Larry Hogan, *Governor*
Boyd Rutherford, *Lt. Governor*

State Highway Administration
Maryland Department of Transportation

Pete K. Rahn, *Secretary*
Melinda Peters, *Administrator*

March 13, 2015

RE: Project No. BA451A11
I-795 at Dolfield Boulevard/
Pleasant Hill Road
Project Planning Study
Baltimore County, Maryland

Mr. Gregory Murrill, Division Administrator
Maryland Division
Federal Highway Administration
City Crescent Building
10 South Howard Street, Suite 2450
Baltimore MD 21201

Attention: Mr. Nick Blendy

Dear Mr. Murrill:

The Maryland State Highway Administration (SHA) requests your concurrence on the Preferred Alternative Conceptual Mitigation (PACM) package for the I-795 at Dolfield Boulevard/ Pleasant Hill Road Project Planning Study located in Baltimore County, Maryland. All environmental resource and regulatory agencies have provided their concurrence/comments in accordance with our streamlined process and all comments have been addressed in the final PACM (see attached). We have also attached a summary sheet documenting how we responded to the agencies' comments on the PACM.

Furthermore, the PACM contains all the details necessary to document that this project will not involve any significant environmental impacts. This project will not involve any significant environmental impacts to socio-economic or natural resources. It will not induce significant foreseeable alterations in land use or affect planned growth. Therefore, in accordance with the CEQ Regulations and 23 CFR 771, SHA recommends that the proposed project be classified as a Categorical Exclusion (CE). On May 15, 2009 we sent your office a classification letter requesting that indeed this project be classified as a CE.

Based on the information and conclusions presented for this project in the PACM we still believe that this project is a CE. The attached PACM will also serve as the CE documentation for this project. We request your concurrence on the PACM. If you agree with this determination, please indicate your approval below. Your signature will also constitute Location Approval for the proposed project. Should you have any additional questions please contact Ms. Brandi McCoy the Environmental Manager at (410) 545-8697.

Sincerely,

Melinda B. Peters
Administrator

By: Bruce M. Grey Digitally signed by Bruce M. Grey DN: cn=Bruce M. Grey, o=OPPE, ou=SHA, email=bgrey@sha.state.md.us, c=US Date: 2015.03.13 08:00:05 -04'00'

Gregory I. Slater, Director
Office of Planning and
Preliminary Engineering

We concur with the PACM and your determination that the project meets the criteria for a Categorical Exclusion and hereby grant Location Approval:

FOR Federal Highway Administration
Division Administrator

JOY LIANG
Printed Name

4/27/15
Date

Attachments

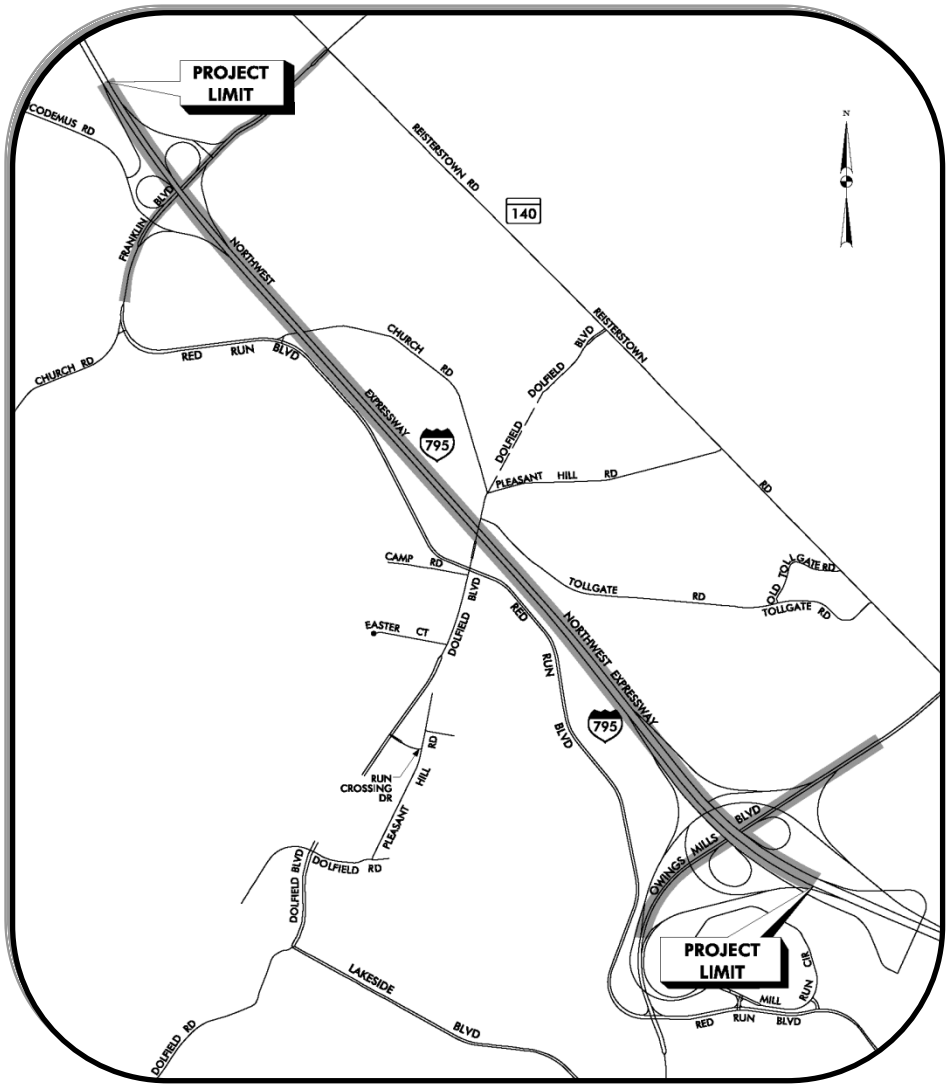
cc: Ms. Jamaica Arnold, SHA- Project Management Division
Mr. Dennis M. Atkins, SHA-Environmental Planning Division
Mr. Bruce M. Grey, SHA-Office of Planning and Preliminary Engineering
Mr. Barry Kiedrowski, SHA- Project Management Division
Ms. Brandi McCoy, SHA-Environmental Planning Division
Mr. Donald H. Sparklin, SHA- Environmental Planning Division

FINAL
PREFERRED ALTERNATIVE/ CONCEPTUAL MITIGATION CONCURRENCE PACKAGE

I-795 AT DOLFIELD BOULEVARD/PLEASANT HILL ROAD PROJECT PLANNING STUDY

Baltimore County, Maryland

SHA Project Number BA451A11



MARYLAND STATE HIGHWAY ADMINISTRATION

Updated March, 2015

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Summary Statement for the SHA Preferred Alternative/Conceptual Mitigation Concurrence Package I-795 at Dolfield Boulevard/Pleasant Hill Road Project Planning Study

Project Description

The Maryland State Highway Administration (SHA) is conducting the I-795 at Dolfield Boulevard/Pleasant Hill Road Project Planning Study along the I-795 corridor in Owings Mills, Maryland (***Figure 1***). The study includes access improvements to the Red Run Boulevard corridor, safety and capacity improvements along I-795, and improvements to local intersections near the corridor.

Project Purpose Statement

The purpose of the study is to provide improved access to the planned growth and major employment centers along the Red Run Boulevard corridor; improve vehicular, pedestrian, and bicycle accessibility at selected intersections; and provide safety and capacity improvements along I-795.

Purpose of Package

The purpose of this package is to request agency concurrence regarding the selection of the I-795 at Dolfield Boulevard/Pleasant Hill Road Project Planning Study SHA Preferred Alternative and the assessment of its impacts and conceptual mitigation opportunities. Submission of a permit application for impacts to wetlands and waterways will be deferred until the final design stage.

Description of SHA Preferred Alternative

Alternative 4C-10 (Relocated Tollgate Road) was selected by the SHA Administrator as the Preferred Alternative **(*Figure 2***). This alternative was developed in response to concerns expressed at a Community Meeting with residents of Pleasant Hill Road and Featherbed Lane on September 22, 2009. SHA's Preferred Alternative minimizes impacts to individual properties and is supported by Baltimore County.

Alternative 4C-10 consists of the construction of a new interchange along I-795 at Dolfield Boulevard/Pleasant Hill Road to provide access to the planned growth and major employment centers along Red Run Boulevard. This would include construction of northbound and southbound ramps to and from I-795 and the widening of the Dolfield Boulevard/Pleasant Hill Road bridge over I-795 by one lane in each direction. Under SHA's Preferred Alternative the I-795 mainline would be widened by one lane in each direction to provide capacity improvements along I-795. These capacity improvements would relieve congestion and improve safety along I-795.

Figure 1

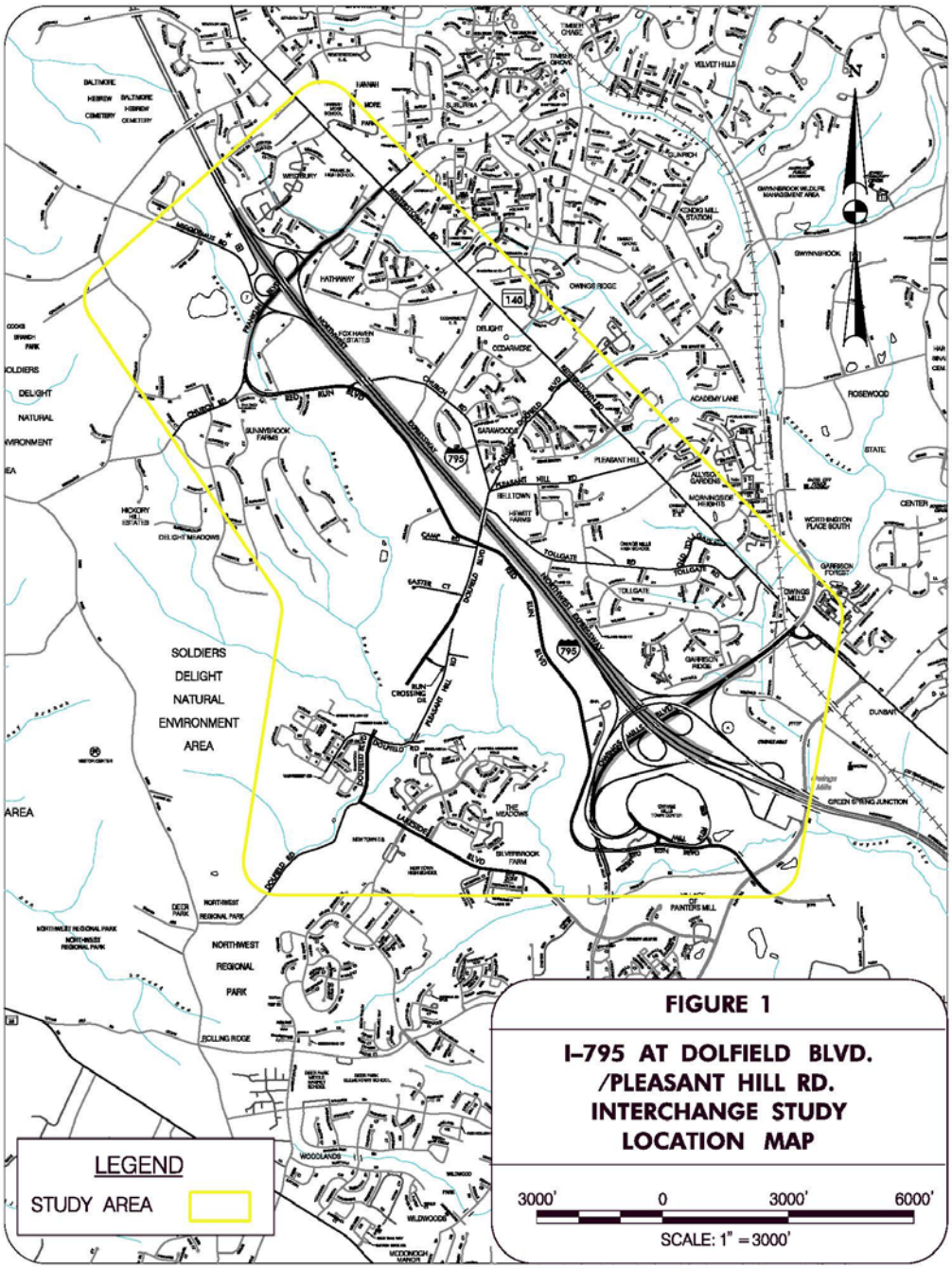
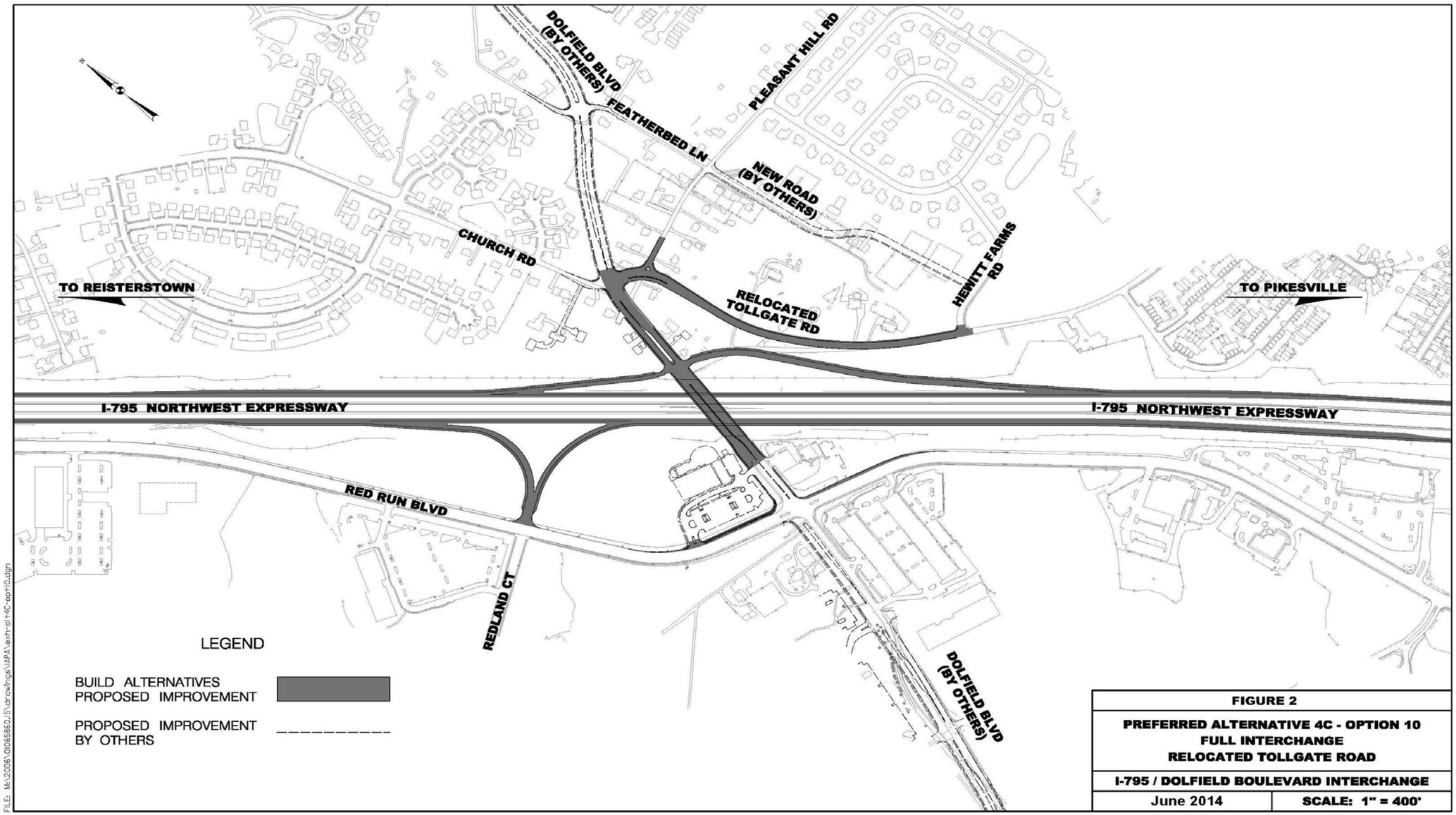

SOLDIERS
DELIGHT
NATURAL
ENVIRONMENT
AREA
NORTHWEST
REGIONAL
PARK
LEGEND
STUDY AREA
FIGURE 1
I-795 AT DOLFIELD BLVD.
/PLEASANT HILL RD.
INTERCHANGE STUDY
LOCATION MAP
3000' 0 3000' 6000'
SCALE: 1" = 3000'

Figure 2


DOLFIELD BLVD (BY OTHERS)
FEATHERBED LN
PLEASANT HILL RD
NEW ROAD (BY OTHERS)
CHURCH RD
HEWITT FARMS RD
TO REISTERSTOWN
TO PIKESVILLE
RELOCATED TOLLGATE RD
I-795 NORTHWEST EXPRESSWAY
I-795 NORTHWEST EXPRESSWAY
RED RUN BLVD
REDLAND CT
DOLFIELD BLVD (BY OTHERS)
LEGEND
BUILD ALTERNATIVES PROPOSED IMPROVEMENT
PROPOSED IMPROVEMENT BY OTHERS
FILE: M:\2006\01065860\5\drawings\APA\exh-alt4c-opt10.dgn
FIGURE 2
PREFERRED ALTERNATIVE 4C - OPTION 10
FULL INTERCHANGE
RELOCATED TOLLGATE ROAD
I-795 / DOLFIELD BOULEVARD INTERCHANGE
June 2014
SCALE: 1" = 400'

Alternative 4C-10 contains intersection improvements at local roadways as well. Tollgate Road, between Hewitt Farms Road and Dolfield Boulevard, would be relocated on a northwesterly alignment tying into the intersection of Dolfield Boulevard and Church Road. Pleasant Hill Road would tie into relocated Tollgate Road forming a T-intersection. The intersection of Relocated Tollgate Road and Pleasant Hill Road would consist of right in/right out movements only. A new roadway through an abandoned swim club property on Hewitt Farms Road would replace left turn movements from Pleasant Hill Road. The improvements included with this alternative to the local roadways and intersections would improve vehicular, pedestrian, and bicycle accessibility in the adjacent community.

