



SR 1, LITTLE HEAVEN GRADE SEPARATED INTERSECTION

ENVIRONMENTAL ASSESSMENT / FINAL SECTION 4(F) EVALUATION

JUNE, 2010

DeIDOT Contract Number: 24-122-02
FHWA Contract Number: NH-K008(6)



*Department of Transportation
Federal Highway Administration*

FEDERAL HIGHWAY ADMINISTRATION

DELMAR DIVISION

SR 1, Little Heaven Grade Separated Intersection Project

Kent County, Delaware

ADMINISTRATIVE ACTION

ENVIRONMENTAL ASSESSMENT / SECTION 4(F) EVALUATION

UNITED STATES DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

and

DELAWARE DEPARTMENT OF TRANSPORTATION

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

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A. ADMINISTRATIVE ACTION

Federal Highway Administration

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

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SUMMARY

*SR 1, Little Heaven Grade Separated Intersection Project
Environmental Assessment / Section 4(f) Evaluation*



*U.S. Department of Transportation
Federal Highway Administration*



STATE OF DELAWARE
Department of Transportation

DESCRIPTION OF PROJECT

The SR 1, Little Heaven Grade Separated Intersection project is located in the Little Heaven area of Kent County, Delaware approximately 8.5 miles south of Dover and approximately 4.5 miles south of Dover Air Force Base (DAFB) as shown on **Figure I-1**. The project area is approximately 659 acres in size and extends 2.73 miles along SR 1 from south of Barratt's Chapel Road to north of Mulberrie Point Road as shown on **Figure I-2**.

SR 1 serves as one of Delaware's main north-south travel routes. The segment of SR 1 south of the DAFB, which includes the project area, is a four-lane divided highway with uncontrolled access. To the north of the SR1/US 113 split SR 1 is a four-lane fully access-controlled divided highway.

PURPOSE AND NEED

The *purpose* of the project is to improve traffic safety and relieve traffic congestion along SR 1 and at SR 1's roadway crossings while providing access for existing and planned developments and avoiding or minimizing adverse effects to the socio-economic, cultural and natural environmental resources within the project area. The project purpose is consistent with the SR 1 Corridor Capacity Preservation Program's (CCPP) four main goals, as follows:

1. Maintain the road's ability to handle traffic efficiently and safely.
2. Minimize the transportation impacts of increased economic growth.
3. Preserve the ability to make future transportation-related improvements, as needed.
4. Prevent the need to build an entirely new road.

The purpose of the SR 1, Little Heaven Grade-Separated Intersection Project is supported by the following project *needs* listed below and further described in subsequent sections:

1. Traffic Safety
2. Preserve Roadway Capacity for Current and Future Traffic

PROPOSED ACTION

In order to address the needs for traffic safety and increased traffic volume/congestion, the Delaware Department of Transportation (DelDOT) proposed several grade-separated intersection alternatives and service roads along SR 1 in addition to removing the existing at-grade intersection crossings at Bower's Beach Road and Mulberrie Point Road and driveway access to SR 1. Access would be provided to adjacent properties via parallel service roads and access to and from SR 1 via ramps. Local road crossings of SR 1 would be consolidated at one grade-separated bridge structure over SR 1.

ALTERNATIVES CONSIDERED

Six build alternatives were developed, Alternatives A through F. A No-Build Alternative was also considered which assumed no substantial improvements other than normal maintenance would be made to the transportation network within the project area. Public Workshops were held throughout the project development process to allow the public to review and comment on the alternatives. The public workshops were held on July 17, 1996, October 21, 1998, January 6, 2004, July 20, 2004, October 26, 2004 and July 16, 2008.

Each build alternative proposes to reconstruct SR 1 to a four lane divided, access controlled freeway consisting of 2, 12 foot travel lanes in each direction with 10 foot outside shoulders and

4 foot inside shoulders. A 42 foot open grass median would separate the northbound and southbound lanes. Two-way service roads on the northbound and southbound (existing) of SR 1 would provide access to properties and public streets. The typical cross section for the two-way service roads consists of 2, 12 foot lanes (one in each direction) and 10 foot shoulders on both sides of the roadway.

1. Alternative A

Alternative A provides a two-lane overpass of Mulberrie Point Road approximately 860 feet north of the existing Mulberrie Point Road intersection, as shown on **Figure II-2** in Chapter II of this EA. Two-lane, North-South service roads would be provided parallel to SR 1 and extend to approximately 2,650 feet south of the SR 1/Bower's Beach Road intersection. The existing southbound SR 1 alignment would become the new alignment for the west service road. The existing SR 1 northbound alignment would become the alignment for SR 1 southbound. The new northbound SR 1 and the east service road would be shifted to the east on new alignments.

Alternative A requires right-of-way acquisition of 73.99 acres of residential and agricultural property and 11.93 acres of commercial property. There are 22 residential relocations and 10 business relocations necessary for the construction of this alternative.

This alternative would result in an Adverse Effect on two National Register of Historic Places listed/eligible resources with a direct impact on the Mt. Olive School/Mt. Olive Colored School property (no impact to the structure) and a visual impact on the Jehu Reed House. More information is included in the Chapter IV, *Section 4(f)* of this EA.

2. Alternative B

Alternative B is similar to Alternative A in that it provides the overpass, service roads and shifting of SR 1 to the same locations as Alternative A. The key difference between Alternative A and B is that Alternative B connects the east service road as the main approach and thus eliminates the extension of Mulberrie Point Road and subsequently the 3-way T-intersection where the extension of Mulberrie Point Road and the service road intersected in Alternative A. This modification results in the new 4-way, stop-controlled intersection of the east service road and Mulberrie Point Road connecting approximately 370 feet east of the existing SR 1/Mulberrie Point Road intersection compared to Alternative A, where this new intersection would be located 470 feet east of the east of the existing SR 1/Mulberrie Point Road intersection.

Alternative B requires right-of-way acquisition of 68.02 acres of residential and agricultural property and 11.84 acres of commercial property. There are 17 residential relocations and 10 business relocations necessary for the construction of this alternative.

This alternative would result in an Adverse Effect on two National Register of Historic Places listed/eligible resources with a direct impact on the Mt. Olive School/Mt. Olive Colored School property (no impact to the structure) and a visual impact on the Jehu Reed House. More information is included in the Chapter IV, *Section 4(f)* of this EA.

3. Alternative C (Preferred Alternative)

Alternative C (See **Figure II-4** in Chapter II of this EA) would shift SR 1 to the east of the existing SR 1 roadway corridor, would provide two-way north-south parallel service roads on each side of SR 1, would construct/reconstruct several intersections to tie into the proposed improvements and would provide a grade separated crossing of SR 1 over Bower's Beach Road. The Bower's Beach Road crossing would connect to the new two-way, north-south service roads

that would be constructed parallel to SR 1 which would in turn provide connection between the local roadways and would provide access to and from SR 1 via ramps. The west service road would connect Clapham Road in the north to Barratt's Chapel Road in the south. The east service road would connect Mulberrie Point Road to the north to Skeeter Neck Road to the south. It would improve the local road network while helping to preserve the capacity of SR1. It is the only alternative that provides access to all of the local roads along the service road.

Locating the grade separated crossing of SR 1 to Bower's Beach Road instead of north of Mulberrie Point Road would avoid direct impacts to several communities and would minimize wetland impacts. The intersection improvements would align the intersections of South Skeeter Neck Road and Barratt's Chapel at a single intersection and would provide ramps connecting Clapham Road to and from southbound SR 1 and would provide access to and from southbound SR 1 and Clapham Road. The existing SR 1 intersection with Barratt's Chapel Road would be closed in favor of using this new intersection.

This alternative requires right-of-way acquisition of 64.53 acres of residential and agricultural property and 12.40 acres of commercial property. There are 5 residential relocations and 7 business relocations necessary for the construction of this alternative.

This alternative would result in an Adverse Effect on two National Register of Historic Places listed/eligible resources with a direct impact on the Mt. Olive School/Mt. Olive Colored School property (no impact to the structure) and a visual impact on the Jehu Reed House. More information is included in the Chapter IV, Section 4(f) of this EA.

4. Alternative D

Alternative D (See **Figure II-5** in Chapter II of this EA) is similar to Alternative C, except the ramp from Mulberrie Point Road to the service road connecting to SR 1 is eliminated. The service roads that tie into SR 1 terminate south of the intersection of SR 1 at Skeeter Neck Road. Intersection improvements are included for Skeeter Neck Road, Bower's Beach Road and Barratt's Chapel Road. A series of North-South service roads would be added on either side of SR 1. Service roads and realignment of SR 1 to the east would be required to minimize right-of-way impacts. The project limits extend to Barratt's Chapel Road.

This alternative requires right-of-way acquisition of 53.24 acres of residential and agricultural property and 9.24 acres of commercial property. There are 14 residential relocations and 8 business relocations necessary for the construction of this alternative.

This alternative would result in an Adverse Effect on two National Register of Historic Places listed/eligible resources with a direct impact on the Mt. Olive School/Mt. Olive Colored School property (no impact to the structure) and a visual impact on the Jehu Reed House. More information is included in the Chapter IV, Section 4(f) of this EA.

5. Alternative E

Alternative E (See **Figure II-6** in Chapter II of this EA) is nearly identical to Alternative C, except the ramp from Mulberrie Point Road to the service road connecting to SR 1 is eliminated. All service roads and SR 1 alignments are the same as Alternative C. Intersection improvements are incorporated for Skeeter Neck Road, Bower's Beach Road and Barratt's Chapel Road.

This alternative requires right-of-way acquisition of 54.16 acres of residential and agricultural property and 10.46 acres of commercial property. There are 14 residential relocations and 8 business relocations necessary for the construction of this alternative.

This alternative would result in an Adverse Effect on the property boundary of two National Register of Historic Places listed/eligible resources with a direct impact on the Mt. Olive School/Mt. Olive Colored School property (no impact to the structure) and a visual impact on the Jehu Reed House. More information is included in the Chapter IV, Section 4(f) of this EA.

