternatives Evaluation

internal roadway and drainage network, which would likely result in additional residential displacements. An additional 37 lots fall within 500 feet of the centerline of the proposed alignment.

Summary of Impacts

(Options that are shaded are proposed to be dismissed from further study)

Resources Impacted		Piney Branch West Options				
		1	1A	1B	1C	2
Wetlands (acres)		4.2	4.6	4.5	4.0	4.6
Stream crossings (feet) width of floodplain and associated wetlands	Piney Branch mainstem	390	360	428	480	381
	Unnamed tributary #1	90	0	220	220	0
	Unnamed tributary #2	115	190	224	200	594
	Unnamed tributary #3	150	175	160	203	122
	Unnamed tributary #4	110	105	85	44	94
	TOTAL	665	830	985	865	800
Floodplains (acres)		2.8	2.2	2.1	2.6	2.0
Potential FIDS habitat (acres)		47.6	41.1	52.5	51.3	56.0
Potential residential displacements (#)		2	1 + approx. 47 approved lots in Autumn Hills development	1 + storm water detention pond in Autumn Hills development	1 + storm water detention pond in Autumn Hills development	1 + approx. 154 approved lots in Autumn Hills development
Potential commercial displacements (#)		0	0	0	0	0
Number of residences within 500 ft (#)		11	18	16	16	37
Cultural Resource Sensitivity Class		Med	Med	Med	Low	High
# of NR Listed, Eligible or Undetermined Architectural Sites w/in 1,000 ft.		0	0	0	0	0
# of NR Undetermined Archeological Sites w/in 1,000 ft.		1	1	1	1	1

Proposed Resolution:

Due to their substantial impacts, Options 1, 1A and 2 are proposed to be dismissed from detailed study. Option 1 provides the smallest buffer between the proposed alignment and the Piney Branch mainstem, and would pose additional storm water management issues in order to protect this aquatic resource. Option 1A would pose substantial community impacts in the Autumn Hills neighborhood while offering no substantial advantages regarding natural resource



Piney Branch West Options Alternatives Evaluation

concerns in comparison to other available options. Option 2 would have substantial community impacts on the Autumn Hills neighborhood which, on balance, would negate any slight advantages this option may have from a natural resource perspective.

As designed, Option 1B requires the use of a “broken- back” geometric curve which does not meet current highway design criteria. This option would pose operational and safety concerns from an engineering perspective; however, it does slightly reduce the impacts to streams and floodplains in comparison to Option 1C. Option 1C preliminarily appears to provide the best overall balance between natural resource and community impacts, while providing safety in engineering design, in comparison to other available alternatives. It is suggested that Option 1C be carried forward into detailed study, with additional engineering considerations and a conceptual stormwater management analysis, to more confidently reduce environmental impacts and to protect the existing hydrology and instream habitat of the Piney Branch watershed, while providing an alignment that will meet acceptable design criteria.



Billingsley West Options Alternatives Evaluation

These options are approximately 2.5 miles in length and link the Piney Branch West Options to the north with the Western Corridor 2 option to the south. The northern portion of these options passes through the Avalon and Middletown South residential developments before turning south and crossing Billingsley Road. Major concerns associated with the Billingsley West Options include potential impacts upon the approved Middletown South development and the watershed of Cat Pond, a Maryland Wetland of Special State Concern. Portions of each option are outside of the Charles County - Waldorf Priority Funding Area. The options also cross through a Maryland Green Infrastructure hub and potential FIDS habitat, although these threats to these habits are characterized by DNR as medium-high to high and much of these areas are already developed.

This portion of the study area was found to contain one previously identified historic resource that had not been previously determined eligible for the NRHP, the Indian Head-White Plains Railroad (CH-290). As all three alignment options will need to cross the railroad, this potential impact is not a differentiating attribute.