Description of Impacts

SHA's Preferred Alternative would require two residential displacements, no business displacements and approximately 26.3 acres of right-of-way (ROW). The majority of the ROW impacts would occur on undeveloped properties zoned for commercial purposes and would be contained to areas around the new interchange. SHA, in consultation with the Maryland Historical Trust (MHT), has determined there would be no impact to historic standing structures or potentially significant archeological resources, as no locations were determined to be eligible for listing in the National Register of Historic Places (NRHP). On January 5, 2012, MHT concurred with SHA's "No Properties Affected" determination for historic resources (***Appendix E)***.

SHA's Preferred Alternative would impact approximately 1.3 acres of wetlands and 2,314 linear feet (l.f.) of Red Run and unnamed tributaries to Gwynns Falls and 54 acres of woodlands (***Table 2***). Wetland impacts are due to construction of the ramp, mainline widening, and repair to an existing stormwater management facility pipe. Stream impacts would result from roadway improvements and outfall stabilization within an existing stormwater facility. Woodland impacts are anticipated from the construction of roadway improvements, interchange ramps, and stormwater management facilities.

In May 2009 an Air Quality Technical Report was completed for the I-795 at Dolfield Boulevard/Pleasant Hill Road Project Planning Study. The report concluded that no violations of the applicable State and National Ambient Air Quality Standards (NAAQS) were expected from this project. SHA received TIP/STIP amendment approval on September 2, 2014. A qualitative PM2.5 analysis was submitted to the Interagency Consultation Group (ICG) on September 3, 2014, consisting of FHWA, U.S. EPA, MDE, and the MPO. On October 2, 2014 the ICG agreed with SHA's determination that the project is not of air quality concern.

A total of 43 noise sensitive areas were identified for SHA's Preferred Alternative of which 16 would experience design year noise levels that equal or exceed FHWA/SHA noise impact criteria. Detailed resource impacts are provided in the Summary of Environmental Impacts section.

Description of Mitigation Requirements

Fair market value would be provided to all property owners as compensation for the loss of ROW. Displaced property owners would receive relocation assistance in accordance with the

Uniform Relocation and Real Property Acquisition Policies Act of 1970, as appended by the Surface Transportation and Uniform Relocation Assistance Act of 1987. Replacement housing as a last resort would be utilized.

SHA's Preferred Alternative would require approximately 1.9 acres of compensatory wetland mitigation. Approximately 2,314 l.f. of mitigation of direct impacts to streams may be required as a condition of the permit and would be evaluated on a project-specific basis. Potential types of mitigation for nontidal wetland and waterway resources could include creation of new wetlands, restoration/enhancement of existing wetlands, and stream stabilization. Reforestation of 54 acres would be provided at a one-to-one ratio consistent with the Maryland Reforestation Act for forest impacts greater than one acre. SHA has ongoing coordination with DNR to determine reforestation areas and would attempt to mitigate in such a manner as to support contiguous establishment of DNR's Green Infrastructure by filling gaps between areas of Green Infrastructure. Final mitigation measures would be determined during design. Six sound barrier locations along the study roadways warrant further evaluation during the project's design phase.

SHA'S PREFERRED ALTERNATIVE

Alternative 4C-10 (Relocated Tollgate Road)

Concurrence Form

Project Name & Limits: I-795 at Dolfield Boulevard/Pleasant Hill Road (BA451A11)

Having reviewed the attached SHA Preferred Alternative concurrence/comment package and the summary presented above, the following agency (by signing this document):

___ Federal Highway Administration ___ Fish and Wildlife Service ___ MD Dept. of Natural Resources
___ Environmental Protection Agency ___ National Park Service ___ MD Dept. of the Environment
___ Corps of Engineers ___ National Marine Fisheries 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 comments or with minor comments) or not concur until revisions are made or additional information is provided.

___ MD Historical Trust ___ MD Department of Planning ___ Metropolitan Planning Organization

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

Comments:

Additional Information Needed:

Signature: _____ Date: _____

Overview

SHA, in conjunction with the Federal Highway Administration (FHWA), is conducting a Project Planning Study along the I-795 corridor in Owings Mills, Maryland, located in Baltimore County. The project limits extend approximately three miles from the I-795/Owings Mills Boulevard interchange to the south, to the I-795/Franklin Boulevard interchange to the north, and from Red Run Boulevard to the west, to Reisterstown Road (MD 140) to the east (***Figure 1***). The project evolved from a 2006 SHA feasibility study that identified the need for a new interchange at Dolfield Boulevard as well as possible local area roadway improvements. Owings Mills is one of two growth areas in Baltimore County developed as self-sustaining, planned communities that provide housing, employment, and a complete range of public and commercial services. According to Baltimore County's Master Plan 2010, these areas of concentrated development were a direct response to low density suburban sprawl.

Existing Roadway Conditions

I-795, north of Owings Mills Boulevard is a four-lane divided highway with a variable width grass median measuring between 58 feet and 112 feet. South of Owings Mills Boulevard, I-795 is a six-lane section, with the Maryland Transit Administration (MTA) Metro occupying the median. The functional classification of I-795 is an urban interstate.

I-795 interchanges with Franklin Boulevard and Owings Mills Boulevard are spaced approximately 2.5 miles apart with approximately 1.9 miles between the transition zone between the ramp and mainline, also referred to as gore areas. The existing Pleasant Hill Road structure over I-795 is located approximately 4,000 feet north of the Owings Mills Boulevard interchange northbound entrance gore and approximately 5,900 feet south of the Franklin Boulevard northbound exit gore.

Dolfield Boulevard is a five-lane divided roadway between Reisterstown Road and Lakeside Boulevard featuring a median left turning lane. In 2010, the section of Dolfield Boulevard between Lakeside Boulevard and Red Run Boulevard was completed, which includes a new bridge over Red Run Stream. Construction of Dolfield Boulevard east of I-795 to Reisterstown Road was completed in 2013. Dolfield Boulevard is classified as an urban collector and is maintained by Baltimore County.

Improvements to Dolfield Boulevard included a new, four-lane, divided highway with two 24-foot curbed roadways, a 16 foot raised median, and sidewalks were included. The improvements connected Reisterstown Road with Red Run Boulevard and the Owings Mills Town Center.

Pleasant Hill Road, between I-795 and Reisterstown Road, is a two-lane undivided local road with no access controls. A former section of Pleasant Hill Road from Red Run Boulevard west to Easter Court is now designated Dolfield Boulevard, while the section from Red Run Boulevard east to Church Road will become Dolfield Boulevard in the future. Pleasant Hill Road is functionally classified as an Urban Collector and is maintained by Baltimore County. The existing bridge on Pleasant Hill Road over I-795 was constructed in 1985 as a two span steel girder bridge with a span length of 134 feet over northbound I-795 and a span length of 132 feet over southbound I-795 (***Figure 3A & B***). Along Pleasant Hill Road, the bridge provides 40 feet

of clear roadway consisting of two 12-foot lanes and two 8-foot shoulders in each direction. The vertical under clearance is 17.07 feet, which exceeds the minimum requirement of 16.75 feet. SHA's current Structure Inventory and Appraisal rates the deck, superstructure, and substructure in good condition.

Red Run Boulevard, between Owings Mills Boulevard and Franklin Boulevard, is a five-lane undivided roadway with a center two-way left turn lane. The name designation changes to Church Road west of the Church Road/Red Run Boulevard T-intersection. There are no access controls along Red Run Boulevard. Red Run Boulevard is classified as a minor arterial and is maintained by Baltimore County.

Owings Mills Boulevard, between Red Run Boulevard and Dolfield Road, is a four-lane divided roadway that widens to a nine-lane section approaching Red Run Boulevard and a seven lane section approaching Dolfield Road. The functional classification of Owings Mills Boulevard is urban minor arterial and there are no access controls. This section of the roadway is maintained by SHA. The intersection of Owings Mills Boulevard and Dolfield Road has been recently upgraded by SHA. Upgrades include the addition of eastbound and westbound exclusive right-turn lanes, new sidewalks and crosswalks and replacement of signals.

Franklin Boulevard, in the vicinity of the interchange area, is a divided roadway varying from one to two lanes in the eastbound direction and two to three in the westbound direction. There are no access controls and it is maintained by Baltimore County. Franklin Boulevard is functionally classified as an urban minor arterial.

Figure 3A

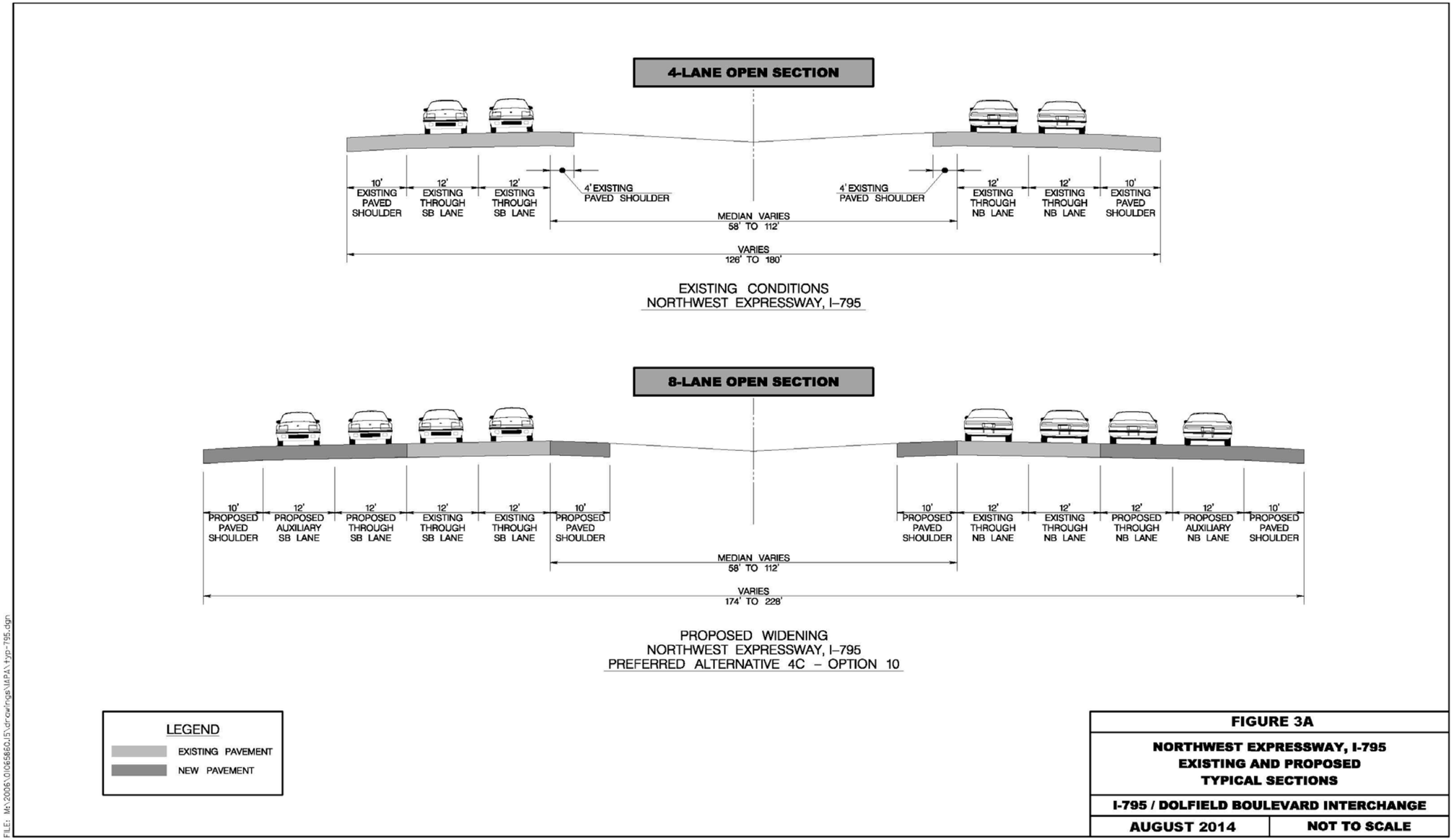
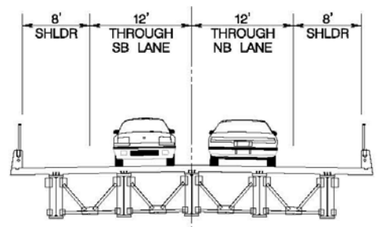

4-LANE OPEN SECTION
10' EXISTING PAVED SHOULDER
12' EXISTING THROUGH SB LANE
12' EXISTING THROUGH SB LANE
4' EXISTING PAVED SHOULDER
MEDIAN VARIES 58' TO 112'
4' EXISTING PAVED SHOULDER
12' EXISTING THROUGH NB LANE
12' EXISTING THROUGH NB LANE
10' EXISTING PAVED SHOULDER
VARIES 126' TO 180'
EXISTING CONDITIONS
NORTHWEST EXPRESSWAY, I-795
8-LANE OPEN SECTION
10' PROPOSED PAVED SHOULDER
12' PROPOSED AUXILIARY SB LANE
12' PROPOSED THROUGH SB LANE
12' EXISTING THROUGH SB LANE
12' EXISTING THROUGH SB LANE
10' PROPOSED PAVED SHOULDER
MEDIAN VARIES 58' TO 112'
10' PROPOSED PAVED SHOULDER
12' EXISTING THROUGH NB LANE
12' EXISTING THROUGH NB LANE
12' PROPOSED THROUGH NB LANE
12' PROPOSED AUXILIARY NB LANE
10' PROPOSED PAVED SHOULDER
VARIES 174' TO 228'
PROPOSED WIDENING
NORTHWEST EXPRESSWAY, I-795
PREFERRED ALTERNATIVE 4C – OPTION 10
LEGEND
EXISTING PAVEMENT
NEW PAVEMENT
FILE: M:\2006\0106586OJ15\drawings\IAPA\typ-795.dgn
FIGURE 3A
NORTHWEST EXPRESSWAY, I-795
EXISTING AND PROPOSED
TYPICAL SECTIONS
I-795 / DOLFIELD BOULEVARD INTERCHANGE
AUGUST 2014
NOT TO SCALE

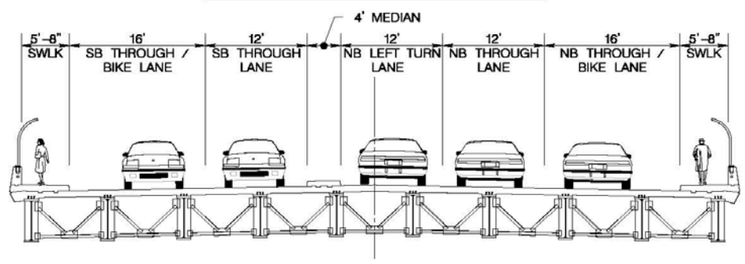
Figure 3B

2-LANE CLOSED SECTION



EXISTING TYPICAL SECTION
PLEASANT HILL ROAD BRIDGE OVER I–795

5-LANE CLOSED SECTION



PROPOSED TYPICAL SECTION
DOLFIELD BOULEVARD BRIDGE OVER I–795
PREFERRED ALTERNATIVE 4C – OPTION 10

* PLEASANT HILL ROAD WILL BE RENAMED AFTER DOLFIELD BOULEVARD EXTENSION IS COMPLETED

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FIGURE 3B	
PLEASANT HILL ROAD / DOLFIELD BOULEVARD EXISTING AND PROPOSED TYPICAL SECTIONS	
I-795 / DOLFIELD BOULEVARD INTERCHANGE	
AUGUST 2014	NOT TO SCALE

Purpose and Need

The purpose of the I-795 at Dolfield Boulevard/Pleasant Hill Road planning study is to improve access to the planned growth and employment corridor along Red Run Boulevard; improve vehicular, transit, pedestrian, and bicycle accessibility at selected intersections; and provide safety and capacity improvements along I-795.