6. Alternative F

Alternative F (See **Figure II-7** in Chapter II of this EA) was developed in response to comments from the State Historic Preservation Office (SHPO). The SHPO raised concerns over visual impacts to the Jehu Reed House, which is located on southbound SR 1 at the Bower's Beach Road intersection. The bridge structure and the Bower's Beach Road intersection were moved further to the south to reduce the visual impact of the bridge to this historic resource.

Alternative F is nearly identical to Alternative D, with the only difference being that Bower's Beach Road and the SR 1 bridge over it have been shifted further south. All service road and SR 1 alignments are the same as Alternative D. Intersection improvements are included for Skeeter Neck Road, Bower's Beach Road and Barratt's Chapel Road.

This alternative requires right-of-way acquisition of 55.20 acres of residential and agricultural property and 9.52 acres of commercial property. There are 14 residential relocations and 8 business relocations necessary for the construction of this alternative.

This alternative would result in an Adverse Effect on two National Register of Historic Places listed/eligible resources with a direct impact on the Mt. Olive School/Mt. Olive Colored School property (no impact to the structure) and a visual impact on the Jehu Reed House. More information is included in the Chapter IV, Section 4(f) of this EA.

SELECTION OF THE PREFERRED ALTERNATIVE

An evaluation of each alternative was conducted to determine how well each met the purpose and need for the project and based on the impacts to the socio-economic, cultural and natural environment (see **Table S-1** for a summary of impacts for all alternatives).

All of the Build Alternatives preserve capacity and enhance safety on SR 1 by separating local and through traffic, however there are variations in local roadway connectivity, notably in the area of the Tara subdivision to the east of northbound SR 1, where Alternatives C through F varied in the access to and from the east service road and the surrounding local roadway network.

Alternative C is the only alternative that provides access to the service road for all of the roadways that previous had access to SR 1. Alternative C was advanced into the detailed design phase as the Preferred Alternative because Alternative C is the only alternative that meets all aspects of the purpose and need. Alternative C was selected as the Preferred Alternative because it provides interconnection of the roadways, separates local and through traffic, maintains access for emergency response vehicles and is the best alternative for addressing safety concerns and maintaining community cohesiveness. Additionally, Alternative C was the preferred design of the local communities in the project area. Several refinements have been made to Alternative C

throughout the design phase to avoid, minimize and/or mitigate impacts to the existing socio-economic, cultural and natural environmental resources within the project area.

Table S-1: Summary of Impacts for All Alternatives

FEATURE	UNIT	Alternatives						
		NO-BUILD	A	B	C**	D	E	F
Total Right-of-Way Acquisition	Acres	0	85.92	79.86	76.93	62.48	64.63	64.10
Commercial/Business	Acres	0	11.93	11.84	12.40	9.24	10.46	9.52
Residential/Agricultural	Acres	0	73.99	68.02	64.53	53.24	54.16	55.20
Total of Properties Affected*	Number	0	56	52	72	35	38	42
Residential Relocations	Number	0	22	17	5	14	14	14
Business Relocations	Number	0	10	10	7	8	8	8
Active Agriculture Land	Acres	0	16.51	16.51	21.21	22.23	22.23	22.23
Prime Farmland Soils	Acres	0	0	0	0	0	0	0
Forest Cover	Acres	0	10.72	7.27	2.86	0.07	1.29	0.35
Public Parks/Recreational Areas	Number	0	0	0	0	0	0	0
Adverse Effects on National Register of Historic Places Listed or Eligible Properties	Number	0	2	2	2	2	2	2
Archeological Sites Impacted	Number	0	0	0	0	0	0	0
Noise (NSAs impacted @ 67 dBa level)	Number	2	2	2	2	2	2	2
Meets National Ambient Air Quality Standards	Yes/No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Potential Hazardous Materials Sites	Number	0	8	8	8	8	8	8
Jurisdictional Wetlands	Number	0	3	3	3	2	2	2
	Acres	0	3.91	3.87	0.989	0.22	0.49	0.22
Streams Crossed***	Number	0	2	2	2	1	1	1
Jurisdictional Waters****	Linear Feet	0	739	759	834	344	624	344
Floodplain Encroachment	Acres	0	0	0	0	0	0	0
Additional Impervious Area	Acres	0	21.16	19.58	27.78	36.28	38.46	36.14
Total Length	Miles	0	2.09	2.09	2.73	1.81	1.81	1.81
Estimated Construction Cost	\$ million	0	\$31.8	\$31.7	\$38.6	\$37.1	\$38.1	\$39.6
Estimated Right-of-Way Cost	\$ million	0	\$13.6	\$12.5	\$13.8	\$10.3	\$10.7	\$10.8
Total Cost*****	\$ million	0	\$45.4	\$44.2	\$52.4	\$47.4	\$48.8	\$50.4
* Affected properties are any lots or tax parcels where encroachment of the project alternative may occur. ** Alternative C is the Preferred Alternative *** Excluding Wetlands **** All waterways have not been verified as Jurisdictional by USACE ***** Total cost includes Right-of-Way and Construction Cost. (Does not include Project Development or Engineering Fees.)								

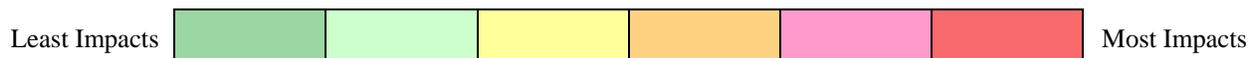


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Environmental Assessment / Section 4(f) Evaluation*



*U.S. Department of Transportation
Federal Highway Administration*



Delaware Department of Transportation

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I. PROJECT PURPOSE AND NEED

*SR 1, Little Heaven Grade Separated Intersection Project
Environmental Assessment / Section 4(f) Evaluation*



U.S. Department of Transportation
Federal Highway Administration



Delaware Department of Transportation

I. PROJECT PURPOSE AND NEED

A. Project Location

The location of the SR 1, Little Heaven Grade Separated Intersection Project, is approximately 8.5 miles south of Dover in the Little Heaven area of Kent County Delaware as shown on **Figure I-1**. The project area is approximately 659 acres in size and extends 2.76 miles along SR 1 from south of Barratt's Chapel Road to north of Mulberrie Point Road as shown on **Figure I-2**. This area was determined based on the immediate impacts from the alternatives and adjacent areas that may be involved with the project.

Figure I-1 Project Location Map

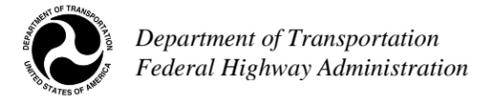
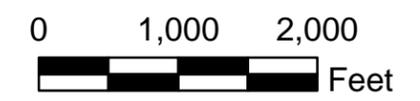


SR 1, Little Heaven
Grade Separated Intersection
Environmental Assessment



 Project Area

Figure I-2
Project Area Map



B. Project Purpose

The *purpose* of the project is to improve traffic safety and relieve traffic congestion along SR 1 and at its at-grade roadway crossings while providing access to existing and planned developments while avoiding or minimizing adverse effects to the socio-economic, cultural and natural environmental resources within the project area. The project purpose is consistent with the SR 1 Corridor Capacity Preservation Program's (CCPP) four main goals, as follows:

1. Maintain the road's ability to handle traffic efficiently and safely.
2. Minimize the transportation impacts of increased economic growth.
3. Preserve the ability to make future transportation-related improvements, as needed.
4. Prevent the need to build an entirely new road.

SR 1 is a major north-south arterial highway consisting. It is classified under the Federal Functional Highway Classification as an "Urban Freeway/Expressway" to the north of Dover Air Force Base, where it is a four-lane divided limited access freeway. To the south of Dover Air Force Base SR 1 is a four-lane divided arterial highway with uncontrolled access and at-grade intersections. The project area is in the portion with uncontrolled access and at-grade intersections.

C. Project Need

The purpose of the SR 1, Little Heaven Grade Separated Intersection Project is supported by the project *needs* listed below and further described in subsequent sections:

1. Traffic Safety
2. Preserve Roadway Capacity for Current and Future Traffic

1. Traffic Safety

Growth in travel to and from the Delaware Beach resort areas, in addition to year-round growth in residential and commercial traffic in eastern Sussex County and central Kent County have contributed to increased traffic congestion and accidents along SR 1. The current four-lane divided roadway typical section of SR 1 is of sub-standard design for a Principal Arterial and Freeway/Expressway highway classification. It does not have any access controls, despite serving as a major throughway and it does not adequately separate through traffic from local traffic or provide efficient traffic operations.

There are seven roadway intersections and numerous private entrances along SR 1 within the 2.76 mile length of the project (**Figure I-2**). Many of these private entrances are unimproved driveways that have poorly defined entrance and exit points fronting SR 1 as shown on **Figure I-3**. Lack of acceleration/deceleration lanes from side streets and driveways and lack of uniform spacing between median breaks and intersections also contribute to safety and capacity problems along SR 1. Uncontrolled access also limits capacity of the roadway due to vehicles turning from side streets which slows through traffic.

The through lanes and shoulders are of substandard width and the right and left turn lanes are of substandard lengths and widths and do not allow sufficient deceleration from through lanes. Some intersections enter SR 1 at skewed angles and have poor turning radii which are difficult for large vehicles to navigate and have inadequate sight distances. Drainage is marginal but can be improved to address flooding of side streets during heavy rainfall.