A number of previously identified archeological sites were identified in this portion of the study area; however, all but two, have been previously determined not eligible for the NRHP. The remaining sites have not had formal Determinations of Eligibility. 18CH730 lies within the current alignment of Billingsley West Option 3, and is a prehistoric site of an unknown period. 18CH744 is a 20th century historic site that was located during a pipeline survey and may have been at least partially disturbed by the subsequent trenching. Site 18CH744 is located approximately 370 feet away from Options 1 & 2 and it is unlikely that it would be impacted by either option.

Option 1 – This option passes through the Avalon and Middletown South residential developments before turning south. It continues south, intersects with Billingsley Road approximately 850 feet west of Middletown Road, and then crosses Middletown Road approximately 0.25 miles south of the Billingsley Road/Middletown Road intersection. Wetland impacts are projected to be approximately 6.4 acres. There are no stream crossings or floodplain impacts associated with this option. Approximately 36 acres of potential FIDS habitat would be impacted, although much of this area is susceptible to future residential development. Option 1 is outside of the Cat Pond watershed and the DNR sensitive species project review area, and passes Cat Pond at least 2,000 feet to the west. Community impacts for this option would be limited to one residential displacement, with six dwellings in the Brookwood Estates development that are within 500 feet of the centerline of the proposed alignment.

Option 2 – This option serves as an alternative to Billingsley West Option 1. The northern portion passes through the Avalon and Middletown South residential developments before turning south. It continues south, intersects with Billingsley Road approximately 450 feet west of Middletown Road, and then crosses Middletown Road approximately 0.12 miles south of the Billingsley Road/Middletown Road intersection. Projected wetland impacts are 6.8 acres, with no stream crossings or floodplain impacts. Approximately 57 acres of potential FIDS habitat would be impacted, although much of the area is susceptible to future development. This option is also outside of the Cat Pond watershed and DNR sensitive species project review area, and passes at least 2,000 feet away from Cat Pond. Community impacts for this option would be limited to 1 residential displacement.



Billingsley West Options Alternatives Evaluation

Option 3 - The northern portion of this option passes through the Avalon and Middletown South residential developments before turning south. It continues south, intersecting with Middletown Road just north of Cat Pond and then passes approximately 0.3 miles east of the Billingsley Road/Middletown Road intersection. Potential wetland impacts for Option 3 are 6.1 acres. Impacts to potential FIDS habitat (72 acres) are almost twice those associated with Option 1 and less than those for Option 2. Option 3 would also have more impact on the Maryland Green Infrastructure hub when compared with Option 1, although much of this land is under development pressure. Impacts to the Middletown South development would include approximately 34 residential lots and effects on the internal road network, which could result in additional residential displacements. In the Avalon development, 11 residences would be displaced. While Option 3 has a slightly lower probability of cultural resource impacts than Options 1 and 2, the comparative sensitivity is slight. It is expected that actual archaeological resource impacts would be similar under either option due to their geographic proximity.

Summary of Impacts

(Options that are shaded are proposed to be dismissed from further study)

Resources Impacted	Billingsley West Options		
	1	2	3
Wetlands (acres)	6.4	6.8	6.1
Stream crossings	0	0	0
Floodplains (acres)	0.0	0.0	0.0
Potential FIDS habitat (acres)	36.5	57.3	72.0
Potential residential displacements (#)	1	1	45
Potential commercial displacements (#)	0	0	0
Number of residences within 500 ft (#)	6	0	0
Cultural Resource Sensitivity Class	Med	Med	Low
# of NR Listed, Eligible or Undetermined Architectural Sites w/in 1,000 ft.	1	1	1
# of NR Undetermined Archeological Sites w/in 1,000 ft.	1	1	1

Proposed Resolution:

Due to the substantial community impacts and the relatively minor differences in potential natural and cultural impacts in comparison to other options, it is proposed that Billingsley West Option 1 and 3 be dismissed from further consideration.

The differences between Option 1 and 2 are relatively minor, but Option 1 would pose similar wetland impacts and bring a new roadway within 500 feet of six residences. While generating slightly greater impacts on potential FIDS habitat than Option 1, both options would impact potential FIDS habitat which is already highly developed and is characterized by DNR with a medium to high threat.