Owings Mills is one of the two major growth areas in Baltimore County. The population in 2005 was 42,135 and is expected to increase by 16 percent to over 49,000 by 2030. Consistent with population growth is employment, which is expected to increase by 31 percent between 2005 and 2035. Projections indicate 2.6 jobs for every household by 2035, mainly due to employment centers along Red Run Boulevard. One such employment center, the Red Run Employment Center, consists of 700 acres of office space and approximately 150 acres remaining for development, resulting in increasing commuter traffic volumes in the study area.

Average Daily Traffic (ADT) volumes along I-795 within the study area are projected to increase in the range of 20 to 42 percent, and traffic volumes along Pleasant Hill Road, east of I-795 and Church Road and west of I-795 are projected to increase in the range of 112 to 170 percent between the years 2011 and 2030. Even greater traffic increases (more than 500 percent) are projected on the ramps entering and exiting the Owings Mills Metro Station Park & Ride Lot located along Painters Mill Road (***Table 1)***. When analyzing results of the future traffic operation of adjacent intersections in the immediate area using these projected volumes, many of these intersections would operate poorly during the peak hours. Likewise, mainline traffic operations along I-795, in both directions, would operate poorly as well. Additional information can be found in the Purpose and Need Concurrence Package which received agency concurrence. Improvements along I-795 and in the Dolfield Boulevard/Pleasant Hill Road area are proposed to improve vehicular mobility, to address safety concerns, and to provide adequate capacity and improved access for the existing traffic and planned development which would generate extensive additional traffic growth in the area. The study also evaluated necessary improvements to several intersections in the study area to ensure sufficient capacity, along with safe pedestrian and bicycle compatibility.

Table 1. *ADT: Summary of Projected Increases*

Roadway Segment	2011 Existing	2030 No-Build	Projected Increase
I-795, Franklin Blvd and Owings Mills Blvd	72,600	98,425	36%
I-795, South of Owings Mills Blvd Interchange	117,000	140,175	20%
I-795, North of Franklin Blvd Interchange	57,850	82,275	42%
Dolfield Blvd/Pleasant Hill Road, East of I-795	7,400	19,950	170%
Dolfield Blvd/Pleasant Hill Road, West of I-795	8,500	18,000	112%
Franklin Boulevard, West of I-795	15,600	15,875	2%
Owings Mills Blvd, East of I-795	46,675	49,625	6%
Owings Mills Blvd, West of I-795	44,300	51,650	17%
Ramp from Owings Mills Metro Station to NB I-795	1,200	7850	554%
Ramp from SB I-795 to Owings Mills Metro Station	1,200	8,075	573%

Alternatives Considered

(Please refer to Appendix A for Alternatives)

In order to address both accessibility and operational issues in meeting the purpose and need of the I-795 and Dolfield Boulevard/Pleasant Hill Road Planning Study, a "No-Build" Alternative, a Transportation Systems Management (TSM) Alternative, a Transportation Demand Management (TDM) Alternative, and several "Build" alternatives were considered. The build alternatives include both partial and full build interchanges, each with various options.

Alternative 1: No-Build Alternative

The No-Build Alternative consists of no major improvements and serves as a baseline for comparing impacts and benefits associated with the proposed build alternatives. Minor short-term improvements would occur as part of routine maintenance and safety operations.

Alternative 2: Transportation Systems Management and Transportation Demand Management Alternatives

TSM strategies optimize the existing transportation system by providing improvements with minimal capital cost and few environmental impacts. Those strategies being considered for this corridor are:

- Widening the Dolfield Boulevard/Pleasant Hill Road bridge over I-795 to connect Dolfield Boulevard Extension improvements to the east and west.
- Adding a third lane on I-795 in both the northbound and southbound directions from Franklin Boulevard to Owings Mills Boulevard.
- Coordination with MTA for improvements to and from the MTA Park & Ride facilities at the Owings Mills Metro Station and new and future Transit Oriented Development (TOD) sites.
- Intersection improvements at Owings Mills Boulevard and Red Run Boulevard.

TDM strategies seek to reduce automobile travel demand. Since the study area encompasses a major employment corridor along Red Run Boulevard, as well as commercial centers and office developments west of I-795, strategies for this corridor focus on the reduction and redistribution of work trips by instituting or continuing ride sharing/carpooling, flexible work hour, and telecommuting programs.

Build Alternatives

Build alternatives consist of a variety of partial and full build interchange alternatives. Partial build interchange alternatives, identified with a prefix "3" in front of each letter, provide access to and from the south at the proposed Dolfield Boulevard/Pleasant Hill Road interchange by constructing a new northbound off-ramp and southbound on-ramp at the interchange. Full interchange alternatives, identified with a prefix "4" in front of each letter, provide access to and from the north and south at the proposed interchange by constructing new northbound on and off-ramps and southbound on and off-ramps at the interchange.

Build alternatives initially consisted of the following:

<u>Alternative 3A: Partial Build Interchange</u>

- Northbound Off-Ramp at Tollgate Road and Hewitt Farms Road
- Southbound On-Ramp at Redland Court and Red Run Boulevard
- Local road improvements to Tollgate Road between Church Road and Hewitt Farms Road

<u>Alternative 4A: Full Build Interchange</u>

- Northbound Off-Ramp at Tollgate Road and Hewitt Farms Road
- Northbound On-Ramp at Tollgate Road and Pleasant Hill Road
- Southbound Off and On-Ramps at Redland Court and Red Run Boulevard
- Local road improvements to Tollgate Road between Church Road and Hewitt Farms Road

<u>Alternative 4B: Full Build Interchange</u>

- Northbound Off-Ramp at Tollgate Road between Hewitt Farms Road and Dolfield Boulevard
- Northbound On-Ramp at Tollgate Road and Pleasant Hill Road
- Southbound Off and On-Ramps at Redland Boulevard and Red Run Boulevard
- Local road improvements to Tollgate Road between Church Road and Hewitt Farms Road

Each of these alternatives also includes the addition of a third through lane on I-795 in each direction, from the Owings Mill Blvd interchange to the Franklin Boulevard interchange and a fourth auxiliary lane in each direction between the proposed Dolfield Boulevard/Pleasant Hill Road and Owings Mills Boulevard interchanges. Auxiliary lanes are in support of on and off-ramps between interchange ramps.

Highway Capacity Software (HCS) was used to analyze weave, merge and diverge conditions along I-795. Based upon results, full auxiliary lanes between the Dolfield Boulevard and Franklin Boulevard interchanges were determined to be in excess, given its longer segment length (i.e., approximately 1 mile exists between the proposed Dolfield Boulevard and Franklin Boulevard interchanges; compared to less than 1/2 mile between the Owings Mills Boulevard and proposed Dolfield Boulevard interchanges) and the lower projected I-795 traffic volume

levels north of Dolfield Boulevard. The project instead provides acceleration/deceleration lanes (nearly 1,000 feet in length) between those interchange locations, which adequately meets projected merging and diverging needs.

These build alternatives also included widening of the Dolfield Boulevard/Pleasant Hill Road bridge to accommodate two lanes in each direction separated by a median that transitions to a left turn lane.

Alternates Public Workshop

(Please refer to Appendix A for Alternatives)

SHA conducted an Alternates Public Workshop on Tuesday, October 21, 2008, at New Town High School in Owings Mills, Maryland. Attendees were given the opportunity to comment on map displays of preliminary alternatives under consideration, traffic data, and environmental impacts.

Preliminary alternatives consisted of Alternative 1: No-Build Alternative; Alternative 2: Transportation System Management and Transportation Demand Management Alternatives; Alternative 3A: Partial Interchange Alternative; and Alternatives 4A and 4B: Full Interchange Alternatives.

A total of 200 people attended, including local residents, community leaders, and county representatives. Following the alternates public workshop, SHA received citizen comments which aided in developing subsequent alternatives and options. Concerns expressed by the community were as follows: maintaining a rural scenery, loss of trees and other environmental impacts, noise issues, speeding, disrupting residential neighborhoods, cut-through traffic/congestion, access concerns, improvements to the local roadway, pedestrian safety, increasing public transportation, lowering of property values, and concerns regarding viability of the project being built during a recession.

Alternatives Developed after Alternates Public Workshop

(Please refer to Appendix A for Alternatives)

Five new alternatives were developed as a result of the Alternates Public Workshop. They addressed comments from the Hewitt Farms community regarding location of the proposed northbound off-ramp at the intersection of Tollgate Road and Hewitt Farms Road. Only one new partial build interchange, Alternative 3B, was identified. However, a partial build interchange alternative, with access to and from the south only, was assumed as an option for any of the full build alternatives described below:

- Alternative 3B: Partial Build Interchange - Split Ramp
- Alternative 3C: Partial Build Interchange - Relocated Tollgate Road
- Alternative 4C: Full Build Interchange – Relocated Tollgate Road
- Alternative 4D: Full Build Interchange – Partial Single Point
- Alternative 4E: Full Build Interchange – Continuous Flow

- Alternative 3F: Partial Build Interchange- Loop Ramp
- Alternative 4F: Full Build Interchange – Loop Ramp

Based on preliminary analyses and input from local communities, Alternatives 3A, 4A, 3D, 4D, 3E, 4E, 3F and 4F were not retained for further study.

Alternatives Retained for Detailed Study (ARDS)

(Please refer to Appendix A for Alternatives)

The following is an overview of the ARDS based on input from federal, state, and local agencies, and comments received from the public after the Location/Design Public Hearing. Alternatives 2, 3B, 4B, 3C, and 4C also include the addition of a third auxiliary lane on I-795 in each direction.

- Alternative 1: No-Build Alternative
- Alternative 2: TSM and TDM Alternatives
- Alternative 3B: Partial Build Interchange – Split Ramp
  - Northbound off-ramp at Tollgate Road from Hewitt Farms Road to Dolfield Boulevard
  - Southbound on-ramp at Redland Boulevard and Red Run Boulevard
  - Improvements to Tollgate Road between Church Road and Hewitt Farms Road
- Alternative 4B: Full Build Interchange – Split Ramp
  (Please refer to the previous section for description of Alternative 4B.)
- Alternative 3C: Partial Build Interchange - Relocated Tollgate Road
  - Northbound off-ramp ties directly into Dolfield Boulevard instead of Tollgate Road
  - Southbound on-ramps at Redland Boulevard and Red Run Boulevard
  - Relocate Tollgate Road, between Hewitt Farms Road and Dolfield Boulevard, to a strip of private property adjacent to the western boundary of the Hewitt Farms subdivision
  - Local road improvements to Tollgate Road
  - Intersection improvements to relocated Tollgate Road at Pleasant Hill Road
- Alternative 4C: Full Build Interchange - Relocated Tollgate Road
  - Northbound off-ramp ties directly into Dolfield Boulevard instead of Tollgate Road
  - Northbound on-ramp at Tollgate Road and Pleasant Hill Road
  - Southbound on and off-ramps at Redland Boulevard and Red Run Boulevard
  - Relocate Tollgate Road, between Hewitt Farms Road and Dolfield Boulevard, to a strip of private property adjacent to the western boundary of the Hewitt Farms subdivision
  - Local road improvements to Tollgate Road
  - Intersection improvements to relocated Tollgate Road at Pleasant Hill Road (Relocate Tollgate Road, between Hewitt Farms Road and Dolfield Boulevard, to a strip of private property adjacent to the western boundary of the Hewitt Farms subdivision)

Traffic Analyses

Average Daily Traffic (ADT) Volumes – Partial Build Interchange Alternatives

(Please refer to Appendix B, Figure 1-12 for ADT and peak hour volumes)

Under partial build conditions, the 2030 ADT volumes along I-795 range from 84,425 vpd (north of Franklin Boulevard) to 142,300 vpd (south of Owings Mills Boulevard interchange). When comparing the 2030 No-Build with 2030 Partial Build ADT volumes on the I-795 mainline, ramps, and nearby local roads, increases of 17 percent and 38 percent are projected on the mainline between Owings Mills Boulevard and Dolfield Boulevard interchanges and the bridge overpass, respectively. Reductions in ADT volumes ranging from 12 percent to 34 percent are projected on northbound off-ramps and southbound on-ramps at existing adjacent interchanges. These reductions are primarily due to interstate traffic rerouting to new interchange ramps at Dolfield Boulevard, thus reducing congestion on the existing ramps.

Decreases in ADT volumes and congestion are also projected on the following local roads:

- Approximately 35 percent on Red Run Boulevard
- Approximately 18 percent on Owings Mills Boulevard near Red Run Boulevard
- Approximately 16 percent near Dolfield Road
- Approximately 9 percent on MD 140, between Owings Mills Boulevard and Pleasant Hill Road

Average Daily Traffic Volumes – Full Build Interchange Alternatives

Under full build conditions, the 2030 ADT volumes along I-795 are similar to partial build conditions with ranges from 84,425 vpd (north of Franklin Boulevard interchange to 142,400 vpd (south of Owings Mills Boulevard interchange).

When comparing 2030 No-Build with 2030 Full Build ADT volumes on the I-795 mainline, ramps, and nearby local roads, increases of 12 percent and 62 percent are projected on the mainline between Owings Mills Boulevard and Dolfield Boulevard interchanges and the bridge overpass respectively. A significant reduction in the ADT volume of 56 percent is projected on the northbound (loop) ramp from eastbound Owings Mills Boulevard. Further reductions of 58 percent and 57 percent are projected on the northbound on-ramp and southbound off-ramp at the Franklin Boulevard interchange, respectively. These reductions are improving congestion on existing ramps, due to the rerouting of traffic to new interchange ramps at Dolfield Boulevard.

Decreases in ADT volumes and congestion are also projected for 2030 Full Build conditions on the following local roads:

- Approximately 40 percent on Red Run Boulevard near Owings Mills Boulevard
- Approximately 23 percent on Owings Mills Boulevard near Red Run Boulevard
- Approximately 16 percent near Dolfield Road
- Approximately 9 percent on MD 140 between Owings Mills Boulevard and Pleasant Hill Road

Level of Service – Partial Build and Full Build Alternatives

(Please refer to Appendix B, Figure 13 & 14 for LOS, Queue Lengths & Delay, Figures 15-21 for Corsim model results)

Of particular concern are failing conditions projected at three local area intersections and 18 mainline/merge/diverge areas under 2030 No-Build conditions. Results of intersection analyses for partial and full build interchange alternatives are described below.