Figure I-3: Examples of Uncontrolled Access along SR 1 in the Little Heaven Area



Over the three year period from 2005 through 2007 a total of 75 accidents were reported in the 2.76-mile segment of SR 1 in the project area. The number of accidents over the three year period from 2005 to 2007 is shown in **Table I-1** at various locations in the project area. The SR 1/Clapham Road intersection within the limits of the SR 1, Little Heaven Grade Separated Intersection project, was one of ten locations identified for grade separated intersection improvements under the Delaware Department of Transportation (DelDOT) SR 1 Corridor Capacity Preservation Program (CCPP) that encompassed the 31-mile stretch of SR 1/US 113 corridor extending from the Dover Air Force Base (DAFB) in the north to Nassau in the south. More information about the CCPP can be obtained by visiting:

http://www.deldot.gov/information/pubs_forms/brochures/pdf/ccpp_fyi.pdf

Accident rates in the study area exceed state and county averages for similar type roadways. The signalized SR 1/K 18 (Bower's Beach Road) intersection within the project limits was identified as a Hazardous Spot Location. Hazardous Spot Locations are designated by DelDOT as intersections with a minimum of 18 accidents during a three-year period.

Table I-1: SR 1 Accident Data

Location	Year 2005	Year 2006	Year 2007	3-Year Total
Barratt's Chapel Road (K273) M.P. 7.90-8.64 NB; 1.63 - 2.50 SB	4	6	7	17
S. Skeeter Neck Road (K372) M.P. 8.64-9.2 NB; 1.08-1.63 SB	5	0	3	8
Bower's Beach Road (K18) M.P. 9.2 -9.84 NB; 0.43-1.08 SB	13	11	6	30
Clapham Road (K27) M.P. 9.84-10.09 NB; 0.1-0.43 SB	5	0	2	7
N. Skeeter Neck Road (K372) M.P. 10.09-10.20 NB	1	0	1	2
Mulberrie Point Road (K373) M.P. 10.20-10.78 NB; 0.0-0.1 SB	4	5	2	11
Total:	32	22	21	75

2. Preserve Roadway Capacity for Current and Future Traffic

SR 1 serves as the primary north-south highway to access the Delaware beach resort areas. Increase in population (especially retired individuals), tourism and development in Delaware has led to increased traffic volumes and congestion on SR 1 and intersecting roadways within the project area. Eastern Sussex County and central Kent County have continued to experience high rates of growth in year-round residential and commercial traffic due to new development that has subsequently led to increased traffic congestion. Traffic along SR 1 is expected to continue to increase in the future. As shown in **Table I-2**, from the years 1990 to 2030 traffic volumes are expected to increase on SR 1 and intersecting roadways.

Table I-2: SR 1, Little Heaven Grade Separated Intersection: AADT for Existing Roadways

		Roadways							
		Clapham Road	Buffalo Road	Mulberrie Point Road		Skeeter Neck Road		Bower's Beach Road	Barratt's Chapel Road
Segment	From:	US113/SR1	West Project Limits	East Project Limits	US113/SR1	US113/SR1 (South)	Bower's Beach Road	East Project Limits	West Project Limits
	To:	North Project Limits	Clapham Road	US113/SR1	Clapham Road	Bower's Beach Road	US113/SR1 (North)	SR1/US113	SR1/US113
Year	1990	5,542	119	382	285	148	488	2,918	426
	1995	6,681	151	281	361	187	358	2,143	539
	2000	4,549	259	149	729	181	210	1,232	1,018
	2007	5,199	756	209	1,149	173	220	1,280	1,872
	2010	5,900	723	209	194	172	220	1,314	1,920
	2015	14,978	2,971	342	2009	232	254	2,913	9,050
	2020	16,679	3,043	350	2,173	247	270	3,201	9,561
	2025	18,375	3,111	358	2336	262	289	3,494	10,071
2030	20,066	3,169	366	2500	277	336	3,786	10,582	

Note: 1. 2007 AADT is the base for the 2010, 2015, 2020, 2025 and 2030 AADT projections.
 2. 2015, 2020, 2025 and 2030 AADT include projected ADT from proposed and committed developments.

With the increase in vehicles per day there is also an increase in traffic congestion. **Tables I-3** through **I-9** show the intersection levels-of-service and delay times for six intersections in the project area during the A.M., Mid-Day and P.M. traffic peak hours periods for the average yearly and summer seasonal periods for the years 2001 and 2007 and projection for the years 2010, 2015, 2020 and the design 2025. It is important to take into account summer peak hours because the beach resorts along the Delaware coast are major seasonal traffic generators for tourism during the summer months. The seven intersections in the project area are listed below in order from the northernmost to the southernmost. The locations of these intersections are shown on the project area map on **Figure I-2**.

1. SR 1 and Mulberrie Point Road (See **Table I-3**)
2. Clapham Road and Mulberrie Point Road (See **Table I-4**)
3. SR 1 and Clapham Road (See **Table I-5**)
4. SR 1 and North Skeeter Neck Road (See **Table I-6**)
5. SR 1 and Bower's Beach Road (See **Table I-7**)
6. SR 1 and South Skeeter Neck Road (See **Table I-8**)
7. SR 1 and Barratt's Chapel Road/Entrance to Barratt's Chapel (See **Table I-9**)

**Table I-3: Weekday Peak Hour LOS for
 SR 1 at Mulberrie Point Road Intersection (Two-Way Stop-Controlled Intersection)**

Yearly Conditions	Level of Service (Delay in seconds)		Yearly Conditions	Level of Service (Delay in seconds)	
	A.M. Peak	P.M. Peak		A.M. Peak	P.M. Peak
2007 Average Peak Traffic			2020 Average Peak Traffic		
NB Left	A (9.8)	C (18.7)	NB Left	B (13.1)	F (79.2)
SB Left	C (19.2)	B (11.6)	SB Left	E (39.3)	C (16.4)
EB Left/Through/Right	F (101.1)	E (38.8)	EB Left/Through/Right	F (*)	F (*)
WB Left/Through/Right	D (27.2)	B (11.5)	WB Left/Through/Right	F (1037.0)	F (*)
2007 Summer Peak Traffic			2020 Summer Peak Traffic		
NB Left	B (10.7)	C (23.9)	NB Left	C (15.1)	F (167.5)
SB Left	C (23.0)	B (13.5)	SB Left	F (61.3)	C (20.7)
EB Left/Through/Right	F (1550.0)	F (869.2)	EB Left/Through/Right	F (*)	F (*)
WB Left/Through/Right	F (258.4)	F (130.5)	WB Left/Through/Right	F (2724)	F (*)
2010 Average Peak Traffic			2025 Average Peak Traffic		
NB Left	B (10.2)	C (18.7)	NB Left	B (13.7)	F (100.2)
SB Left	C (22.7)	B (12.3)	SB Left	E (45.9)	C (17.7)
EB Left/Through/Right	F (434.7)	B (12.1)	EB Left/Through/Right	F (*)	F (*)
WB Left/Through/Right	E (37.9)	F (54.9)	WB Left/Through/Right	F (1471.0)	F (*)
2010 Summer Peak Traffic			2025 Summer Peak Traffic		
NB Left	B (11.3)	D (31.1)	NB Left	C (16.2)	F (245.0)
SB Left	D (28.2)	B (14.6)	SB Left	F (75.6)	C (23.1)
EB Left/Through/Right	F (9197.0)	F (1590.0)	EB Left/Through/Right	F (*)	F (*)
WB Left/Through/Right	F (552.8)	F (427.8)	WB Left/Through/Right	F (3842.0)	F (*)
2015 Average Peak Traffic			2030 Average Peak Traffic		
NB Left	B (12.5)	F (64.7)	NB Left	B (14.5)	F (124.4)
SB Left	D (34.0)	C (15.2)	SB Left	F (53.6)	C (19.2)
EB Left/Through/Right	F (8469.0)	F (3127.0)	EB Left/Through/Right	F (*)	F (*)
WB Left/Through/Right	F (693.2)	F (7136.0)	WB Left/Through/Right	F (2098.0)	F (*)
2015 Summer Peak Traffic			2030 Summer Peak Traffic		
NB Left	B (14.2)	F (120.7)	NB Left	C (17.4)	F (357.60)
SB Left	F (51.2)	C (18.7)	SB Left	F (90.7)	D (26.0)
EB Left/Through/Right	F (*)	F (*)	EB Left/Through/Right	F (*)	F (*)
WB Left/Through/Right	F (1810.0)	F (*)	WB Left/Through/Right	F (5359.0)	F (*)

* Indicates a value that exceeded the capabilities of the HCS2000 program.

Level-of-Service -

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Table I-4: Weekday Peak Hour LOS for Clapham Road at Mulberrie Point Road Intersection (Two-Way Stop-Controlled Intersection)

Yearly Conditions	Level of Service (Delay in seconds)		Yearly Conditions	Level of Service (Delay in seconds)	
	A.M. Peak	P.M. Peak		A.M. Peak	P.M. Peak
2007 Average Peak Traffic			2020 Average Peak Traffic		
NB Left/Through	A (8.4)	A (8.8)	NB Left/Through	A (9.0)	B (11.6)
SB Left/Through/Right	A (8.9)	A (8.6)	SB Left/Through/Right	B (11.3)	B (10.3)
EB Left/Through/Right	C (19.4)	C (17.1)	EB Left/Through/Right	F (737.9)	F (*6)
WB Left/Through/ Right	B (14.5)	C (24.4)	WB Left/Through/Right	F (350.4)	F (*)
2007 Summer Peak Traffic			2020 Summer Peak Traffic		
NB Left/Through	A (8.8)	A (9.8)	NB Left/Through	A 9.2)	B (12.2)
SB Left/Through/Right	A (9.8)	A (9.5)	SB Left/Through/Right	B (12.0)	B (10.6)
EB Left/Through/Right	E (44.0)	D (33.1)	EB Left/Through/Right	F (1232.0)	F (*)
WB Left/Through/Right	C (20.0)	F (337.6)	WB Left/Through/Right	F (1284.0)	F (*)
2010 Average Peak Traffic			2025 Average Peak Traffic		
NB Left/Through	A (8.6)	A (9.1)	NB Left/Through	A (9.3)	B (12.5)
SB Left/Through/Right	A (9.1)	A (8.8)	SB Left/Through/Right	B (12.5)	B (10.9)
EB Left/Through/Right	C (23.1)	C (19.4)	EB Left/Through/Right	F (1650.0)	F (*)
WB Left/Through/Right	C (15.9)	E (35.6)	WB Left/Through/Right	F (*)	F (*)
2010 Summer Peak Traffic			2025 Summer Peak Traffic		
NB Left/Through	A (9.0)	B (10.4)	NB Left/Through	A (9.5)	B (13.5)
SB Left/Through/Right	B (10.3)	A (9.9)	SB Left/Through/Right	B (13.6)	B (11.4)
EB Left/Through/Right	F (97.4)	F (79.3)	EB Left/Through/Right	F (3171.0)	F (*)
WB Left/Through/Right	C (24.8)	F (872.0)	WB Left/Through/Right	F (*)	F (*)
2015 Average Peak Traffic			2030 Average Peak Traffic		
NB Left/Through	A (8.8)	B (10.7)	NB Left	A (9.6)	B (13.7)
SB Left/Through/Right	B (10.3)	A (9.7)	SB Left	B (14.0)	B (11.6)
EB Left/Through/Right	F 274.2)	F (2297.0)	EB Left/Through/Right	F (3698.0)	F (*)
WB Left/Through/Right	F (68.9)	F (3914.0)	WB Left/Through/Right	F (*)	F (*)
2015 Summer Peak Traffic			2030 Summer Peak Traffic		
NB Left/Through	A (8.9)	B (11.2)	NB Left	A (9.9)	C (15.1)
SB Left/Through/Right	B (10.8)	A (10.0)	SB Left	C (15.9)	B (12.2)
EB Left/Through/Right	F (472.9)	F (*)	EB Left/Through/Right	F (11247.0)	F (*)
WB Left/Through/Right	F (191.8)	F (*)	WB Left/Through/Right	F (*)	F (*)