Billingsley West Options Alternatives Evaluation

Option 3 would generate higher community impacts and greater natural resource impacts in comparison to Options 1 and 2. While outside of the watershed of Cat Pond, this option would pass within 300 feet of the edge of this resource and, in addition to the Cross County Connector, would add to the disturbance of the area immediately adjacent to the pond. Additionally, dismissal of this option would avoid potential impacts on 18CH730.

Based on minimized potential natural, community and cultural resource impacts, it is proposed that Billingsley West Option 2 be retained for detailed study. To address concerns associated with Cat Pond, targeted agency coordination concerning stormwater management strategies for Options 2 would occur during the detailed engineering/environmental studies stage. Roadway drainage under these options could be managed and directed to Cat Pond to approximate existing conditions, or could be directed to the west to protect the Cat Pond resource.



Appendix C: Environmental Impact Matrices



UPGRADE ALTERNATIVES

Option	NATURAL RESOURCES					COMMUNITY			CULTURAL		
	Wetlands (acres)	Total stream crossings (#/length ft)	100 year floodplains (acres)	Potential FIDS habitat (acres)	Potential RTE concerns (yes/no)	Potential residential displacements (#)	Potential commercial displacements (#)	Potential EJ concerns (yes/no)	Cultural resources sensitivity (L, M, H)	NR listed, eligible, undetermined, historic properties (#)	NR listed, eligible, undetermined, archaeological sites (#)
Upgrade Alternative 1	0.0	2 (1,500)	0.2	0.0	Y	0	31-33	Y	na	2	0
Upgrade Alternative 1A	0.0	2 (1,500)	0.2	0.0	Y	0	31-33	Y	na	2	0
Upgrade Alternative 2	0.0	2 (1,500)	0.2	0.0	Y	6	40-60	Y	na	2	0
Upgrade Alternative 2A	0.0	2 (1,500)	0.2	0.0	Y	6	40-60	Y	na	2	0
Upgrade Alternative 2 Modified	0.0	2 (1,500)	0.2	0.0	Y	6	40-60	Y	na	2	0
Upgrade Alternative 3	0.0	2 (1,500)	0.2	0.0	Y	6	64-84	Y	na	2	0
Upgrade Alternative 4	0.0	2 (1,500)	0.2	0.0	Y	6	48-58	Y	na	2	0

Notes: (1) Options in bold are recommended for detailed study. (2) Conceptual wetland and floodplain impacts shown do not include bridging or other measures to minimize impacts. It should be noted that the floodplains and wetlands associated with major stream crossings would be spanned by a structure(s). The actual minimization of floodplain and wetland impacts will be evaluated during Stage II detailed engineering/environmental studies. (3) Land use for the upgrade alternatives is primarily infrastructure, reflective of the existing developed condition of the US 301 corridor. Effects on land use are reflected in the conceptual residential and commercial displacement impacts.