Local Area Intersections

The local road network was analyzed to determine conditions at local intersections. Synchro intersection delay results for the existing condition, 2015 and 2030 No-Build, 2015 staging, and 2030 full build scenarios are shown in Appendix B, Figure 15. Results conclude that all intersections will operate acceptably at LOS 'D' or better under 2015 staging and 2030 full build scenarios. Operations at the following four intersections are improved from LOS 'F' in 2030 No-build to LOS 'D' or better with the interchange in place:

- Dolfield Blvd at Red Run Blvd
- Owings Mills Blvd at Red Run Blvd
- Dolfield Blvd at Pleasant Hill Rd
- Nicodemus Rd at I-795 Ramps

Mainline Areas

The proposed interchange and mainline improvements included in Alternative 4C-10 will improve traffic conditions on I-795 and the local road network. The proposed I-795 ramp diverges and merge conditions at Dolfield Boulevard are projected to function at acceptable LOS D/E or better in the design year of 2030.

Overall, travel time and average vehicular speed on mainline I-795 in both the northbound and southbound directions improved in 2030 under the full Build condition in comparison to the No-Build condition. Travel time in the peak northbound direction decreased by 3.9 minutes from 11.9 minutes to 8.0 minutes. Conversely, travel time in the peak southbound direction decreased by approximately 3.7 minutes from 8.4 minutes to 4.7 minutes. Average vehicular speed in the peak northbound direction improved by 11.7 miles per hour (m.p.h.) from 23.7 m.p.h. to 35.4 m.p.h. Average vehicular speed in the peak southbound direction improved by 25.7 miles per hour from 33.0 m.p.h. to 58.7 m.p.h. Some areas on I-795 northbound in the vicinity of the Franklin Boulevard interchange saw a decrease in vehicle speed and LOS in the 2030 Full Build scenario as compared to the No-Build scenario. However, overall travel times, average speeds, average delays and LOS for the entire system were better in the 2030 Full Build as compared to the No-Build scenario. ***Appendix B, Figures 15-21*** summarize traffic operational results for mainline segments along I-795 under 2011 Existing, 2015 and 2030 No-Build, 2015 Staging, 2030 TSM, and 2030 Full Build conditions.

Location/Design Public Hearing

SHA held a Location/Design Public Hearing on June 22, 2009 at New Town High School in Owings Mills, Maryland (***Appendix C***). The purpose of the Public Hearing was to present the

ARDS and to provide another opportunity for public participation in the overall planning process. The results of the engineering and environmental studies were presented. Representatives from SHA presented the alternatives under consideration for public comment to approximately 250 people. Some community members expressed their support for the project because it would address future growth in the planned development area by alleviating traffic, increasing access to neighborhoods and employment centers, and safety. Additionally, there were concerns about the build alternatives for the following reasons:

- Option 3B & 4B would result in increased traffic as opposed to Option 3C & 4C which would create a dead end or relocate the ramps resulting in no increase in traffic.
- SHA needs to consider local roadway improvements such as widening and more traffic lights. Increased traffic on small 2 lane county roads that currently have no pedestrian accommodations may result. Crashes at the intersection of Gynnbrook and MD 140 (Reisterstown Road) occur where a traffic light is absent and visibility is poor.
- Small residential streets would be impacted as they already serve as collector streets and would need to be improved to fit the additional traffic and growth.
- SHA is not focusing on the correct issue. SHA should focus efforts to alleviate I-695, as this is the source of traffic and congestion on I-795.
- No proposal exists that does not adversely affect the community north and south of I-795. The proposed project would cause a decrease in property values and diminish the quality of life due to increased traffic. The relocation of Tollgate Road would adversely affect ingress and egress, and would degrade aesthetics of the subdivision entrance.

Alternatives Developed Subsequent to Public Hearing

Subsequent to the Public Hearing, the Pleasant Hill Community expressed concerns that Alternatives 3C and 4C would increase traffic on Pleasant Hill Road and Featherbed Lane from Relocated Tollgate Road. Consequently, conceptual alternatives 4C-2 through 4C-11 (discussed below) were developed by the Project Team. Each conceptual alternative proposed similar northbound and southbound on and off-ramps as in Alternative 4C. However, Tollgate Road, between Hewitt Farms Road and Dolfield Boulevard, would be relocated on a northwesterly alignment tying into the intersection of Dolfield Boulevard and Church Road. Concepts varied for the proposed intersection configuration of Pleasant Hill Road (***Appendix A***).

- Alternative 4C-2A includes the extension of Relocated Tollgate Road to intersection of Dolfield Boulevard/Church Road. Pleasant Hill Road would be realigned directly into Dolfield Boulevard forming a fifth leg at the intersection of Dolfield Boulevard/Church Road/Relocated Tollgate Road.
- Alternative 4C-2B includes the extension of Relocated Tollgate Road to intersection of Dolfield Boulevard/Church Road. Pleasant Hill Road would tie into relocated Tollgate Road forming a T-intersection.
- Alternative 4C-2C includes the extension of Relocated Tollgate Road to intersection of Dolfield Boulevard/Church Road. Pleasant Hill Road would terminate in a cul-de-sac at the western end, eliminating direct access to Relocated Dolfield Boulevard. A new roadway is proposed through the former swim club property to allow access to relocated Tollgate Road.
- Alternative 4C-2D is similar to 2C above except the new roadway being proposed through

the former swim club property would be revised to closely match an alignment proposed by the developer of the property.

- Alternative 4C-3 is similar to Alternative 2C above, except Featherbed Lane would be widened between Pleasant Hill Road and Dolfield Boulevard.
- Alternative 4C-4 is a modification of 2C above except the new roadway being proposed through the former swim club property would be revised to match another alignment proposed by the developer of the property.
- Alternative 4C-5 is similar to 2B except a new roadway is being proposed through the former swim club property that would terminate in a cul-de-sac, eliminating through traffic to Hewitt Farms Road.
- Alternative 4C-6 is similar to 2B except a second lane would be provided on Tollgate Road to bypass traffic around the left turn lane to Pleasant Hill Road.
- Alternative 4C-7 is similar to 2A above except right turns on red are restricted from Pleasant Hill Road and a second set of stop bars are placed on Relocated Tollgate Road approaching Pleasant Hill Road to eliminate cars blocking intersection.
- Alternative 4C-8 is similar to 2B, except Pleasant Hill is proposed as a one-way road between Featherbed Lane and Relocated Tollgate Road, eliminating the need for a left turn lane from Tollgate Road. Featherbed is also proposed as a one-way road between Dolfield Boulevard and Pleasant Hill Road and is to be used as an alternate route for access to Pleasant Hill.
- Alternative 4C-9 is similar to 2A except Relocated Tollgate Road and Pleasant Hill Road legs would be slightly modified to extend closer to the intersection of Dolfield Boulevard/Church Road/Relocated Tollgate Road.
- Alternative 4C-10 is similar to 2B except the intersection of Relocated Tollgate Road and Pleasant Hill Road would consist of right in/right out movements only. Pleasant Hill is proposed as a one-way road between Featherbed Lane and Relocated Tollgate Road and Featherbed Lane is also proposed as a one-way road between Dolfield Boulevard and Pleasant Hill Road. A new roadway through the swim club property is proposed to replace left turn movements from Pleasant Hill Road.
- Alternative 4C-11 is similar to Alternative 4C except Pleasant Hill Road is proposed as one-way southbound between Dolfield Boulevard and Featherbed Lane and Featherbed Lane is one-way northbound between Dolfield Boulevard and Pleasant Hill Road.

Alternatives Not Selected

(Please refer to Appendix A for Alternatives)

Alternative 1, the No-Build Alternative, was not selected because it would not provide any transportation improvements in the area and would not satisfy the project's Purpose and Need.

Although the TSM Alternative provided some operational benefit by adding capacity on mainline I-795 and improving the LOS on mainline I-795 between the Owings Mills Boulevard and Franklin Boulevard interchanges from LOS 'F' to LOS 'E' conditions, it was not selected because it would not satisfy the project's Purpose and Need of improving access to the planned growth and major employment corridor along Red Run Boulevard forecasted to 2030 traffic conditions. Also, the TSM Alternative would fail to address traffic congestion within the

existing I-795 interchange areas. LOS 'F' conditions would remain throughout the Owings Mills Boulevard and Franklin Boulevard interchange locations under the TSM Alternative.

Alternatives 3B and 4B were not selected for the following reasons:

- Lack of public support (see public involvement section)
- Queuing of traffic on northbound I-795 from proposed northbound off-ramp; PM Peak
- Increases interstate traffic on local road network from northbound off-ramp tying directly into Tollgate Road, and northwest of Hewitt Farms Road

Alternatives 3C and 4C were not selected for the following reasons:

- Lack of public support (see public involvement section)
- Opposed by Baltimore County due to lack of public support
- Increases local traffic on Pleasant Hill Road and Featherbed Lane

Alternative 4C-2A was not selected for the following reasons:

- Creates a five-legged intersection at Relocated Tollgate Road/Pleasant Hill Road/Church Road/ Dolfield Boulevard. The short distance between the intersection of Pleasant Hill Road/Relocated Tollgate Road and Dolfield Boulevard/Church would cause vehicles to queue from Relocated Tollgate Road, blocking left turns into Pleasant Hill Road.
- Creates a gap between closely spaced intersections on Relocated Tollgate Road/Pleasant Hill Road approaching Dolfield Boulevard causing vehicles to be caught in space when light changes blocking left turns into Pleasant Hill Road
- Insufficient space for left turns out of Pleasant Hill Road
- Sight distance problem approaching Church Road

Alternative 4C-2B and Alternative 4C-5 were not selected for the following reasons:

- High volumes of left turning traffic from Tollgate Road to Dolfield Boulevard could block Pleasant Hill Road intersection queuing traffic on Pleasant Hill Road.
- Left turning traffic from Tollgate Road to Pleasant Hill Road could block Dolfield Boulevard intersection
- The segment between Tollgate Road and Pleasant Hill Road would be too short and would create a queue for vehicles on Dolfield Boulevard, Tollgate Road, and Pleasant Hill Road for traffic waiting for left turning vehicles on Pleasant Hill Road to clear

Alternative 4C-2C, Alternative 4C-2D, and Alternative 4C-4 were not selected for the following reasons:

- Elimination of direct access to Dolfield Boulevard from Pleasant Hill Road results in traffic using Featherbed Lane through a residential area or proposed roadway through swim club property, requiring a longer travel distance.
- Lack of community support.

Alternative 4C-3 was not selected for the following reasons:

- Potential increase of through traffic on Featherbed Lane. Featherbed Lane currently is an access road for residential use and not a county road
- Potential for a succession of signalized intersections between proposed northbound off-ramp and Featherbed Lane due to proposed installation of traffic signals at the intersections of Pleasant Hill/Church Road, Dolfield Boulevard/Featherbed Lane, and Pleasant Hill Road/Featherbed Lane/Relocated Tollgate Road.
- Access to Tollgate Road from Church Road would require approximately 0.45- 0.60 mile of additional travel to reach Old Tollgate Road due to the proposed one way inbound and outbound roads. Vehicles would access Old Tollgate Road via Dolfield Boulevard and Featherbed Lane.
- Entrance modification is required to Owings Meadows community (Hewitt Farms development). The entrance was previously modified to create an intersection at Relocated Tollgate/ Hewitt Farms Road/Old Tollgate Road. The amount of new traffic and creation of a new relocated Tollgate Road would require reconfiguration of the intersection. This option was not preferred based on increase traffic proximity to the neighborhood, and use of Featherbed Lane to reach Dolfield Boulevard. Currently, Featherbed Lane is an access road for residential use and not a county road.
- Elimination of direct access to Dolfield Boulevard from Pleasant Hill Road is necessary. Use of Featherbed Lane or the proposed roadway through the swim club property would require a more circuitous travel route via Featherbed Lane. Featherbed Lane currently is an access road for residential use and not a county road. Old Tollgate Road would be converted into a dead end to allow for construction of northbound ramps.

Alternative 4C-6 was not selected for the following reasons:

- High volumes of left turning traffic from Tollgate Road to Dolfield Boulevard could block Pleasant Hill Road intersection queuing traffic on Pleasant Hill Road
- Left turning traffic from Tollgate Road to Pleasant Hill could block Dolfield Boulevard intersection.

Alternative 4C-7 was not selected for the following reasons:

- Creates a network of roads which would allow cut-through traffic and disrupts residential neighborhoods around Pleasant Hill Road between Tollgate Road, Dolfield Boulevard and the proposed northbound off-ramp.
- Insufficient storage for left turns out of Pleasant Hill Road due to creation of a small segment where Dolfield Boulevard, Pleasant Hill Road, and Relocated Tollgate Road intersect.
- Sight distance problem approaching Church Road.

Alternative 4C-8 was not selected for the following reason:

- High volumes of left turning traffic from Tollgate Road to Dolfield Boulevard could block Pleasant Hill Road intersection queuing traffic on Pleasant Hill Road.

Alternative 4C-9 was not selected for the following reasons:

- Creates a network of roads which would allow cut-through traffic and disrupts residential neighborhoods around Pleasant Hill Road between Tollgate Road, Dolfield Boulevard and the proposed northbound off-ramp.
- Creates a sight distance problem approaching Church Road.

Alternative 4C-11 was not selected for the following reasons:

- Potential increase of through traffic on Featherbed Lane. Featherbed Lane currently is an access road for residential use and not a county road. Estimates are an additional 170 (morning peak hour) and 430 (evening peak hour) vehicle through trips on Featherbed (i.e., with Pleasant Hill Road restricted to a One-Way Outbound movement). Only local traffic would traverse Featherbed Lane during the peak hours otherwise, likely less than 30 vehicles.
- Potential for a succession of signalized intersections between proposed northbound off-ramp and Featherbed Lane due to proposed installation of traffic signals at the intersections of Pleasant Hill/Church Road, Dolfield Boulevard/Featherbed Lane, and Pleasant Hill Road/Featherbed Lane/Relocated Tollgate Road.
- Access to Tollgate Road from Church Road would require approximately 0.45- 0.60 miles of additional travel to reach Old Tollgate Road due to the proposed one way roads. Traffic would access Old Tollgate road via Dolfield Boulevard then Featherbed Lane.
- Entrance modification is required to Owings Meadows community (Hewitt Farms development). The entrance was previously modified to create an intersection at Relocated Tollgate/ Hewitt Farms Road/Old Tollgate Road. The amount of new traffic and creation of a new relocated Tollgate Road would require reconfiguration of the intersection. This option was not preferred based on increase traffic proximity to the neighborhood, and use of Featherbed Lane (a residential area) to reach Dolfield Boulevard. Featherbed Lane currently is an access road for residential use and not a county road.
- Elimination of direct access to Dolfield Boulevard from Featherbed Lane is necessary. Featherbed Lane would be transitioned to a one-way road from Dolfield Boulevard and traffic would need to use Pleasant Hill Road to access Dolfield Boulevard.

Description of SHA's Preferred Alternative

Improvements along I-795 and in the Dolfield Boulevard/Pleasant Hill Road area are proposed to improve vehicular mobility, to address safety concerns, and to provide adequate capacity and improved access for the existing traffic and planned development which would generate extensive additional traffic growth in the area. The study also evaluated necessary improvements to several intersections in the study area to ensure sufficient capacity, along with safe pedestrian and bicycle compatibility.