* Indicates a value that exceeded the capabilities of the HCS2000 program.

** Indicates a U-turn only movement.

Level-of-Service -

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**Table I-5: Weekday Peak Hour LOS
 SR 1 and Clapham Road Intersection (Semi-Actuated Signalized Intersection)**

Yearly Conditions	Level of Service (Delay in seconds)		Yearly Conditions	Level of Service (Delay in seconds)	
	A.M. Peak	P.M. Peak		A.M. Peak	P.M. Peak
2007 Average Peak Traffic			2020 Average Peak Traffic		
Signalized Intersection	B (18.4)	E (79.1)	Signalized Intersection	F (80.2)	F (234.4)
2007 Summer Peak Traffic			2020 Summer Peak Traffic		
Signalized Intersection	D (48.8)	F (131.8)	Signalized Intersection	F (117.5)	F (287.2)
2010 Average Peak Traffic			2025 Average Peak Traffic		
Signalized Intersection	C (24.5)	F (119.3)	Signalized Intersection	F (119.0)	F (281.1)
2010 Summer Peak Traffic			2025 Summer Peak Traffic		
Signalized Intersection	E (64.1)	F (151.7)	Signalized Intersection	F (179.6)	F (336.4)
2015 Average Peak Traffic			2030 Average Peak Traffic		
Signalized Intersection	D (48.1)	F (188.7)	Signalized Intersection	F (168.1)	F (328.5)
2015 Summer Peak Traffic			2030 Summer Peak Traffic		
Signalized Intersection	E (70.3)	F (239.2)	Signalized Intersection	F (249.6)	F (386.4)

* Indicates a value that exceeded the capabilities of the HCS2000 program.

** Indicates a U-turn only movement.

**Table I-6: Weekday Peak Hour LOS
 SR 1 and North Skeeter Neck Road Intersection (Two-Way Stop-Controlled Intersection)**

Yearly Conditions	Level of Service (Delay in seconds)		Yearly Conditions	Level of Service (Delay in seconds)	
	A.M. Peak	P.M. Peak		P.M. Peak	A.M. Peak
2007 Average Peak Traffic			2020 Average Peak Traffic		
SB Left	C (20.1)	B (11.5)	SB Left	E (35.5)	C (17.0)
WB Right	C (23.5)	B (13.1)	WB Right	E (41.9)	C (18.2)
2007 Summer Peak Traffic			2020 Summer Peak Traffic		
SB Left	D (25.1)	B (13.4)	SB Left	F (60.1)	C (23.0)
WB Right	D (30.4)	B (15.0)	WB Right	F (73.2)	C (22.5)
2010 Summer Peak Traffic			2025 Average Peak Traffic		
SB Left	C (21.2)	B (12.3)	SB Left	E (45.4)	C (19.7)
WB Right	C (24.9)	B (14.0)	WB Right	F (54.3)	C (20.2)
2010 Summer Peak Traffic			2025 Summer Peak Traffic		
SB Left	D (30.9)	B (15.0)	SB Left	F (88.9)	D (29.0)
WB Right	E (37.5)	C (16.2)	WB Right	F (104.9)	D (25.9)
2015 Average Peak Traffic			2030 Average Peak Traffic		
SB Left	D (28.7)	B (14.9)	SB Left	F (58.5)	C (23.0)
WB Right	D (33.5)	C (16.4)	WB Right	F (70.8)	C (22.8)
2015 Summer Peak Traffic			2030 Summer Peak Traffic		
SB Left	E (44.5)	C (18.9)	SB Left	F (130.6)	E (38.0)
WB Right	F (53.0)	C (19.6)	WB Right	F (163.1)	D (30.5)

* Indicates a value that exceeded the capabilities of the HCS2000 program.

** Indicates a U-turn only movement.

Level-of-Service -

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**Table I-7: Weekday Peak Hour LOS
 SR 1 and Bower’s Beach Road (Semi-Actuated Signalized Intersection)**

Yearly Conditions	Level of Service (Delay in seconds)		Yearly Conditions	Level of Service (Delay in seconds)	
	A.M. Peak	P.M. Peak		A.M. Peak	P.M. Peak
2007 Average Peak Traffic			2020 Average Peak Traffic		
Signalized Intersection	D (46.4)	B (15.2)	Signalized Intersection	F (177.0)	F (232.4)
2007 Summer Peak Traffic			2020 Summer Peak Traffic		
Signalized Intersection	F (106.1)	F (82.4)	Signalized Intersection	F (250.6)	F (312.5)
2010 Summer Peak Traffic			2025 Average Peak Traffic		
Signalized Intersection	E (79.9)	C (21.1)	Signalized Intersection	F (226.2)	F (279.4)
2010 Summer Peak Traffic			2025 Summer Peak Traffic		
Signalized Intersection	F (148.1.4)	F (125.7)	Signalized Intersection	F (313.9)	F (369.3)
2015 Average Peak Traffic			2030 Average Peak Traffic		
Signalized Intersection	F (130.5)	F (191.3)	Signalized Intersection	F (279.3)	F (328.4)
2015 Summer Peak Traffic			2030 Summer Peak Traffic		
Signalized Intersection	F (191.8)	F (258.0)	Signalized Intersection	F (380.3)	F (427.4)

**Table I-8: Weekday Peak Hour LOS
 SR 1 and South Skeeter Neck Road Intersection (Two-Way Stop-Controlled Intersection)**

Yearly Conditions	Level of Service (Delay in seconds)		Yearly Conditions	Level of Service (Delay in seconds)	
	A.M.	P.M. Peak		A.M. Peak	P.M. Peak
2007 Average Peak Traffic			2020 Average Peak Traffic		
NB Left **	B (12.3)	C (23.6)	NB Left **	C (18.4)	F (107.9)
SB Left	C (22.5)	B (14.8)	SB Left	F (90.5)	E (33.5)
WB Left/Right	F (50.7)	D (25.6)	WB Left/Right	F (562.1)	F (94.2)
2007 Summer Peak Traffic			2020 Summer Peak Traffic		
NB Left **	B (14.3)	D (34.0)	NB Left **	C (22.1)	F (176.4)
SB Left	D (33.3)	C (18.8)	SB Left	F (228.8)	E (49.8)
WB Left/Right	F (210.9)	E (40.4)	WB Left/Right	F (2499.0)	F (228.8)
2010 Average Peak Traffic			2025 Average Peak Traffic		
NB Left **	B (13.2)	D (29.0)	NB Left **	C (20.3)	F (143.5)
SB Left	D (27.6)	C (16.6)	SB Left	F (171.3)	E (44.0)
WB Left/Right	F (71.8)	D (33.4)	WB Left/Right	F (1424.0)	F (185.0)
2010 Summer Peak Traffic			2025 Summer Peak Traffic		
NB Left **	C (15.8)	E (44.6)	NB Left **	D (25.1)	F (245.0)
SB Left	E (46.2)	C (21.9)	SB Left	F (507.3)	F (74.5)
WB Left/Right	F (211.9)	F (51.4)	WB Left/Right	F (*)	F (474.6)
2015 Average Peak Traffic			2030 Average Peak Traffic		
NB Left **	C (16.7)	F (85.0)	NB Left **	D (25.1)	F (185.0)
SB Left	E (58.3)	D (25.8)	SB Left	F (507.3)	F (61.7)
WB Left/Right	F (244.2)	F (67.0)	WB Left/Right	F (2499.0)	F (366.6)
2015 Summer Peak Traffic			2030 Summer Peak Traffic		
NB Left **	C (19.6)	F (133.6)	NB Left **	D (28.5)	F (332.3)
SB Left	F (120.1)	E (35.2)	SB Left	F (929.5)	F (115.3)
WB Left/Right	F (957.9)	F (131.0)	WB Left/Right	F (*)	F (957.1)

* Indicates a value that exceeded the capabilities of the HCS2000 program.