EASTERN BYPASS

Option	NATURAL RESOURCES					LAND USE							COMMUNITY			CULTURAL			
	Wetlands (acres)	Stream crossings (#/length ft.)	100 year floodplains (acres)	Potential FIDS habitat (acres)	Potential RTE concerns (yes/no)	Residential land (acres)	Commercial/Industrial land (acres)	Agricultural land (acres)	Forest Cover (acres)	Undeveloped land and extractive (acres)	Total land (acres)	Potential land development issue (yes/no)	Potential recreation/park issue (yes/no)	Potential residential displacements (#)	Potential commercial displacements (#)	Potential EJ concerns (yes/no)	Cultural resource sensitivity (L, M, H)	NR listed, eligible, undetermined historic properties (#)	NR listed, eligible, undetermined, archaeological sites (#)
Timothy Branch 1	2.3	1 (450)	3.2	11.0	N	0.0	19.5	18.6	34.6	16.3	89.0	Y	N	4	8	N	M	2	1
Timothy Branch 2	3.7	1 (550)	4.3	40.3	N	0.0	6.5	15.7	56.9	0.0	79.1	Y	N	2	0	N	M	2	0
Timothy Branch 3	2.4	1 (370)	2.8	32.9	N	0.0	11.2	19.9	49.4	0.0	80.4	Y	N	0	1	N	M	2	0
Timothy Branch 4	2.5	1 (440)	2.8	37.6	N	0.0	6.6	10.3	52.5	0.0	69.3	Y	N	0	1	N	M	2	0
Mattawoman East 1	9.3	1 (875)	5.1	12.4	Y	0.0	0.0	40.1	35.9	0.0	76.0	N	N	5	0	N	L	1	0
Mattawoman East 2	5.2	1 (740)	3.9	9.9	Y	0.0	0.0	43.3	27.1	0.0	70.4	N	Y	5	0	N	M	1	0
Mattawoman East 3	6.6	1 (620)	4.4	10.1	Y	0.0	2.1	44.9	31.3	0.0	78.3	N	N	5	0	N	H	0	0
Mattawoman East 4	4.3	1 (340)	2.1	23.0	Y	0.0	0.0	52.6	24.0	0.0	76.6	N	Y	5	0	N	M	1	0
Eastern Corridor	2.9	0	0.0	48.0	Y	0.0	0.0	2.8	52.6	0.0	55.4	N	N	3	0	N	na	1	0
MD 5 Option 1	9.9	2 (700)	4.3	61.5	Y	32.6	9.7	45.3	77.0	20.0	184.5	Y	N	25	2	N	na	0	0
MD 5 Option 2	9.5	2 (700)	4.4	63.2	Y	16.5	10.4	49.1	66.3	24.8	167.1	Y	N	5	2	N	na	0	0
MD 5 East Connector 1	0.4	1 (1,020)	7.0	51.5	N	0.0	6.8	18.7	28.1	0.0	53.6	Y	N	3	3	N	na	0	0
MD 5 East Connector 2	0.4	1 (1,020)	7.0	44.4	N	0.0	6.8	18.8	28.1	0.0	53.7	Y	N	3	4	N	na	0	0
Jordan 1	11.0	1 (1,100)	4.5	29.9	Y	12.2	2.1	49.7	41.4	2.7	108.0	Y	N	3	0	N	M	0	1