Alternative 4C-10 (***Figure 2***) was developed in response to concerns expressed at a Community Meeting on September 22, 2009 with residents of Pleasant Hill Road and Featherbed Lane. The SHA Preferred Alternative 4C-10 would consist of widening the I-795 mainline to add a third lane between the Owings Mills Boulevard and the Franklin Boulevard interchanges, widening the Dolfield Boulevard/Pleasant Hill Road bridge over I-795, adding northbound and southbound

on and off-ramps forming an interchange at Dolfield Boulevard, adding auxiliary lanes between the new Dolfield Boulevard interchange ramps and the Owings Mills Boulevard interchange ramps, and making local intersection improvements. Tollgate Road, between Hewitt Farms Road and Dolfield Boulevard, would be relocated on a northwesterly alignment tying into the intersection of Dolfield Boulevard and Church Road. Pleasant Hill Road would tie into relocated Tollgate Road forming a T-intersection. The intersection of Relocated Tollgate Road and Pleasant Hill Road would consist of right in/right out movements only onto Pleasant Hill Road. No left turns would be allowed onto Pleasant Hill Road. A new roadway through the swim club property is proposed to replace left turn movements from Pleasant Hill Road.

SHA's Preferred Alternative would best meet the purpose and need by improving vehicular mobility, addressing safety concerns, providing adequate capacity and improved access on I-795 as well as the local road network, and is responsive to public comments. Through widening of the I-795 mainline, this alternative would alleviate traffic congestion between the Franklin Boulevard and Owings Mills Boulevard interchanges. Selection of a full interchange would provide northbound and southbound traffic adequate access to enter and exit I-795 to/from the Red Run Boulevard and Dolfield Boulevard. The full interchange would address existing and future traffic demands and support planned development in the Red Run Employment Center and immediate communities of Pleasant Hill Road and Featherbed Lane. It would also support commercial development along Dolfield Boulevard. This alternative is also supported by Baltimore County.

The proposed interchange would complement the existing and proposed roadway network (***Figure 3A & B***). The recently completed extension of Dolfield Boulevard to the south directly connects Lakeside Boulevard and the New Town neighborhood towards the south to Red Run Boulevard. The Dolfield Boulevard Extension project recently completed by Baltimore County now connects Reisterstown Road with Red Run Boulevard via Dolfield Boulevard.

Summary of Environmental Impacts

A description of the environmental impacts of the SHA Preferred Alternative is included in this section. ***Table 2*** provides a summary of the environmental impacts for the ARDS and SHA's Preferred Alternative.

Socioeconomic Environment

Existing land use within the study area is primarily residential, business/commercial, and institutional. The SHA Preferred Alternative would require approximately 26.3 acres of new right-of-way (ROW) from 48 individual properties (***Figure 4A & B***). The majority of these ROW acquisitions would occur immediately adjacent to the I-795 mainline as a result of the proposed mainline widening, ramps to and from Dolfield Boulevard, and stormwater management facilities. The majority of ROW impacts would be contained to areas around the new interchange on mostly undeveloped properties zoned for commercial use. The remainder of the proposed right-of-way acquisition would occur along Dolfield Boulevard, Tollgate Road, and Pleasant Hill Road as a result of the proposed realignment of Tollgate Road. Two residential displacements would be required by the SHA Preferred Alternative. One of these residences is located along northbound Dolfield Boulevard, just north of Tollgate Road. The second is located

Table 2. *Environmental Impacts*

Impact Types	No Build Alternative 1	TSM Alternative 2	Alternative 3B	Alternative 3C	Alternative 4B	Alternative 4C	Alternative 4C-2B	Preferred Alternative 4C-10
Displacements (number)								
Residential	0	1	2	2	2	2	2	2
Business/Commercial	0	0	0	0	0	0	0	0
TOTAL	**0**	**1**	**2**	**2**	**2**	**2**	**2**	**2**
Properties Impacted (number)								
Residential	0	23	38	38	40	41	46	46
Business/Commercial	0	0	1	1	1	1	1	1
Parkland	0	0	0	0	0	0	0	0
Place of Worship/School	0	1	1	1	1	1	1	1
Historical/Archeological	0	0	0	0	0	0	0	0
TOTAL	**0**	**24**	**40**	**42**	**40**	**43**	**48**	**48**
Right-of-Way Area Required (acres)								
Residential	0	17.9	18.9	19.8	22.3	23.3	23.2	24.4
Business/Commercial	0	1.4	1.8	1.8	1.8	1.8	1.5	1.9
Parkland	0	0	0	0	0	0	0	0
Place of Worship/School	0	0	0	0	0	0	0	0
Historical/Archeological	0	0	0	0	0	0	0	0
TOTAL	**0**	**19.3**	**20.7**	**21.6.81**	**24.1**	**25.1**	**24.7**	**26.3**
Natural Environmental Impacts								
100-Year Floodplain Affected (acres)	0	0.56	0	0	0	0	0	0
Wetlands Affected (acres)	0	1.4	2.6	2.6	2.5	2.6	2.6	1.3
Streams (linear feet)	0	1915	2314	2314	2314	2314	2314	2314
[1]Woodlands Affected (acres)	0	46	50	51	53	54	54	54
Green Infrastructure Affected (acres)	0	6.0	5.2	5.2	7.7	7.7	5.6	5.8

Note: [1]*Woodland impacts include specimen trees, FIDS habitat, and Green Infrastructure. Green Infrastructure impacts have been shown separately in the table.*

Figure 4A

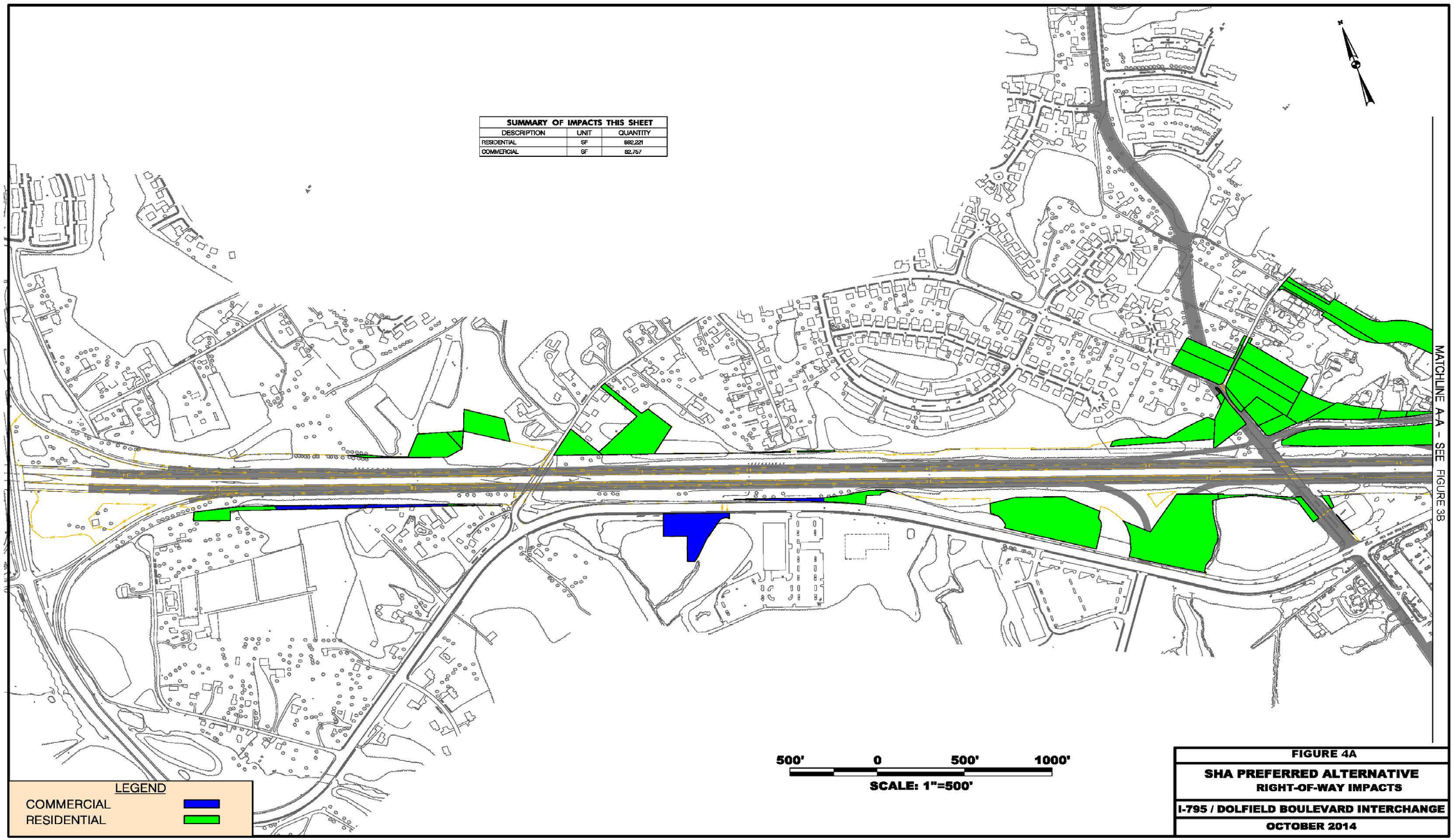
SUMMARY OF IMPACTS THIS SHEET
DESCRIPTION | UNIT | QUANTITY
RESIDENTIAL | SF | 682,221
COMMERCIAL | SF | 82,757
MATCHLINE A-A – SEE FIGURE 3B
LEGEND
COMMERCIAL
RESIDENTIAL
500' 0 500' 1000'
SCALE: 1"=500'
FIGURE 4A
SHA PREFERRED ALTERNATIVE
RIGHT-OF-WAY IMPACTS
I-795 / DOLFIELD BOULEVARD INTERCHANGE
OCTOBER 2014

Figure 4B


SUMMARY OF IMPACTS THIS SHEET
DESCRIPTION | UNIT | QUANTITY
RESIDENTIAL | SF | 181,854
COMMERCIAL | SF | 0
OVERALL TOTAL SUMMARY OF IMPACTS
DESCRIPTION | UNIT | QUANTITY
RESIDENTIAL | SF | 1,064,075
COMMERCIAL | SF | 82,757
MATCHLINE A-A – SEE FIGURE 3A
LEGEND
COMMERCIAL
RESIDENTIAL
500' 0 500' 1000'
SCALE: 1"=500'
FIGURE 4B
SHA PREFERRED ALTERNATIVE
RIGHT-OF-WAY IMPACTS
I-795 / DOLFIELD BOULEVARD INTERCHANGE
OCTOBER 2014

along southbound Dolfield Boulevard just south of Church Road. The residential structure has been removed by Baltimore County for the Dolfield Boulevard extension project which was completed in September 2013.

Smart Growth

The intent of Maryland's Priority Funding Areas Act of 1997 is to direct state funding for growth-related projects to areas designated by local jurisdictions as Priority Funding Areas (PFAs). PFAs are existing communities and other locally designated areas, as determined by local jurisdictions, in accordance with Smart Growth guidelines. The entire study area is located within a designated PFA. Therefore, the proposed project is consistent with the Maryland's Smart Growth legislation.

Environmental Justice

In compliance with Executive Order (EO) 12898, "Federal Actions to Address Environmental Justice in Minority and Low-Income Populations," SHA will avoid disproportionately high and adverse effects on minority and low-income communities throughout the study area. Based on the analysis of the minority and low-income population data from the 2010 U.S. Census and American Community Survey (2012 data), two Environmental Justice communities exist within the study area.

The project would not directly impact the first community, as the affected portions of this community are in the vicinity of the I-795 mainline and Dolfield Boulevard, west of I-795 (***Figure 4A & B)***. The affected portions of the community are in commercial/industrial land use areas. Therefore, no disproportionately high and adverse effects on minority and low-income populations are expected in this community.

The proposed project would result in property impacts, residential displacements, and access changes to a second community within the vicinity of the existing Dolfield Boulevard overpass. These impacts are located just east of I-795 in the vicinity of Dolfield Boulevard, Pleasant Hill Road, and Tollgate Road. New right-of-way would be acquired from several residential properties to relocate Tollgate Road. Two residences would also be displaced as a result of the relocation of Tollgate Road and the construction of an exit ramp from northbound I-795 onto Dolfield Boulevard. One of these residences at the intersection of Dolfield Boulevard and Pleasant Hill Road has already been removed to complete the Baltimore County Dolfield Boulevard extension project. SHA's project in conjunction with Baltimore County's new roadway that would extend Featherbed Lane from Pleasant Hill Road to Hewitt Farms would alter access patterns in this portion of the community. These impacts are not considered disproportionately high and adverse on this community, because ROW acquisitions and displacements would occur in a less densely developed area at the edge of the community and would only impact a small number of properties. Furthermore, these impacts occur in this location out of necessity to provide the proposed transportation improvements. Likewise, the changes in access would not be considered disproportionately high and adverse effects because they would improve mobility within the community and increase accessibility to and from both I-795 and MD 140 (Reisterstown Road).

Section 4(f)

The SHA Preferred Alternative would not require use of public park land or historic properties protected under Section 4(f).

Cultural Resources

SHA, in consultation with the Maryland Historical Trust (MHT) and other consulting parties conducted an identification and evaluation of historic architectural and archeological resources in accordance with federal and state laws, which protect significant cultural resources. Background research and field surveys were conducted to facilitate identification of cultural resources. An Area of Potential Effect (APE) was delineated to identify resources and evaluate the potential impacts to those resources (***Appendix D***).

All cultural resources identified during the architectural and archaeological surveys were evaluated for their eligibility to be included on the National Register of Historic Places (NRHP) and were submitted to MHT for concurrence on eligibility determinations or to comment on the need for further evaluation. SHA has determined there would be no impact to historic standing structures or potentially significant archeological resources as no locations were determined to be eligible for listing in the NRHP.

A Phase I/II Archaeological Survey was completed in 2009 to locate and identify any significant archaeological resources that may be affected by the project and to evaluate the previously documented site 18BA555, the Belltown Lowe Lots site. The Phase I/II survey did not identify any new sites and SHA has recommended that the Belltown Lowe Lots site is not eligible for listing in the NRHP and no further archeological work was warranted. On January 5, 2012, the MHT concurred with the "No Properties Affected" determination for the SHA Preferred Alternative (***Appendix E***).

Natural Environment

<u>Wetlands</u>
Based on the results of the spring 2009, winter 2012, and summer 2014 field investigations, the SHA Preferred Alternative would impact approximately 1.3 acres of wetlands (***Figure 5A & B***). The 1.3 acres of wetland impacts would result in 0.1 acre of impacts to palustrine scrub shrub, 0.6 acre of impacts to palustrine emergent, and 0.6 acre of impacts to palustrine forested. The majority of these impacts, approximately 0.8 acre, would occur at two wetlands located along northbound I-795 in the vicinity of the Mt. Pleasant AME Church. These wetlands abut one another and collectively serve as a stormwater management facility. Impacts to these wetlands would result from the construction of the ramp from northbound I-795 to Dolfield Boulevard. Additional impacts to one forested wetland totaling approximately 0.3 acre would occur along southbound I-795 directly across from the Mt. Pleasant AME Church as a result of mainline widening. The remaining wetland impacts, approximately 0.1 acre, would occur along the existing ramp from westbound Owings Mills Boulevard to I-795 for outfall stabilization within an existing stormwater facility, located in a wetland. During preliminary engineering, stormwater management facilities were relocated in an effort to avoid wetland impacts and the limit of disturbance was reduced to further minimize impacts.

A Wetland of Special State Concern (WSSC) and the WSSC 100-foot buffer were identified near the southern end of the study area south of Painters Mill Road. Wetland WP030 was initially identified as potential habitat for the state-listed Purple Fringeless Orchid, thus designating this wetland as another WSSC. Surveys to locate the Purple Fringeless Orchid were conducted, but none were found.

Further coordination with DNR, Wildlife and Heritage Service in August 2009 determined that WP030 is not a WSSC. SHA shortened the limits of disturbance to avoid wetland impacts in the southern end of the study area. SHA's Preferred Alternative is not expected to impact the original WSSC, the WSSC 100-foot buffer or Wetland WP030.

Streams

The Maryland Department of Natural Resources (DNR) has identified Red Run and unnamed tributaries to Gwynns Falls in the project area. The project is located within the Gwynns Falls watershed. Gwynns Falls tributaries upstream of MD 140 and Red Run are classified as Use III with generally no instream work permitted from October 1 through April 30. Gywnns Falls tributaries downstream of MD 140 are classified as Use I with generally no instream work permitted from March 1 through June 15.