** Indicates a U-turn only movement.

Level-of-Service -

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**Table I-9: Weekday Peak Hour LOS
 SR 1 and Barratt's Chapel Road / Site Entrance Intersection (Two-Way Stop-Controlled Intersection)**

Yearly Conditions	Level of Service (Delay in seconds)		Yearly Conditions	Level of Service (Delay in seconds)	
	A.M. Peak	P.M. Peak		A.M. Peak	P.M. Peak
2007 Average Peak			2020 Average Peak		
NB Left	B (13.8)	E (44.5)	NB Left	F (56.1)	F (6398.0)
SB Left	C (20.9)	B (14.5)	SB Left	E (40.3)	D (25.1)
EB Left/Through/Right	F (239.1)	F (*)	EB Left/Through/Right	F (*)	F (*)
WB Left/Through/Right	F (*)	F (*)	WB Left/Through/Right	F (*)	F (*)
2007 Summer Peak			2020 Summer Peak		
NB Left	C (17.4)	F (156.7)	NB Left	F (140.4)	F (11609.0)
SB Left	D (29.2)	C (15.8)	SB Left	F (65.0)	D (34.5)
EB Left/Through/Right	F (806.1)	F (*)	EB Left/Through/Right	F (*)	F (*)
WB Left/Through/Right	F (*)	F (*)	WB Left/Through/Right	F (*)	F (*)
2010 Average Peak			2025 Average Peak		
NB Left	C (15.2)	F (71.6)	NB Left	F (89.9)	F (8579.0)
SB Left	D (24.0)	C (15.8)	SB Left	F (55.0)	D (31.9)
EB Left/Through/Right	F (470.5)	F (*)	EB Left/Through/Right	F (*)	F (*)
WB Left/Through/Right	F (*)	F (*)	WB Left/Through/Right	F (*)	F (*)
2010 Summer Peak			2025 Summer Peak		
NB Left	C (20.2)	F (314.6)	NB Left	F (234.9)	F (16589.0)
SB Left	D (35.0)	B (20.2)	SB Left	F (95.0)	E (46.8)
EB Left/Through/Right	F (1339.0)	F (*)	EB Left/Through/Right	F (*)	F (*)
WB Left/Through/Right	F (*)	F (*)	WB Left/Through/Right	F (*)	F (*)
2015 Average Peak			2030 Average Peak		
NB Left	D (32.6)	F (4633.0)	NB Left	F (147.5)	F (11784.0)
SB Left	D (3009)	C (20.2)	SB Left	F (77.0)	E (41.0)
EB Left/Through/Right	F (*)	F (*)	EB Left/Through/Right	F (*)	F (*)
WB Left/Through/Right	F (*)	F (*)	WB Left/Through/Right	F (*)	F (*)
2015 Summer Peak			2030 Summer Peak		
NB Left	F (61.5)	F (8056.0)	NB Left	F (364.1)	F (*)
SB Left	C (45.0)	D (26.2)	SB Left	F (143.5)	F (64.8)
EB Left/Through/Right	F (*)	F (*)	EB Left/Through/Right	F (*)	F (*)
WB Left/Through/Right	F (*)	F (*)	WB Left/Through/Right	F (*)	F (*)

* Indicates a value that exceeded the capabilities of the HCS2000 program.

** Indicates a U-turn only movement.

Level-of-Service -

A	B	C	D	E	F
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D. Proposed Action

In order to address the needs for traffic safety and preserving roadway capacity for current and future traffic along SR 1 and intersecting local roadways it is essential to separate through traffic movements along SR 1 from local traffic movements crossing SR 1. The Delaware Department of Transportation (DelDOT) is proposing to remove the existing at-grade intersection crossings at Bower's Beach Road and Mulberrie Point Road and all direct property access to SR 1 and providing alternative access to adjacent properties via parallel service roads and access to and from SR 1 via ramps. Local road crossings of SR 1 would be consolidated at grade separated intersection and parallel service roads would be provided to maintain connectivity between the local roads and private accesses on each side of SR 1.

The proposed action is consistent with goals and objectives identified in the State of Delaware's Long-Range Transportation Plan, the SR 1 Corridor Capacity Preservation Program, the Strategies for State Policies and Spending and the Livable Delaware Initiative. The proposed action is also consistent with the Kent County, Delaware Comprehensive Plan (2008) and the Dover/Kent County Metropolitan Planning Organization's Long-Range Transportation Plan and Transportation Improvement Program.

II. ALTERNATIVES CONSIDERED

*SR 1, Little Heaven Grade Separated Intersection Project
Environmental Assessment / Section 4(f) Evaluation*



*U.S. Department of Transportation
Federal Highway Administration*



Delaware Department of Transportation

II. ALTERNATIVES CONSIDERED

This section describes the history of the project, alternatives development and the public involvement. A detailed description and figures for each alternative are provided along with a summary of the environmental impacts and an evaluation of how well each alternative meets the purpose and need.

A. Project History and Public Involvement

The Little Heaven Grade Separated Intersection Project was identified as part of DelDOT's SR 1 CCPP. The program began as DelDOT policy in 1992 and was made into law in 1996 with the intent to preserve the capacity of existing transportation facilities rather than build new facilities on new alignments. In 1998, ten locations were identified along the SR 1/SR 113 corridor that will require improvements to the roadway in order to preserve the capacity of the facility. The Little Heaven / SR 1 area was one of these project locations identified and presented in Public Workshops in 1998. More information about the CCPP can be obtained by visiting: http://www.deldot.gov/information/pubs_forms/brochures/pdf/ccpp_fyi.pdf.

The Little Heaven Grade Separated Intersection Project began in August 25, 2003. DelDOT originally developed Alternatives A (**Figure II-2**) and B (**Figure II-3**). These alternatives were shown at a Public Workshop on February 23, 2004 and included a bridge structure north of Mulberrie Point Road. Concerns arose among residents about the separation of the community and a lack of interconnectivity between the eastern and western sides of Little Heaven. The Bower's Beach, Frederica and Magnolia Fire Companies also had concerns about emergency access to the Little Heaven area. In addition, the location of the bridge crossing in the vicinity of Mulberrie Point Road was close to several wetlands and would result in several wetland impacts. Based on the need to reduce wetland impacts and to respond to the concerns raised by the residents and local fire companies, Alternatives C (**Figure II-4**), D (**Figure II-5**), E (**Figure II-6**) and F (**Figure II-7**) were developed and presented to the public at a workshop held on July 20, 2004.

Alternatives C, D, and E involved moving the bridge structure to the Bower's Beach Road intersection. The existing intersection at Bower's Beach Road will remain, but SR 1 will pass over the intersection on a bridge structure. There are variations on local access, notably in the vicinity of the Tara subdivision, which is located off of northbound SR 1 at the intersection of Mulberrie Point Road. Alternative F (**Figure II-7**) located the bridge structure and the Bower's Beach Road intersection further south than the other alternatives to reduce the visual impact of the bridge to the historic Jehu Reed House.

Alternatives C, D, E and F all include the extension of the project southward to Barratt's Chapel Road. A new tie-in between Barratt's Chapel Road and the western service road is provided, resulting in the closure of the median crossover located at Barratt's Chapel Road. This avoids an unsafe situation of having several conflicting movements happening in the same area.

The selection of Alternative C as the Preferred Alternative was based on the balance of the concerns of all parties involved and based on how well it met the Purpose and Need of the project better than other alternatives. It also took into account input from residents, local fire companies, and state and federal natural and cultural resource agencies. The Preferred

Alternative was presented to the public at the July 20, 2004 and October 26, 2004 workshops. Later that year the project was placed on-hold due to budgetary constraints. The project would not resume again until 2007.

During the period the project was on hold several new development proposals were approved resulting in the project team having to make refinements to the design of Preferred Alternative C to accommodate new traffic movements and provide service road connectivity for proposed developments. At the July 16, 2008 public workshop, the project team presented refinements developed for Preferred Alternative C.

Throughout the history of the development of this project, DelDOT has coordinated closely with federal and state environmental and regulatory agencies and the Federal Highway Administration. The public workshops provided a forum for interaction with the local residents and business owners and emergency service providers and their input was crucial to selection of the Preferred Alternative C with refinements.

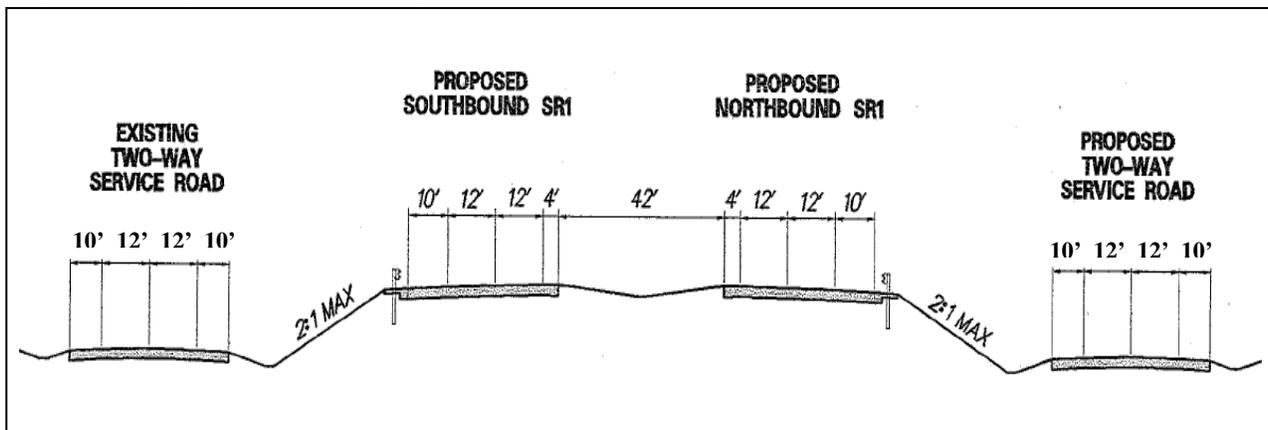
B. Description of Alternatives

Six build alternatives were developed, Alternatives A through F. A No-Build Alternative was also considered which assumed no substantial improvements other than normal maintenance would be made to the transportation network within the project area. Public Workshops were held throughout the project development process to allow the public to review and comment on the alternatives. The public workshops were held on July 17, 1996, October 21, 1998, January 6, 2004, July 20, 2004, October 26, 2004 and July 16, 2008.