Jordan 2	11.1	2 (950)	2.8	23.0	Y	12.2	2.0	44.7	39.2	7.5	105.6	Y	N	1	0	N	L	0	1
Jordan 3	14.5	2 (1,730)	10.5	19.5	Y	5.6	1.0	69.3	30.4	9.5	115.9	Y	N	3	0	N	H	1	1
Jordan 4	9.7	1 (1,100)	4.5	28.7	Y	13.5	2.1	34.9	42.1	2.7	95.2	Y	N	1	0	N	M	1	1
Jordan 5	13.8	1 (400)	2.8	29.0	Y	12.1	2.1	50.1	41.5	5.1	110.7	Y	N	3	0	N	M	0	1
Jordan 6	7.0	1 (1,400)	2.5	27.8	Y	13.0	2.0	32.9	41.1	5.5	94.7	Y	N	4	0	N	M	1	1
Billingsley East 1	6.8	1 (730)	2.4	41.9	Y	0.0	0.0	36.6	54.3	0.2	91.1	Y	N	108	2	N	L	1	1
Billingsley East 2	6.9	4 (1,445)	2.4	82.0	Y	0.3	0.0	28.7	108.4	16.1	153.6	Y	N	85	2	N	M	2	0
Billingsley East 2A	7.7	4 (1,130)	2.4	56.0	Y	0.0	0.0	27.7	110.1	15.3	153.0	Y	N	36	1	N	M	2	0
Billingsley East 3	5.2	4 (1,440)	4.9	103.5	Y	0.0	0.0	26.6	112.2	15.8	154.6	Y	N	26	2	N	M	1	0
Billingsley East 4	4.6	4 (1,490)	6.6	104.4	Y	0.0	0.0	24.8	112.9	17.0	154.8	Y	N	16	2	N	M	1	0
Billingsley East 5	6.2	4 (1,480)	6.5	93.5	Y	0.0	0.0	24.3	129.7	23.8	177.8	Y	N	2	1	N	M	1	0
Billingsley East 5A	7.2	4 (1,330)	4.1	118.6	Y	0.0	0.0	27.7	128.4	24.3	180.5	Y	N	2	1	N	M	1	0
Billingsley East 5B	10.4	5 (1,620)	4.1	146.9	Y	0.0	0.0	27.7	147.9	19.0	193.7	Y	N	0	0	N	M	1	0
Billingsley East 6	4.9	4 (1,630)	8.8	160.3	Y	0.0	0.0	28.4	109.9	2.1	140.4	Y	N	5	1	N	H	2	0
Kerrick 1	3.6	2 (1,680)	2.8	31.4	Y	18.6	4.8	6.7	26.9	11.0	68.1	N	N	3	0	N	M	0	0
Kerrick 2	10.0	3 (860)	2.3	64.9	Y	12.3	0.0	10.5	71.0	0.0	93.8	N	N	85	4	N	H	0	0
Kerrick 3	4.8	3 (970)	2.7	40.5	Y	0.0	4.0	0.3	90.4	4.5	99.3	N	N	39	4	N	H	0	0
Kerrick 4	1.4	2 (430)	2.3	25.7	Y	0.0	0.6	0.0	40.6	6.6	47.7	N	N	2	0	N	L	0	0
Kerrick 5	6.9	1 (650)	2.9	20.6	Y	0.0	0.0	0.0	39.5	1.4	40.9	N	N	2	0	N	L	0	0
Forest Grove 1	5.8	0	0.0	9.9	N	5.4	0.0	13.4	12.0	0.0	30.9	N	N	0	0	N	M	0	0
Forest Grove 2	0.7	0	0.0	5.2	N	5.5	0.0	12.3	7.9	4.1	29.8	N	N	0	0	N	L	0	0
Forest Grove 3A	2.6	0	0.0	32.3	N	9.8	0.0	0.0	38.4	0.6	48.8	N	N	0	0	N	H	0	0
Forest Grove 3B	0.4	0	0.0	24.6	N	9.8	0.0	0.0	30.7	5.4	45.8	N	N	2	0	N	M	0	0