Tributaries of Gwynns Falls and Red Run are expected to support resident populations of cool and cold water fish species in their perennial reaches. Red Run and its tributaries are designated as natural trout streams and have been documented supporting both brook and brown trout. Occasional occurrences of wild brown trout have been documented in the upper Gwynns Falls drainage.

SHA's Preferred Alternative would impact a total of 2,314 linear feet (l.f.) of streams within the study area (***Figure 5A & B***). There would be approximately 454 l.f. of impacts to perennial streams, and 1,860 l.f. of impacts to intermittent streams; the majority of impacts, 1,831 l.f., would occur along I-795 due to roadway embankments for mainline widening of I-795. Impacts, 403 l.f, would occur at two individual locations along a tributary to Gwynns Falls located just outside the existing ramp from westbound Owings Mills Boulevard to I-795. These impacts would occur as a result of the outfall stabilization within an existing stormwater facility, located in a wetland. The remaining impacts, 39 l.f. would occur along a tributary to Red Run located on the southbound side of I-795, approximately 1,500 feet south of the existing Pleasant Hill Road overpass.

A preliminary jurisdictional determination field meeting was held April 22, 2014. The ACOE and MDE requested delineation of resources previously not identified as impacts. An updated wetland report addendum was finalized and distributed to these regulatory agencies.

Figure 5A

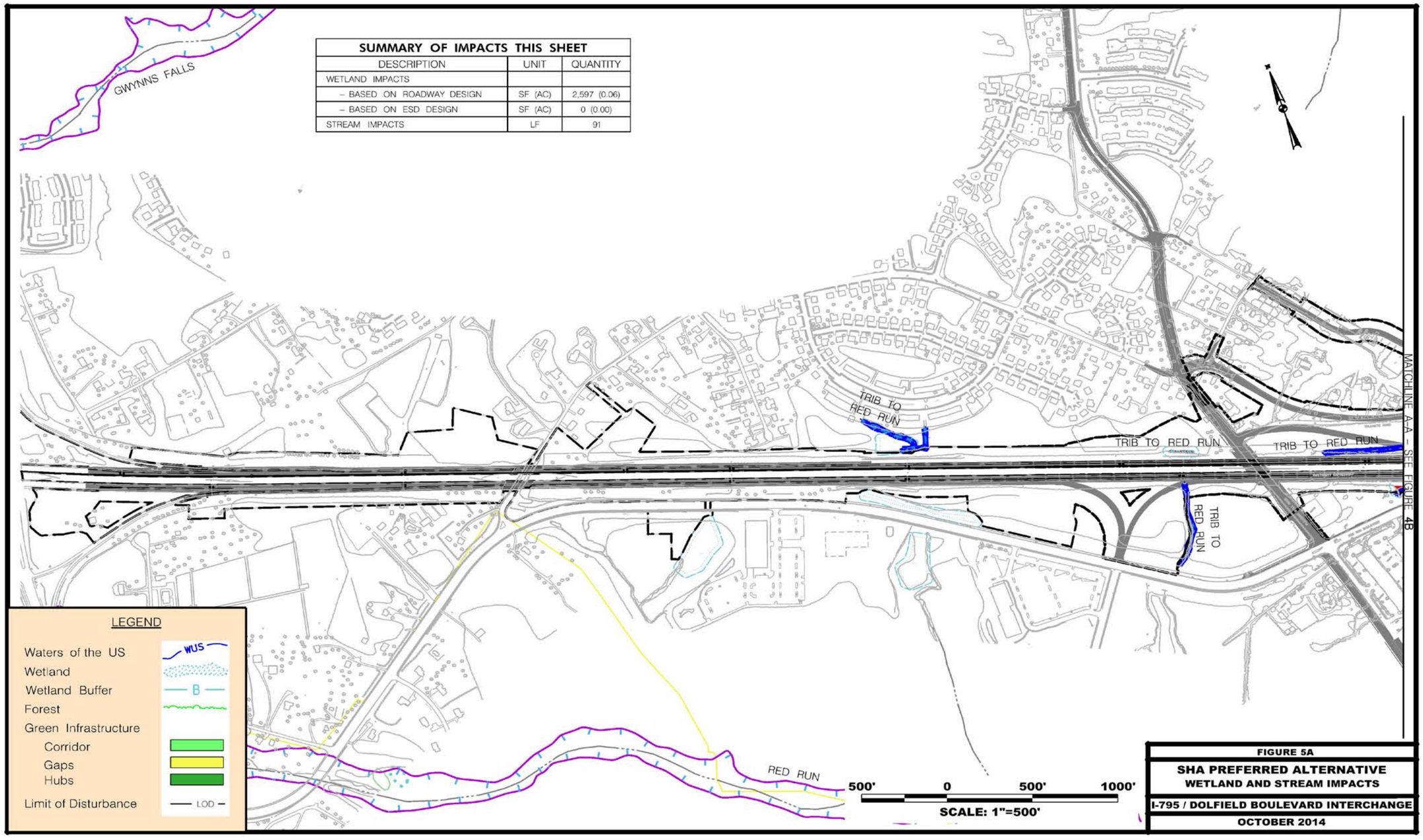
SUMMARY OF IMPACTS THIS SHEET
DESCRIPTION | UNIT | QUANTITY
WETLAND IMPACTS
– BASED ON ROADWAY DESIGN | SF (AC) | 2,597 (0.06)
– BASED ON ESD DESIGN | SF (AC) | 0 (0.00)
STREAM IMPACTS | LF | 91
GWYNNS FALLS
TRIB TO RED RUN
TRIB TO RED RUN
TRIB TO RED RUN
TRIB TO RED RUN
TRIB TO RED RUN
RED RUN
MATCHLINE A-A – SEE FIGURE 4B
LEGEND
Waters of the US
Wetland
Wetland Buffer
Forest
Green Infrastructure
Corridor
Gaps
Hubs
Limit of Disturbance
WUS
B
LOD
500' 0 500' 1000'
SCALE: 1"=500'
FIGURE 5A
SHA PREFERRED ALTERNATIVE
WETLAND AND STREAM IMPACTS
I-795 / DOLFIELD BOULEVARD INTERCHANGE
OCTOBER 2014

Figure 5B

SUMMARY OF IMPACTS THIS SHEET		
DESCRIPTION	UNIT	QUANTITY
WETLAND IMPACTS		
– BASED ON ROADWAY DESIGN	SF (AC)	19,047 (0.5)
– BASED ON ESD DESIGN	SF (AC)	35,452 (0.8)
STREAM IMPACTS	LF	2,223

OVERALL TOTAL SUMMARY OF IMPACTS		
DESCRIPTION	UNIT	QUANTITY
WETLAND IMPACTS		
– BASED ON ROADWAY DESIGN	SF (AC)	21,614 (0.6)
– BASED ON ESD DESIGN	SF (AC)	35,452 (0.8)
STREAM IMPACTS	LF	2,314

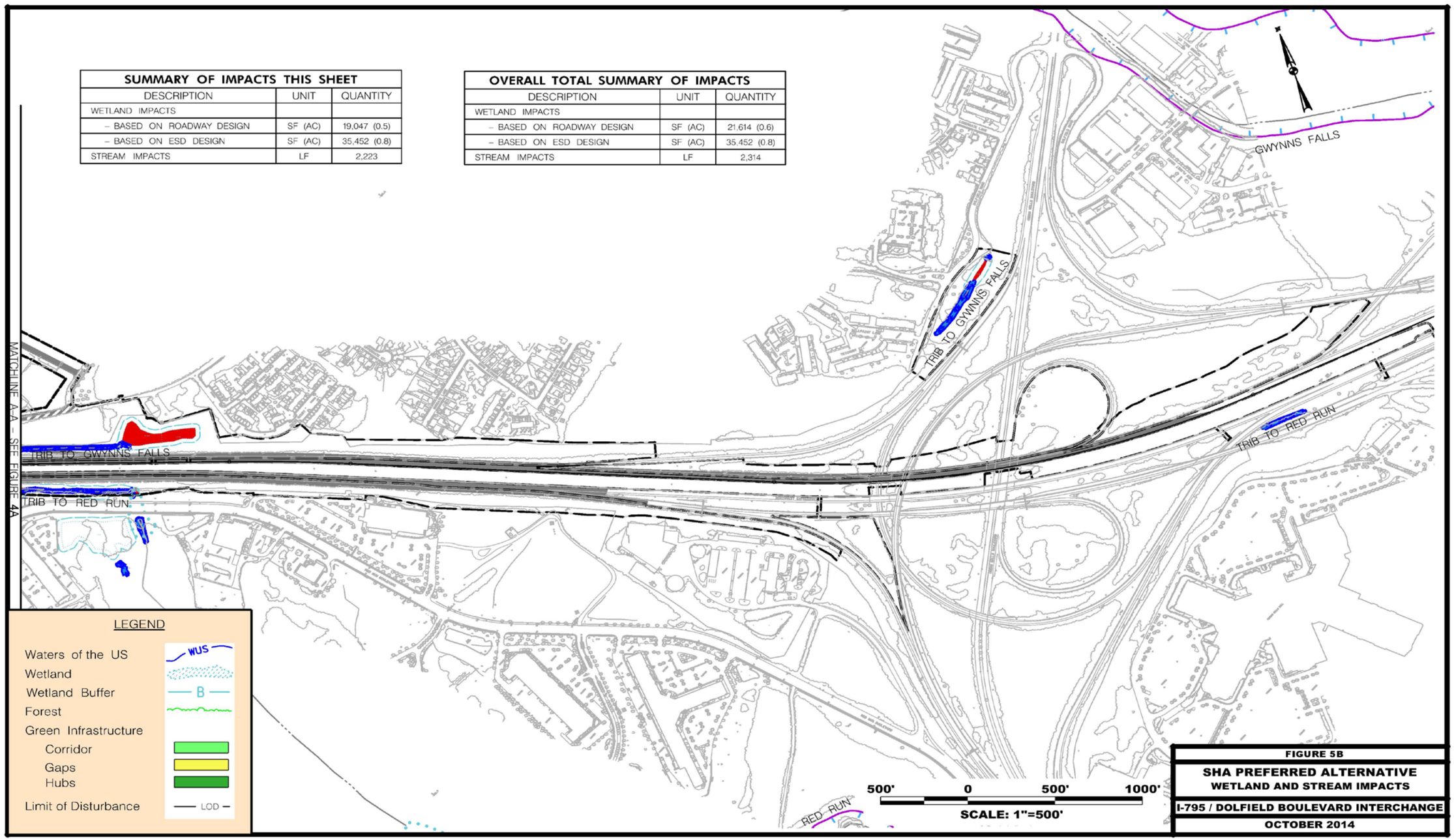

FIGURE 5B
SHA PREFERRED ALTERNATIVE
WETLAND AND STREAM IMPACTS
I-795 / DOLFIELD BOULEVARD INTERCHANGE
OCTOBER 2014

Woodland

The SHA Preferred Alternative would impact 54 acres of woodland for the construction of roadway improvements, interchange ramps, and stormwater management facilities (***Figure 6A & B***). Woodland impacts include specimen trees, Forest interior dwelling species (FIDS) habitat, and Green Infrastructures. Of this total, 30 acres of impacts would occur as a result of roadway construction and 24 acres of impacts would occur as a result of stormwater management facilities. FIDS habitat exists at the center portion of the study area west of I-795 (***Figure 6A & B***). Construction of the southbound I-795 ramps and widening of the Dolfield Boulevard overpass will impact 8.26 acres of FIDS habitat. Woodland and FIDS impacts would occur along the edges of existing roadways, as opposed to forest interior or other undisturbed habitats.

In March 2012, a field investigation was conducted in the expanded study area to identify all specimen trees within SHA's Preferred Alternative. Specimen trees are defined by DNR as those trees having a diameter of 30 inches or more (measured at 4.5 feet above ground), or trees having 75 percent or more of the diameter of the current Maryland state champion of that species. A total of 43 specimen trees were identified during the field investigation (*Addendum Wetland Investigation and Specimen Tree Identification Report for I-795 at Dolfield Boulevard/Pleasant Hill Road Project* (March 2012). Alternative 4C-10 would impact 23 specimen trees.

Rare, Threatened, and Endangered Species

Coordination with USFWS and DNR was conducted to determine if any rare, threatened, or endangered (RTE) species exist in the study area. Except for the occasional transient individuals, no federally proposed or listed RTE species are known to exist in the study area.

DNR's Wildlife and Heritage Service initially indicated that there are no state records for RTE species within the study area. Further coordination with DNR on April 14, 2009 indicated that, if appropriate habitat is available, certain species could be present without documentation because adequate surveys have not been conducted. The Purple Fringeless Orchid (*Platanthera peramoena*) has been known to exist in the WSSC located south of the study area. However, the last observation of this species at this site was in 1985. In consultation with DNR staff biologists, field investigations were conducted in July and August of 2009 in the area where the WSSC, wetland WP030, and a combined 100-foot wetland buffer at one time intersected with the project area. Twelve areas were identified as potential habitat for the orchid, but no individuals were found.

All of the potential habitat areas displayed significant invasion of nonnative plant species, which suggests that these areas may no longer be suitable habitat for sustaining purple fringeless orchid populations. However, the project limits no longer include the WSSC or its 100-foot buffer. Therefore, the project would not result in impacts to the habitat for the purple fringeless orchid. Per DNR's recommendation, further assessment of the WSSC boundary within the project area will be conducted once design plans are available.

Green Infrastructure

Green infrastructure is a term used for areas designated by DNR as important natural lands within Maryland. These areas provide important ecosystem services, habitat for resident and

migratory species, scenery, and quality of life for Maryland residents. According to the DNR's Atlas of Greenways, Water Trails, and Green Infrastructure, the stream corridor along Red Run is designated as a potential Recreational Greenway intended to provide open space and recreational opportunities in an area designated for intense growth. The southern extent of the study area abuts the Red Run floodplain and greenway. The study area extends through two small green infrastructure hubs near the proposed Dolfield Boulevard intersection and at the southern tip of the study area (***Figure 6A & B***). SHA's Preferred Alternative would impact a total of 5.8 acres of green infrastructure hub areas.