1. Typical Cross Section for the Build Alternatives

Each build alternative proposes to reconstruct SR 1 to a four lane divided, access controlled freeway consisting of 2, 12 foot travel lanes in each direction with 10 foot outside shoulders and 4 foot inside shoulders. A 42 foot open grass median would separate the northbound and southbound lanes. Two-way service roads on the northbound and southbound (existing) of SR 1 would provide access to properties and public streets. The typical cross section for the two-way service roads consists of 2, 12 foot lanes (one in each direction) and 10 foot shoulders on both sides of the roadway as shown in **Figure II-1**.

Figure II-1: Typical Section for Proposed Build Alternatives



A design speed of 60 MPH was applied to SR 1. In the proposed designs, a grade separation elevates 23 feet above existing SR 1 to allow for the required clearance of 16 feet - 6 inches after

construction of the bridge. The maximum grade for any road or ramp that has been adopted for use on the SR 1 CCP Program is five percent. Acceleration and deceleration lanes on SR 1 and Clapham Road were included in the preliminary alternatives. The various lane design capacities for each alternative were based on design speed and projected traffic volumes on both SR 1 and Clapham Road. Sidewalks would be maintained along the existing service road where they currently exist. Sidewalks would be provided at existing locations. New sidewalks would be constructed by developers as new developments come into the area.

2. Description of Build Alternatives

a. Alternative A

Alternative A provides a two-lane overpass of Mulberrie Point Road approximately 860 feet north of the existing Mulberrie Point Road intersection, as shown on **Figure II-2**. Two-lane, North-South service roads would be provided parallel to SR 1 and extend to approximately 2,650 feet south of the SR 1/Bower's Beach Road intersection. The existing southbound SR 1 alignment would become the new alignment for the west service road. The existing SR 1 northbound alignment would become the alignment for SR 1 southbound. The new northbound SR 1 and the east service road would be shifted to the east on new alignments.

The west overpass approach would tie into Clapham Road to the west at a new 4-way intersection with Jury Drive, located approximately 1,000 feet north of the existing intersection of Clapham Road and Mulberrie Point Road. An extension of Mulberrie Point Road that would begin approximately 1,640 feet east of the existing SR 1/Mulberrie Point Road intersection would provide the main overpass approach to the east. A 3-way T-intersection would be provided where the new extension to Mulberrie Point Road and the east service road intersects. A new 4-way, stop-controlled intersection would be located to connect existing Mulberrie Point Road to the new east service road at a location approximately 470 feet east of the existing SR 1/Mulberrie Point Road intersection. The existing 4-way intersection of SR 1 and Mulberrie Point Road would become right-in/right out ramps providing access from and to SR 1 and Mulberrie Point Road.

Alternative A requires right-of-way acquisition of 73.99 acres of residential and agricultural property and 11.93 acres of commercial property. There are 22 residential relocations and 10 business relocations necessary for the construction of this alternative.

b. Alternative B

Alternative B is similar to Alternative A in that it provides the overpass, service roads and, shifts SR 1 to the same locations as Alternative A. The key difference between Alternative A and B is that Alternative B connects the east service road as the main approach and thus eliminates the extension of Mulberrie Point Road and subsequently the 3-way T-intersection where the extension of Mulberrie Point Road and the service road intersected in Alternative A. This modification results in the new 4-way, stop-controlled intersection of the east service road and Mulberrie Point Road connecting approximately 370 feet east of the existing SR 1/Mulberrie Point Road intersection compared to Alternative A, where this new intersection would be located 470 feet east of the east of the existing SR 1/Mulberrie Point Road intersection.

Alternative B requires right-of-way acquisition of 68.02 acres of residential and agricultural property and 11.84 acres of commercial property. There are 17 residential relocations and 10 business relocations necessary for the construction of this alternative.

c. Alternative C (Preferred Alternative)

Alternative C (see **Figure II-4**) would shift SR 1 to the east of the existing SR 1 roadway corridor, would provide two-way north-south parallel service roads on each side of SR 1 would construct/reconstruct several intersections to tie into the proposed improvements and would provide a grade separated crossing of SR 1 over Bower's Beach Road. The Bower's Beach Road crossing would connect to the new two-way, north-south service roads that would be constructed parallel to SR 1 which would in turn provide connection between the local roadways and would provide access to and from SR 1 via ramps. The west service road would connect Clapham Road in the north to Barratt's Chapel Road in the south. The east service road would connect Mulberrie Point Road to the north to Skeeter Neck Road to the south. It would improve the local road network while helping to preserve the capacity of SR 1. It is the only alternative that provides access to all of the local roads along the service road.

Locating the grade separated crossing of SR 1 to Bower's Beach Road instead of north of Mulberrie Point Road would avoid direct impacts to several communities and would minimize wetland impacts. The intersection improvements would align the intersections of South Skeeter Neck Road and Barratt's Chapel at a single intersection and would provide ramps connecting Clapham Road to and from southbound SR 1 and would provide access to and from southbound SR 1 and Clapham Road. The existing SR 1 intersection with Barratt's Chapel Road would be closed in favor of using this new intersection.

This alternative requires right-of-way acquisition of 64.53 acres of residential and agricultural property and 12.40 acres of commercial property. There are 5 residential relocations and 7 business relocations necessary for the construction of this alternative.

Alternative C as shown in **Figure II-4** displays several refinements that took place after its selection as the Preferred Alternative, primarily a new connection to the west service road and Barratt's Chapel Road opposite South Skeeter Neck Road. This new connection was needed based on planned and projected development and increased traffic along Barratt's Chapel Road. The original Barratt's Chapel Road connection that was applied to Alternative C was the same as the one displayed in Alternatives D, E and F. Their descriptions are provided in the next section.

d. Alternative D

Alternative D (See **Figure II-5**) is similar to Alternative C, except the ramp from Mulberrie Point Road to the service road connecting to SR 1 is eliminated. The service roads that tie into SR 1 terminate south of the intersection of SR 1 at Skeeter Neck Road. Intersection improvements are included for Skeeter Neck Road, Bower's Beach Road and Barratt's Chapel Road. A series of North-South service roads would be added on either side of SR 1. Service roads and realignment of SR 1 to the east would be required to minimize right-of-way impacts. As with Alternative C, the project limits extend to Barratt's Chapel Road.

This alternative requires right-of-way acquisition of 53.24 acres of residential and agricultural property and 9.24 acres of commercial property. There are 14 residential relocations and 8 business relocations necessary for the construction of this alternative.

e. Alternative E

Alternative E (See **Figure II-6**) is nearly identical to Alternative C, except the ramp from Mulberrie Point Road to the service road connecting to SR 1 is eliminated. All service roads and SR 1 alignments are the same as Alternative C. Intersection improvements are incorporated for Skeeter Neck Road, Bower's Beach Road and Barratt's Chapel Road.

This alternative requires right-of-way acquisition of 54.16 acres of residential and agricultural property and 10.46 acres of commercial property. There are 14 residential relocations and 8 business relocations necessary for the construction of this alternative.

f. Alternative F

Alternative F (See **Figure II-7**) was developed in response to comments from the State Historic Preservation Office (SHPO). The SHPO raised concerns over visual impacts to the Jehu Reed House, which is located on southbound SR 1 at the Bower's Beach Road intersection. The bridge structure and the Bower's Beach Road intersection were moved further to the south to reduce the visual impact of the bridge to this historic resource.

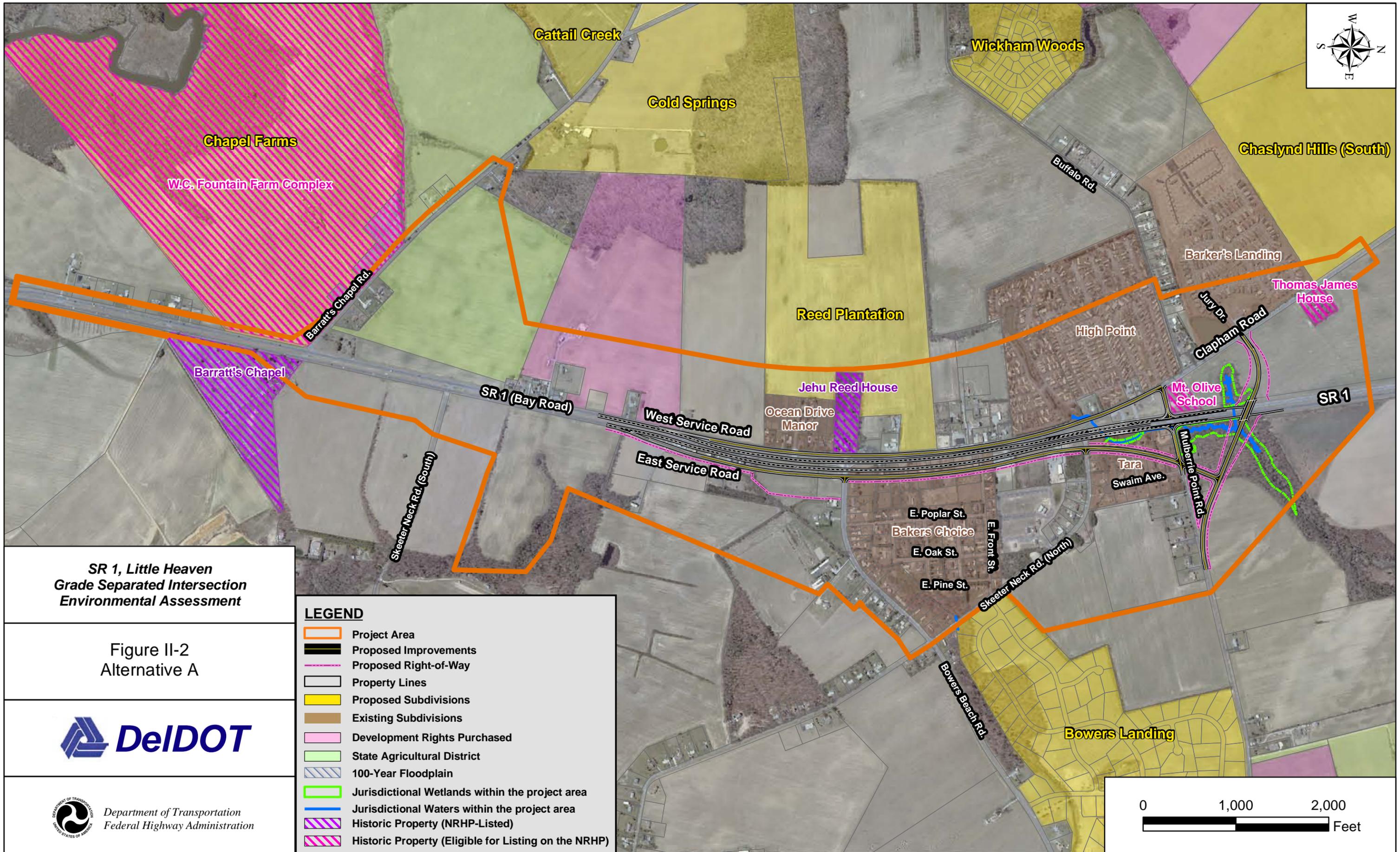
Alternative F is nearly identical to Alternative D, with the only difference being that Bower's Beach Road and the SR 1 bridge over it have been shifted further south to avoid a visual impact to the Nation-Register-listed Jehu Reed House. All service roads and SR 1 alignments are the same as Alternative D. Intersection improvements are included for Skeeter Neck Road, Bower's Beach Road and Barratt's Chapel Road.