Notes: (1) Options in bold are recommended for detailed study. (2) Conceptual wetland and floodplain impacts shown do not include bridging or other measures to minimize impacts. It should be noted that the floodplains and wetlands associated with major stream crossings would be spanned by a structure(s). The actual minimization of floodplain and wetland impacts will be evaluated during Stage II detailed engineering/environmental studies. (3) Land use data is derived from MDP 2002 Land Use/Land Cover GIS.



WESTERN BYPASS

Option	NATURAL RESOURCES					LAND USE						COMMUNITY			CULTURAL				
	Wetlands (acres)	Total stream crossings (#/length ft)	100 year floodplains (acres)	Potential FIDS habitat (acres)	Potential RTE concerns (yes/no)	Residential land (acres)	Commercial/Industrial land (acres)	Agricultural land (acres)	Forest Cover (acres)	Undeveloped land and extractive (acres)	Total land (acres)	Potential land development issue (yes/no)	Potential recreation/park issue (yes/no)	Potential residential displacements (#)	Potential commercial displacements (#)	Potential EJ concerns (yes/no)	Cultural resources sensitivity (L, M, H)	NR listed, eligible, undetermined, historic properties (#)	NR listed, eligible, undetermined, archaeological sites (#)
TB West 1	8.4	3 (620)	60.7	35.7	N	0.0	0.6	18.2	41.9	0.0	60.7	Y	N	1	0	N	L	2	0
TB West 2	6.3	3 (660)	60.1	32.3	N	0.0	2.2	7.3	50.5	0.0	60.1	Y	N	1	0	N	M	2	0
TB West 3	2.4	2 (480)	0.0	20.9	N	0.0	2.2	22.0	34.0	0.0	58.3	Y	N	1	0	N	H	2	0
Chaddsford 1	10.1	0	0.0	64.9	N	4.4	0.5	15.6	71.1	0.0	91.7	Y	N	110	0	N	M	2	0
Chaddsford 2	1.0	1 (100)	0.0	29.4	N	4.5	13.6	16.1	47.1	0.0	84.3	Y	N	36	6	N	M	2	1
Mattawoman West 1	13.0	3 (2,480)	13.8	81.2	N	0.0	0.0	31.4	100.8	0.0	132.1	Y	N	2	0	N	M	0	0
Mattawoman West 1A	15.1	3 (2,190)	8.7	78.7	N	0.0	0.0	37.9	94.7	0.0	132.6	Y	N	2	0	N	M	0	0
Mattawoman West 1B	16.1	3 (2,440)	13.8	84.2	N	0.0	0.0	37.9	95.8	0.0	133.7	Y	N	2	0	N	M	0	0
Mattawoman West 1C	18.4	3 (2,190)	10.7	75.2	N	0.0	0.0	44.7	91.4	0.0	136.1	Y	N	2	0	N	M	0	0
Mattawoman West 2	19.2	3 (3,445)	10.3	96.3	N	0.0	0.0	31.6	105.5	0.0	137.1	Y	N	41	0	N	H	0	0
Mattawoman West 3	13.8	3 (2,275)	10.3	76.0	N	0.0	0.0	31.7	98.7	0.0	130.3	Y	N	41	0	N	M	0	0
Mattawoman West 4	22.1	3 (3,555)	18.0	48.0	N	0.0	0.0	54.9	58.8	0.0	113.7	Y	N	42	0	N	L	0	0
Western Corridor 1	0.3	0	0.0	5.0	N	4.7	0.0	7.3	5.2	0.0	17.2	Y	N	2	0	N	M	0	1
Piney Branch 1	4.2	5 (665)	2.8	47.6	Y	3.5	0.0	18.9	48.4	7.4	78.2	Y	N	2	0	N	M	0	1
Piney Branch 1A	4.6	4 (830)	2.2	41.1	Y	3.5	0.0	15.5	58.4	7.3	85.1	Y	N	48	0	N	M	0	1
Piney Branch 1B	4.5	5 (985)	2.1	52.5	Y	3.7	0.0	18.2	54.1	7.0	83.0	Y	N	1	0	N	M	0	1
Piney Branch 1C	4.0	5 (865)	2.6	51.3	Y	7.1	0.0	19.0	52.2	2.7	81.0	Y	N	1	0	N	L	0	1
Piney Branch 2	4.6	4 (800)	2.0	56.0	Y	3.5	0.0	16.9	59.5	7.3	87.2	Y	N	165	0	N	H	0	1
Billingsley West 1	6.4	0	0.0	36.5	Y	0.0	0.0	28.9	65.4	0.0	94.3	Y	N	1	0	Y	M	1	1
Billingsley West 2	6.8	0	0.0	57.3	Y	0.0	0.0	31.0	64.2	0.0	95.2	Y	N	1	0	Y	M	1	1
Billingsley West 3	6.1	0	0.0	72.0	Y	0.0	0.0	6.6	83.5	0.0	90.1	Y	N	45	0	Y	L	1	1
Western Corridor 2	5.7	1 (600)	86.5	28.0	Y	3.4	0.0	13.6	68.1	1.5	86.5	Y	N	3	1	N	na	1	0

Notes: (1) Options in bold are recommended for detailed study. (2) Conceptual wetland and floodplain impacts shown do not include bridging or other measures to minimize impacts. It should be noted that the floodplains and wetlands associated with major stream crossings would be spanned by a structure(s). The actual minimization of floodplain and wetland impacts will be evaluated during Stage II detailed engineering/environmental studies. (3) Land use data is derived from MDP 2002 Land Use/Land Cover GIS.