Figure 6A

SUMMARY OF IMPACTS THIS SHEET		
DESCRIPTION	UNIT	QUANTITY
GREEN INFRASTRUCTURE		
GI CORRIDOR	SF (AC)	0 (0.00)
GI GAPS	SF (AC)	0 (0.00)
GI HUBS	SF (AC)	254,173 (5.8)
FOREST IMPACTS		
– BASED ON ROADWAY DESIGN	SF (AC)	539,737 (12.4)
– BASED ON ESD DESIGN	SF (AC)	471,368 (10.8)

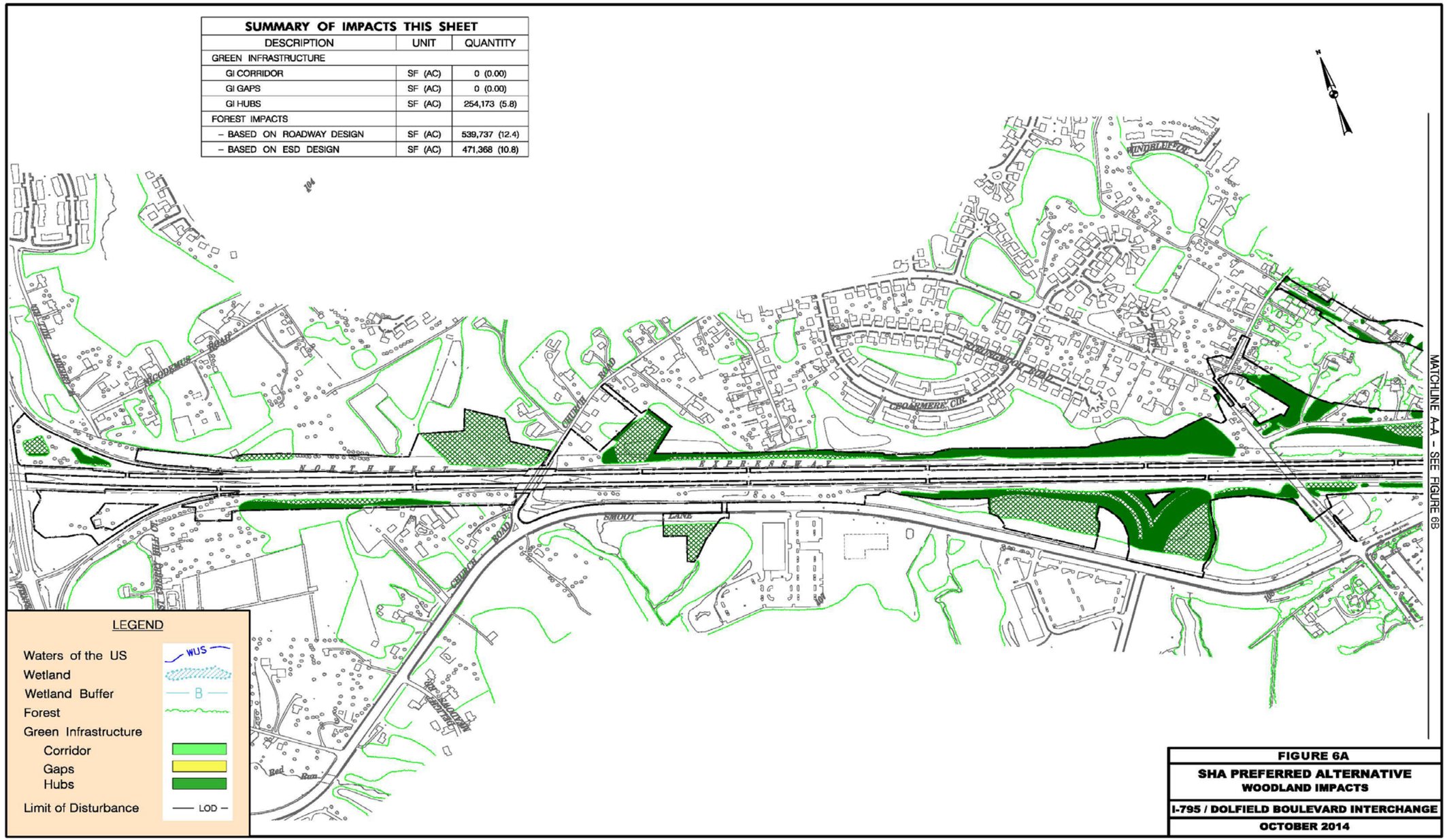

FIGURE 6A
SHA PREFERRED ALTERNATIVE
WOODLAND IMPACTS
I-795 / DOLFIELD BOULEVARD INTERCHANGE
OCTOBER 2014

Figure 6B

SUMMARY OF IMPACTS THIS SHEET		
DESCRIPTION	UNIT	QUANTITY
GREEN INFRASTRUCTURE		
GI CORRIDOR	SF (AC)	0 (0.0)
GI GAPS	SF (AC)	0 (0.0)
GI HUBS	SF (AC)	0 (0.0)
FOREST IMPACTS		
– BASED ON ROADWAY DESIGN	SF (AC)	750,054 (17.2)
– BASED ON ESD DESIGN	SF (AC)	573,028 (13.2)

OVERALL TOTAL SUMMARY OF IMPACTS		
DESCRIPTION	UNIT	QUANTITY
GREEN INFRASTRUCTURE		
GI CORRIDOR	SF (AC)	0 (0.00)
GI GAPS	SF (AC)	0 (0.00)
GI HUBS	SF (AC)	254,173 (5.8)
FOREST IMPACTS		
– BASED ON ROADWAY DESIGN	SF (AC)	1,289,791 (29.6)
– BASED ON ESD DESIGN	SF (AC)	1,044,396 (23.9)

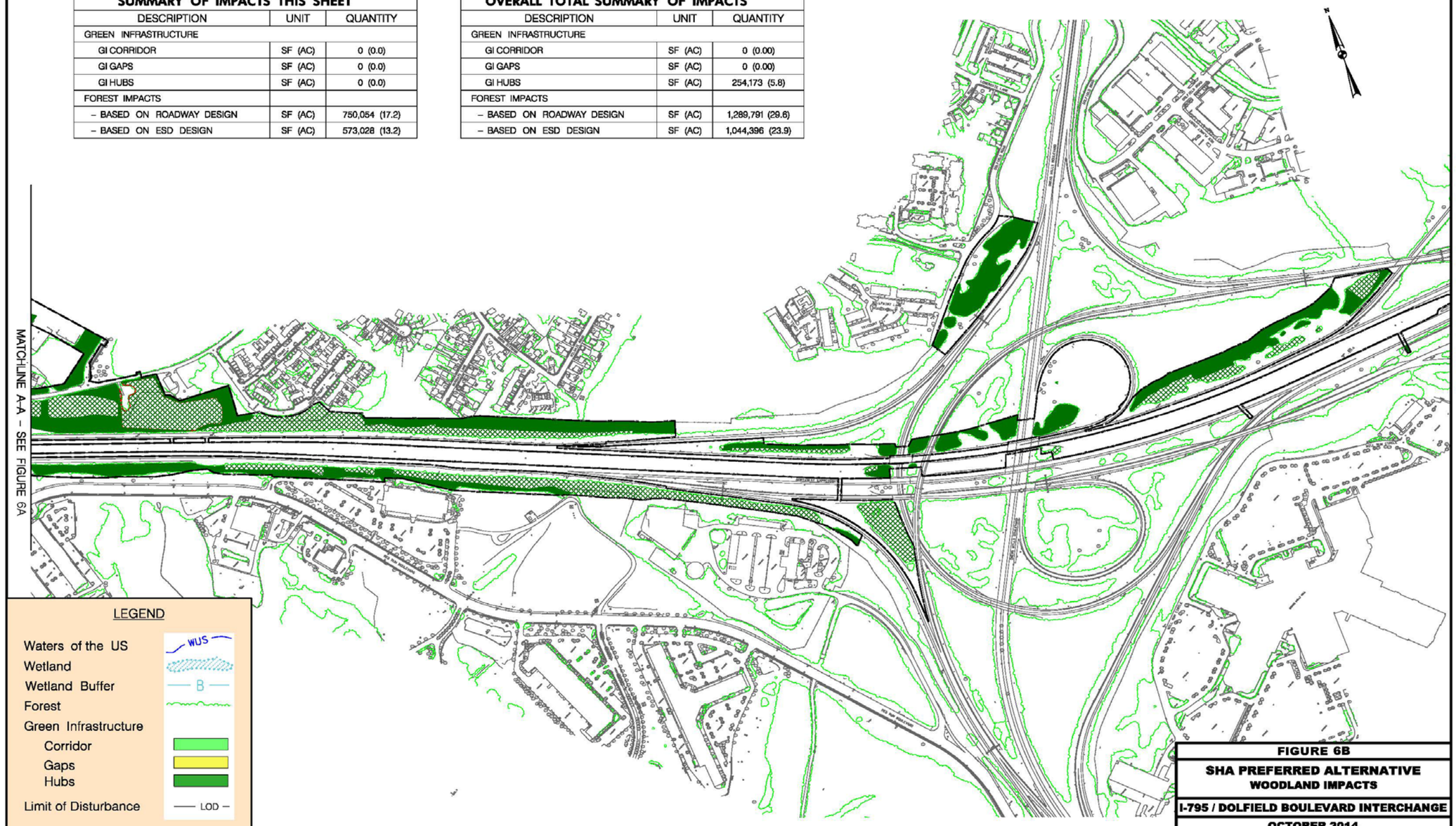

FIGURE 6B

SHA PREFERRED ALTERNATIVE
WOODLAND IMPACTS

I-795 / DOLFIELD BOULEVARD INTERCHANGE

OCTOBER 2014

Air Quality

The I-795 Dolfield Boulevard/Pleasant Hill Road Interchange Project is located in Baltimore County, Maryland which is designated as an attainment area for Carbon Monoxide (CO), Nitrogen Dioxide (NO_2), Sulfur Dioxide (SO_2), Lead (Pb) or particulate matter (PM_{10}). This county is designated as a non-attainment area for 8-hour ozone (O3) standard of 0.075 parts per million (ppm) and as a non-attainment area for Fine Particulate Matter ($PM_{2.5}$).
Since the project is located in a non-attainment area for O_3 and $PM_{2.5}$, conformity to the State Implementation Plan (SIP) is determined through a regional air quality analysis performed on the Transportation Improvement Plan (TIP) and transportation plan. SHA received TIP/STIP amendment approval on September 2, 2014.

In May 2009, an Air Quality Technical Report was completed for the I-795 Dolfield Boulevard/Pleasant Hill Road Interchange Project. For carbon monoxide (CO), a quantitative local analysis was performed that demonstrated CO concentrations resulting from the implementation of the SHA Preferred Alternative would not result in a violation of the National Ambient Air Quality Standards for the 2015 and 2030 analysis years. For mobile source air toxics, the project was found to not result in any meaningful changes in traffic volumes, vehicle mix, or any other factor that would cause an increase in emissions impacts. SHA received TIP/STIP amendment approval on September 2, 2014. A qualitative $PM_{2.5}$ analysis was submitted to the Interagency Consultation Group (ICG) on September 3, 2014, consisting of FHWA, U.S. EPA, MDE, and the MPO. On October 2, 2014 the ICG agreed with SHA's determination that the project is not of air quality concern. The determination was posted on SHA's website for 15 days for public comment. No comments were received during this period.

Noise

In 2012, SHA initiated a Type I Highway noise analysis in accordance with guidelines established by FHWA 23 CFR 772, and the SHA Highway Noise Policy, effective July 13, 2011. The purpose of the Type I noise analysis was to determine if there were any highway traffic noise impacts from the new interchange and highway improvements being proposed, and where noise barriers were warranted, feasible, and reasonable within the project area.

The study area was divided into 43 noise sensitive areas (NSAs) according to their FHWA land use activity category: 30 in Category B (residential), five in Category C (school and place of worship), and eight in Category E (exterior developed lands that are potentially sensitive to noise). It was determined that 16 NSAs would experience design year noise levels that equal or exceed FHWA/SHA noise impact criteria and would warrant noise abatement consideration.

Hazardous Materials

When project planning activities were initiated for this project, reviews of several regulatory agency databases were performed to assess the potential presence of hazardous materials, wastes, or petroleum products. The following list summarizes the federal and state databases searched:

- Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS)

- National Priority List
- Resource Conservation and Recovery Information Systems (RCRIS)
- Proposed National Priority List Sites
- Environmental Protection Agency's Envirofacts Data Warehouse

Based on these database searches, one RCRIS site, Pleasant Hill Cleaners, was identified in the study area. The site is located in the southwest quadrant of the Pleasant Hill Road and Red Run Boulevard intersection.

When project planning was resumed in 2013, it was determined that changes in the project design and new development within the study area now warrant further investigation of hazardous materials. An Initial Site Assessment (ISA) report is currently being finalized for the project.

An Initial Site Assessment was completed for the approximately 11 square mile project area that may require additional investigation depending upon the final design. Under the SHA Preferred Alternative, ROW would be required from the Royal Farms located at the corner of Dolfield Boulevard and Red Run Boulevard, this location was identified in the ISA for further investigation dependent upon final design. Additionally, 15 properties within the project area were highlighted for future analysis based on the project impacts. In the design phase analysis of the 15 properties will be revisited to gather more information related to hazardous materials contamination and potential impacts.

Avoidance, Minimization, and Conceptual Mitigation Measures

Socioeconomic Environment

SHA undertook extensive community outreach in the development of its Preferred Alternative to minimize the impacts on residential communities and community facilities. The Preferred Alternative would require ROW from residential properties and a Place of Worship.

Under the SHA Preferred Alternative and all build alternatives, SHA was not able to totally avoid ROW impacts to the Mt. Pleasant AME Church located at 235 Tollgate Road in Owings Mills, but met with the community to reduce impacts. On August 5, 2008, SHA conducted a meeting with the pastor and a member of Mt. Pleasant AME Church, to discuss proposed alternatives for the I-795 at Dolfield Boulevard/Pleasant Hill Road interchange and its impacts to the church property. The pastor and church members that contacted the study team were primarily concerned about a proposed northbound off-ramp from I-795 that tied directly into the intersection of Tollgate Road and Hewitt Farms Road, as reflected in Alternatives 3A (partial interchange with access to and from the south only) and 4A (full interchange). SHA responded that other options for a northbound off-ramp would be analyzed that would shift the alignment northwest of its terminus at Hewitt Farms Road, minimizing impacts to the church property and the entrance to the Hewitt Farms Development.

SHA's Preferred Alternative 4C-10 was developed in response to concerns expressed at the Mt. Pleasant AME Church meeting as well as a Community Meeting on September 22, 2009, with residents of Pleasant Hill Road and Featherbed Lane. Under the SHA Preferred Alternative, the

northbound ramps would be relocated further northwest minimizing impacts to the Mt. Pleasant AME Church property and Hewitt Farms development traffic would be managed differently than Alternative 4C, with different tie-in points and several proposed one-way streets. A new roadway through an abandoned swim club property would improve traffic movements compared with a left-turn movement from Pleasant Hill Road, a better flow of traffic for the communities of Pleasant Hill Road and Featherbed Lane would result under the Preferred Alternative. Displaced property owners would receive relocation assistance in accordance with the Uniform Relocation and Real Property Acquisition Policies Act of 1970, as appended by the Surface Transportation and Uniform Relocation Assistance Act of 1987. In the event that comparable replacement housing is not available for displaced persons or that available replacement housing is beyond their financial means, replacement housing as a last resort would be utilized. In addition, fair market value would be provided to all property owners as compensation.

Streams and Wetlands

Efforts to avoid and minimize potential direct effects to wetlands and streams have occurred throughout the planning process. In 2009, a review of published information and a field investigation were conducted based on the *Corps of Engineers Wetlands Delineation Manual* to identify wetlands within the 2009 study area. Based on the results of the 2009 investigation, SHA modified the study area to avoid impacts to a WSSC and limit impacts to wetlands.

During preliminary engineering, stormwater management facilities were relocated in an effort to avoid wetland impacts and the limit of disturbance was reduced to further minimize impacts. As the engineering design progresses, other avoidance and minimization measures will be considered, including the use of steeper slopes adjacent to the roadway and retaining walls instead of slopes, minimizing grading to incorporate natural topography, culverts that consider the natural size and channel materials of streams, best management practices to avoid and minimize unintentional effects on remaining wetland areas, implement temporary erosion and sediment control measures, and develop a stormwater management and pollution prevention plan.

The build alternatives include stormwater management facilities as the primary avoidance and minimization measure to reduce the indirect impacts of increased imperviousness. These facilities can reduce losses in groundwater recharge and associated stream base flow; reduce stormwater peaks, durations, and frequencies of erosive flows; reduce chemical contaminants in runoff; and reduce runoff temperature extremes that might otherwise result from the build alternatives.

A *Joint Federal/State Application for the Alteration of Any Floodplain, Waterway, Tidal or Nontidal Wetland in Maryland* to satisfy the ACOE Section 404 permit requirements and the MDE Section 401 Water Quality Certification requirements would be needed for this project to address all impacts to streams and nontidal wetlands.

SHA will not apply for this permit during the Project Planning Phase of the project, but will instead defer the permit application until the Final Design Phase of the project is underway. SHA would continue coordination with regulatory and natural resource agencies to solicit comments and build consensus on methods of avoidance and minimization to waters of the U.S.

as well as appropriate mitigation. Mitigation of direct impacts would be required as a condition of the permit and stream mitigation would be evaluated on a project-specific basis. Based on mitigation ratios agreed upon by the US Army Corps of Engineers (ACOE) and the Maryland Department of the Environment (MDE), approximately 1.9 acres of wetland mitigation would be required. The amount and type of mitigation required would be based on wetland replacement ratios stipulated in the Maryland Compensatory Mitigation Guidance developed by the Interagency Mitigation Task Force and Code of Maryland Regulations (COMAR) 26.24.05.01 et seq.