This alternative requires right-of-way acquisition of 55.20 acres of residential and agricultural property and 9.52 acres of commercial property. There are 14 residential relocations and 8 business relocations necessary for the construction of this alternative.

C. Multi-modal Opportunities

A local Delaware Transit Corporation (DART) bus route stops in Little Heaven, serving the surrounding community. Currently the bus stops at Barker's Landing, High Point, and Medd's Market, but the service is under consideration for expansion with additional stops being considered in the area of the Jehu Reed House and near Chapel Farms. The extension of Clapham Road along the west service road would assist future service connections.

The implementation of a grade separated crossing would allow pedestrians and bicyclists to access either side of SR 1 safely. Sidewalks and wide shoulders along the service roads would accommodate pedestrians and bicyclists. This is consistent with the bicycle network being planned for this area of Kent County. New sidewalks would be provided along eastbound Bower's Beach Road and the along the southbound side of the west service road from Bower's Beach Road to Buffalo Road along the southbound side. Crosswalks would be provided connecting sidewalks at roadway crossings.



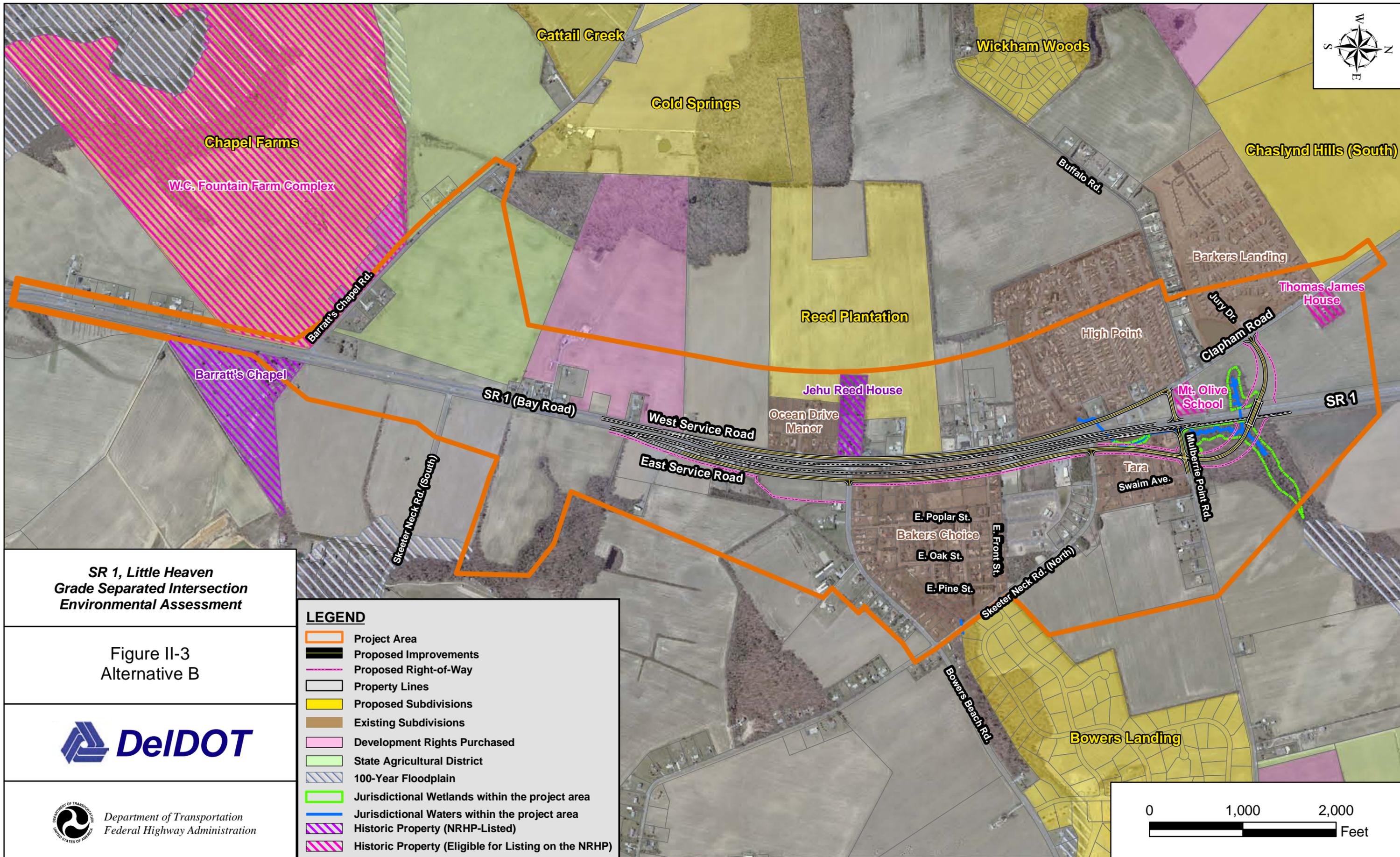
**SR 1, Little Heaven
Grade Separated Intersection
Environmental Assessment**

Figure II-2
Alternative A



Department of Transportation
Federal Highway Administration

- LEGEND**
- Project Area
 - Proposed Improvements
 - Proposed Right-of-Way
 - Property Lines
 - Proposed Subdivisions
 - Existing Subdivisions
 - Development Rights Purchased
 - State Agricultural District
 - 100-Year Floodplain
 - Jurisdictional Wetlands within the project area
 - Jurisdictional Waters within the project area
 - Historic Property (NRHP-Listed)
 - Historic Property (Eligible for Listing on the NRHP)



**SR 1, Little Heaven
Grade Separated Intersection
Environmental Assessment**

**Figure II-3
Alternative B**

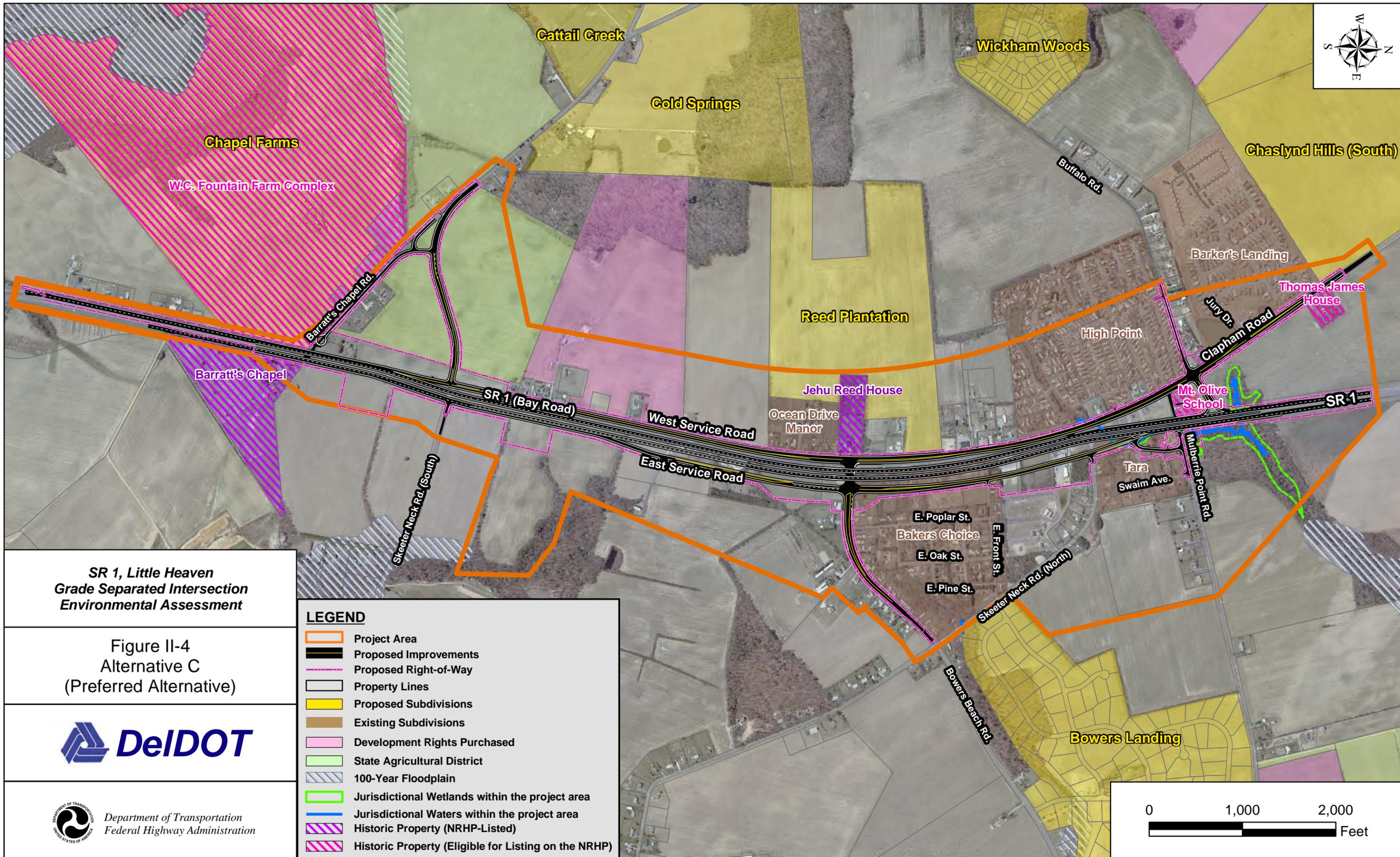


Department of Transportation
Federal Highway Administration

LEGEND

- Project Area
- Proposed Improvements
- Proposed Right-of-Way
- Property Lines
- Proposed Subdivisions
- Existing Subdivisions
- Development Rights Purchased
- State Agricultural District
- 100-Year Floodplain
- Jurisdictional Wetlands within the project area
- Jurisdictional Waters within the project area
- Historic Property (NRHP-Listed)
- Historic Property (Eligible for Listing on the NRHP)