The SHA Preferred Alternative would impact approximately 1.3 acres of wetlands and 442 l.f. of streams, based upon the 2009 wetland delineation report and 2012 wetland addendum. A preliminary jurisdictional determination field meeting was held on April 22, 2014 to update and confirm this information. Agency representatives from ACOE and MDE and identified resources that were not previously identified as project impacts. In response, SHA re-delineated the resources. Wetland impacts remained unchanged at 1.3 acres, but stream impacts were updated. The new impact number for streams for the SHA Preferred Alternative is 2,314 l.f. A final addendum to the wetland delineation report was completed in June 2014. Updated mapping reflects these changes (***Figure 5A & B***).

Since this project is located within a Use III watershed, mitigation of all permanent wetland impacts would be required. The goals of wetland mitigation are to replace, preserve, restore, and enhance functions within the same watershed that were lost due to the impacts associated with the project. Potential types of mitigation for nontidal wetland resources could include creation of new wetlands, restoration/enhancement of existing wetlands or stream stabilization. Following additional investigations, further consultation with MDE and ACOE would determine which site or sites best meet the needs of the proposed project's compensatory mitigation requirements.

A review of the Watershed Resources Registry (WRR) was completed to identify potential wetland mitigation sites in the Red Run Subwatershed**.** The WRR identified 201 potential wetland restoration sites within the Red Run Subwatershed (***Appendix F***). The sites identified through the WRR are ranked using a star system with a five star ranking being the best opportunity to obtain multi-resources benefits in a particular location. Of the 201 potential opportunity sites, 9.9 acres are ranked as five stars, 20.2 acres as four stars, 163.1 acres as three stars, 79.2 acres as two stars and 41.3 acres as one star. Additional opportunities were identified in the Gwynns Falls Watershed. The sites identified by the WRR provide a starting point for determining the appropriate mitigation and will be further evaluated to determine if any of them would be suitable for this project. In addition, a review of the Maryland Transit Administration's *Baltimore Red Line Draft Phase I Conceptual Mitigation Plan, October 16, 2013* will be conducted to review potential stream and wetland mitigation projects within the Red Run watershed and the larger Gwynns Falls Watershed. Furthermore, SHA has coordinated with representatives from Baltimore County Department of Environmental Protection and Sustainability and Department of Planning, DNR, USFWS, and MDP to explore potential mitigation and stewardship opportunities such as stream restoration, riparian plantings, wetland retrofits, and soil stabilization along Red Run.

SHA will continue to include these agencies in the discussion of minimization and mitigation opportunities. According to Baltimore County representatives, the types of protection that have

worked fairly well in Red Run include Baltimore County's 100-foot forested buffers and keeping stormwater management out of buffers. New stormwater management requirements impact these forested resources and the project overall will result in an increase of 28.9 acres in impervious surface. Baltimore County recommended SHA review the Gwynns Falls Water Quality Management Plan and also mentioned their participation in a Baltimore watershed agreement with Baltimore City and various watershed associations for stewardship and outreach efforts. Identified in the watershed agreement are 56 initial actions in Phase I. Those actions include working with SHA to plan some types of projects, including stream restoration and BMP improvements. SHA will continue working with Baltimore County to consider implementation of identified priority projects in their water quality management plan once design is funded.

The goal of any potential wetland mitigation project(s) would be to replace wetland functions lost as a result of impacts associated with the proposed I-795 improvements. Using the New England Highway Methodology, functions and values were assessed for wetlands throughout the project study area. Of the five wetlands proposed to be impacted, the combined list of function-values was determined to be: groundwater recharge/discharge, floodflow alteration, sediment/toxicant retention, nutrient removal, and wildlife habitat.

Compensatory stream mitigation would be achieved through the in-kind replacement of 1,100 l.f. of jurisdictional intermittent roadside ditch that conveys groundwater and surface runoff to a jurisdictional stormwater management facility. The remaining 1,214 l.f. of stream mitigation would be realized through a combination of riparian plantings and taking advantage of stream stabilization opportunities in waterways adjacent to wetland mitigation sites.

SHA took into account site availability, wetland and stream mitigation opportunity, site access, and site location in the Gwynns Falls watershed (sites in the Red Run subwatershed were given more weight) and created a ranked list of potential mitigation sites for agency review. The following sites have the capacity and attributes necessary to accommodate the required compensatory mitigation (***Appendix G***).

Site 1 – Berryman's Lane

The highest ranked site, Berryman's Lane, is approximately 3.5 acres with approximately 900 l.f. of intermittent Use-III stream lying adjacent to actively farmed agricultural fields. The site was identified from the WRR. It's located at the headwaters of the Red Run Subwatershed where ground water seeps along with drainage from surrounding uplands and adjacent agricultural fields help to create existing wetlands. From here flow is conveyed southeast as an unnamed tributary to Red Run. The site has few, if any, significant constraints and should prove easy to access by construction crews. The site is currently owned by a development corporation.

Currently, some segments of the waterway are entrenched within steep incised banks and not able to access the floodplain during significant storm events. By performing some stream bank stabilization, reconnecting the current agricultural fields to the stream to increase flood prone areas, creating wetlands in the new flood prone areas, enhancing existing wetlands through invasive vegetation management and by providing an adequate riparian buffer, SHA believes Berryman's Lane would be an ideal site as all requisite wetland mitigation could be

accommodated and all lost wetland function-values could be replaced at one site which is within an approximate half mile of the proposed impacts.

Site 2 – Onsite, Adjacent to Southbound I-795

SHA's second-ranked site lies within the project limits adjacent to southbound I-795. Identified during the preliminary jurisdictional determination field visit in April, 2014, the site is approximately 3.0 acres and includes about 550 l.f. of Use-III groundwater and runoff fed intermittent unnamed tributary to Red Run. Flow is conveyed from a jurisdictional SHA SWM facility, west to a headwall that extends beneath Red Run Boulevard. As part of the proposed project, ramps from Red Run Blvd. to I-795 are planned adjacent to the site. The site is part of two separate parcels and is currently owned by two LLCs.

Most of the channel is currently in poor condition. The banks are high and incised leaving an entrenched system for the most part that cannot access the large otherwise adjacent flood prone area. A headcut is migrating upstream from Red Run Blvd. toward I-795. On the other side high velocity flows from the SWM outfall are down cutting from I-795 toward Red Run Boulevard. Near the center of the system the channel has low well vegetated banks that can access the floodplain, but with the majority of the system being disconnected it appears any flooding is not retained for very long. As a result some wetland vegetation exists, but no observed field indicators of hydric soils. Existing tree density is moderate, and may involve some tree removal. The area has fairly steep slopes at adjacent parcels. Access to the site for any potential construction could come from I-795, but would need to be well planned and coordinated.

Mitigation at this site could involve outfall stabilization and the use of grade control structures to stop down cutting and the upstream migration of the head cut. This would also promote bedform stability and diversity. With possible planform manipulation, grading of the stream banks and excavation of the adjacent floodplain, bankfull flows would have greater floodplain connectivity helping to provide additional hydrology for wetland creation. Further manipulation of floodplain topography would allow for various flood regimes to create diverse wetland habitat. This site should also be able to accommodate riparian plantings to provide an effective riparian buffer. While such a project could potentially restore all lost wetland functions, the length of stream available will not satisfy the current stream mitigation requirement. As a result, mitigation here would need to be accomplished in conjunction with a supplementary project at another site in the watershed.

Site 3 – Church Lane

The third ranked site, Church Lane is a 1.1 acre parcel located in the Dead Run subwatershed of the 8-digit Gwynns Falls watershed, near the headwaters of an unnamed tributary. The site was identified from the WRR and SHA TMDL Stream Restoration Site Search. The site includes approximately 500 l.f. of perennial, Use-I stream adjacent to an easily accessible open grassy field with a narrow riparian buffer. Flow is conveyed southwest and exits the site via a box culvert beneath Church Lane. A single private landowner currently owns the site.

The stream is currently entrenched within high and steep incised banks for most of the observed reach. However, there are some areas of existing floodplain wetlands. There is also some

evidence of minor to moderate active erosion along with blockages to fish passage. Mitigation goals at this site would probably entail some minor stream bank stabilization, wetland enhancement and creation by grading the stream bank and excavating flood prone areas to improve floodplain connectivity and enhance existing wetland hydrology. Also opportunity exists for riparian plantings and fish blockage removal. While all lost wetland functions could be replaced at this site, it does not have the capacity to satisfy the required compensatory wetland acreage or stream linear footage and would have to be constructed along with supplementary mitigation at another site. Additionally, with the site being in a relatively high density suburban community adjacent property owners have planted invasive vegetation that could spread to any planned mitigation, and exposed pipes and drainage inputs observed nearby could pose further constraints.

Site 4 – Lyonswood

The fourth-ranked site, Lyonswood, was identified from the WRR. It is located in the Dead Run Subwatershed on an approximately 1.1 acre parcel with 760 l.f. of Horsehead Branch, a perennial Use-I stream that flows east through the site. The parcel is adjacent to an existing Baltimore County preservation site, parkland, and individual private properties making access to the site difficult. Baltimore County currently owns the parcel.

Although the stream has high incised banks, and much of it is entrenched along the parcel, bedform diversity appears to be functional and providing habitat for fish and benthic macroinvertebrates. Any potential mitigation at the site would likely take measures to enhance existing bedform diversity and include some minor stream bank stabilization and riparian plantings. Some wetland vegetation and groundwater seeps were observed along the floodplain. By reconnecting the stream and floodplain through excavation and grading, the hydrology necessary for wetland creation would be available.

Not only would completing mitigation at this location restore all lost functions, but with the already restored Baltimore county parcel adjacent to it, it would provide an ideal opportunity in terms of connecting two restored sites. Unfortunately, the parcel is not large enough to accommodate the required compensatory obligations so a supplementary project would need to be complete elsewhere. Further, with the parcel being owned by Baltimore County it is likely that they would not be willing to part with it as they have their own mitigation and TMDL obligations to meet.

Site 5 – Glenspring

Glenspring, the fifth ranked location, is a 3.1acre site identified in the Dead Run Subwatershed from the WRR. Of all the other sites discussed, this one is located farthest down in the Gwynns Falls watershed. It includes about 1,000 l.f. of perennial, Use-IV stream. The site is currently owned by an individual property owner, a limited partnership, and a development corporation.

There is moderate stream bank erosion along some portions, particularly in stretches adjacent to the backyards of homeowners. Due to the close proximity of homes and other adjacent property, the system has been manipulated so that it does not access all of the available flood prone area.

Instead, the floodplain is narrow, and bankfull flows appear to be contained far away from adjacent properties. Reconnecting the system to the larger floodplain to aid in providing the necessary hydrology for wetland creation would not be feasible. However, by coordinating with adjacent property owners riparian planting opportunities may be available for a significant reach; so while no wetland functions are likely to be replaced at this site, it does appear to have the capacity to account for a large portion of the required stream mitigation.

Several other sites were identified from the SHA mitigation site search, but have been removed from further consideration at this time due to prohibitive access constraints or a lack of availability. If conditions change, or if any new information is made available in the future, some sites may be reconsidered.

A conceptual mitigation field review meeting was held December 9, 2014 with SHA, MDE, ACOE, DNR, FHWA, and EPA (***Appendix G***). This meeting was to review the potential mitigation opportunities at the aforementioned ranked sites. The site rankings were established by SHA prior to the field meeting and no longer represent the preferred rank for mitigation potential due to agency comments during the field review meeting.

No one site was favored for mitigation potential nor met the combination of stream and wetland mitigation necessary. Sites 3 and 5 were least favored for mitigation opportunities by the agencies due to lack of connectivity and site constraints such as sewer utility constriction. Due to site 1's location upstream of a quarry, water quality benefits would be limited downstream.

The agencies agreed that the on-site location adjacent to I-795 (site 2) and Lyonswood (site 4) are the two best sites (**Appendix G**). The agencies also agreed that SHA should use a combination of these two sites. Site 2 alone does not accommodate the wetland mitigation needed. Together sites 3 and 4 can accommodate 2.2 acres of wetland, and sites 2 and 4 can accommodate 1,310 l. f. of stream restoration. The agencies expressed concern that the impacts to streams were mainly Use III, but the only proposed mitigation site with a Use III stream was site 2 (adjacent to I-795). SHA will continue to explore mitigation opportunities and develop mitigation design concepts with input from the agencies during the design phase to ensure mitigation sites are within similarly designated stream use classes as the impacted watersheds.

Woodland

For SHA's Preferred Alternative, woodland impacts would be unavoidable and 54 acres of mitigation would be required. SHA has attempted to minimize forest impacts by planning ramps using the lowest AASHTO-accepted design speeds. Any forest clearing resulting from this project would be subject to the Maryland Reforestation Law. When state-funded highway construction results in the cutting or clearing of forest lands, the Maryland Reforestation Law (Natural Resources Article, Section 5-103) requires that these trees be replaced on an acre for acre basis.

Avoiding and minimizing the removal and/or clearing of trees will continue to occur through the design process. SHA will continue ongoing coordination with DNR to determine reforestation areas and will attempt to mitigate in such a manner as to support contiguous establishment of Maryland's Green Infrastructure by enhancing gaps in the green system of hubs and corridors.

The SHA Preferred Alternative will impact 5.8 acres of the Green Infrastructure network and impacts will be confined to hub areas (***Figure 6A & B***).

SHA also consulted the WRR to identify conceptual mitigation opportunities for restoring uplands. The WRR identified 115 potential upland restoration sites within the Red Run Subwatershed (***Appendix F***). The sites identified through the WRR are ranked using a star system with five stars being the best opportunity to obtain multi-resources benefits in a particular location. The 115 sites include a total of 136.6 acres with a ranking of two stars, 200.6 acres with a three star rank, 151.7 acres with a four star rank and 144.8 acres ranked as five stars. The sites identified by the WRR provide a starting point for determining the appropriate mitigation and would be further evaluated to determine if any of them would be suitable for this project.

Noise

The barrier component of the noise analysis evaluated seven barrier systems. In accordance with SHA's Noise Policy, Barrier Systems 1, 2, 5 and 6 have been determined feasible and reasonable. Barrier System 3 was designed to protect 3 NSA's. During the barrier design process, the noise analysis identified right-of-way and access issues as site constraints, and investigated feasibility and reasonableness under three difference scenarios: one alone the proposed off-ramp from I-795 northbound, and two along Dolfield Boulevard between the off-ramp and Pleasant Hill Road.

- *Scenario 1: Along Ramp*. This barrier system scenario protects NSA 21-B and 29-B would begin along the proposed off ramp between I-795 northbound before running adjacent to eastbound Dolfield Boulevard and ending with a turn-back before the proposed relocated Tollgate Road intersection. This scenario failed to meet reasonableness criteria because its total area would exceed SHA's square foot per benefited resident threshold of 2,700 square feet.

- *Scenario 2: Dolfield Only with House Displacement.* This barrier system scenario which protects NSA 29-B, would begin along the proposed off-ramp from I-795 northbound (near the end of NSA 30-B) before running adjacent to eastbound Dolfield Boulevard and ending with a turn back at the proposed relocated Tollgate Road intersection. This scenario failed to meet reasonableness criteria because its total area would exceed SHA's square foot per benefited resident threshold of 2,700 square feet. This barrier system would not be feasibly if driveway access is maintained to Dolfield Boulevard.

- *Scenario 3: Dolfield only without House Displacement.* This barrier system scenario protects NSAs 29-B and 30-B has the same barrier limits as Scenario 2 but assumes that the house within NSA 30-B is not a displacement. If driveway access is closed, and the house is not a displacement, this barrier system is potentially feasible and reasonable.

Barrier System 4 protects NSA 31-B, begins at the Church Road intersection before running adjacent to westbound Dolfield Boulevard and ending north of the proposed on-ramp to I-795.

The homes in NSA 31-B have direct access to Dolfield Boulevard which generate a site constraint. If access is maintained to Dolfield Boulevard this barrier system is not feasible, if access is not maintained then barrier system 4 is feasible and reasonable.

Barrier System 7 was intended to protect NSA 03-B, but fails to meet SHA's minimum noise reduction standards. Barrier Systems 3 and 4 will be further evaluated in design.