**SR 1, Little Heaven
Grade Separated Intersection
Environmental Assessment**

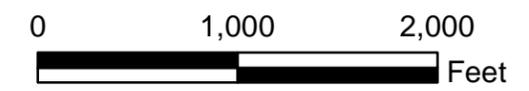
Figure II-4
Alternative C
(Preferred Alternative)

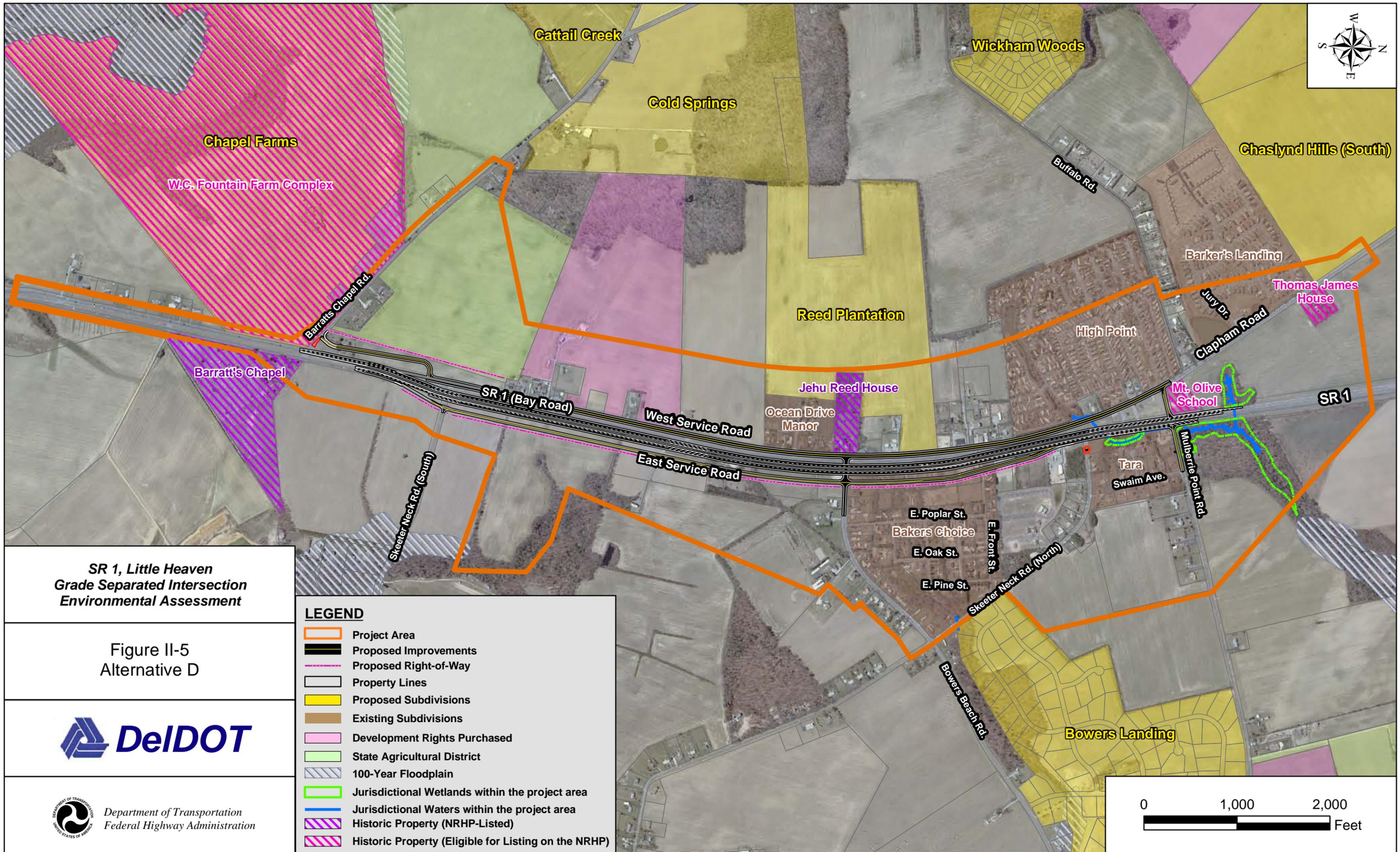


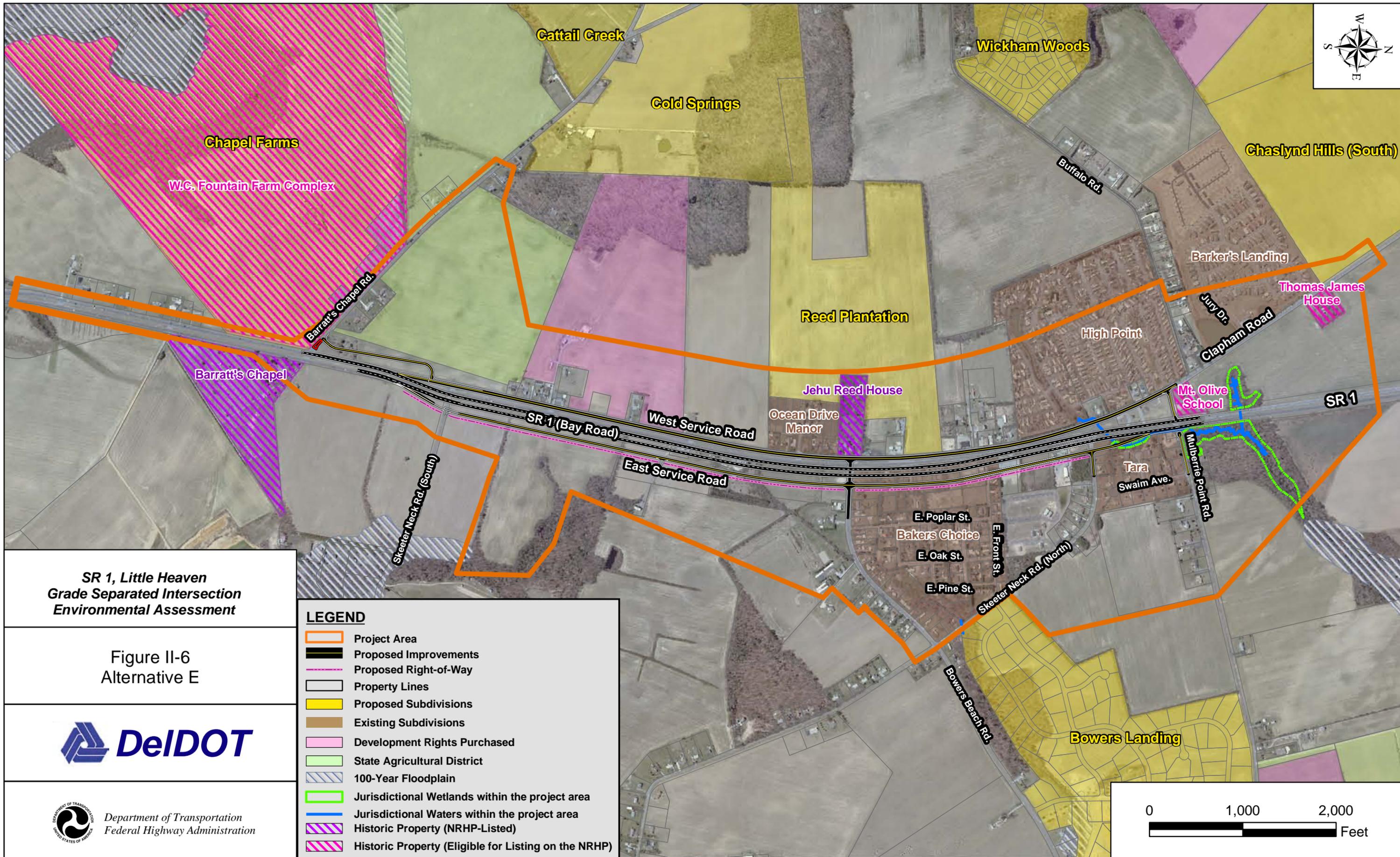
Department of Transportation
Federal Highway Administration

LEGEND

	Project Area
	Proposed Improvements
	Proposed Right-of-Way
	Property Lines
	Proposed Subdivisions
	Existing Subdivisions
	Development Rights Purchased
	State Agricultural District
	100-Year Floodplain
	Jurisdictional Wetlands within the project area
	Jurisdictional Waters within the project area
	Historic Property (NRHP-Listed)
	Historic Property (Eligible for Listing on the NRHP)







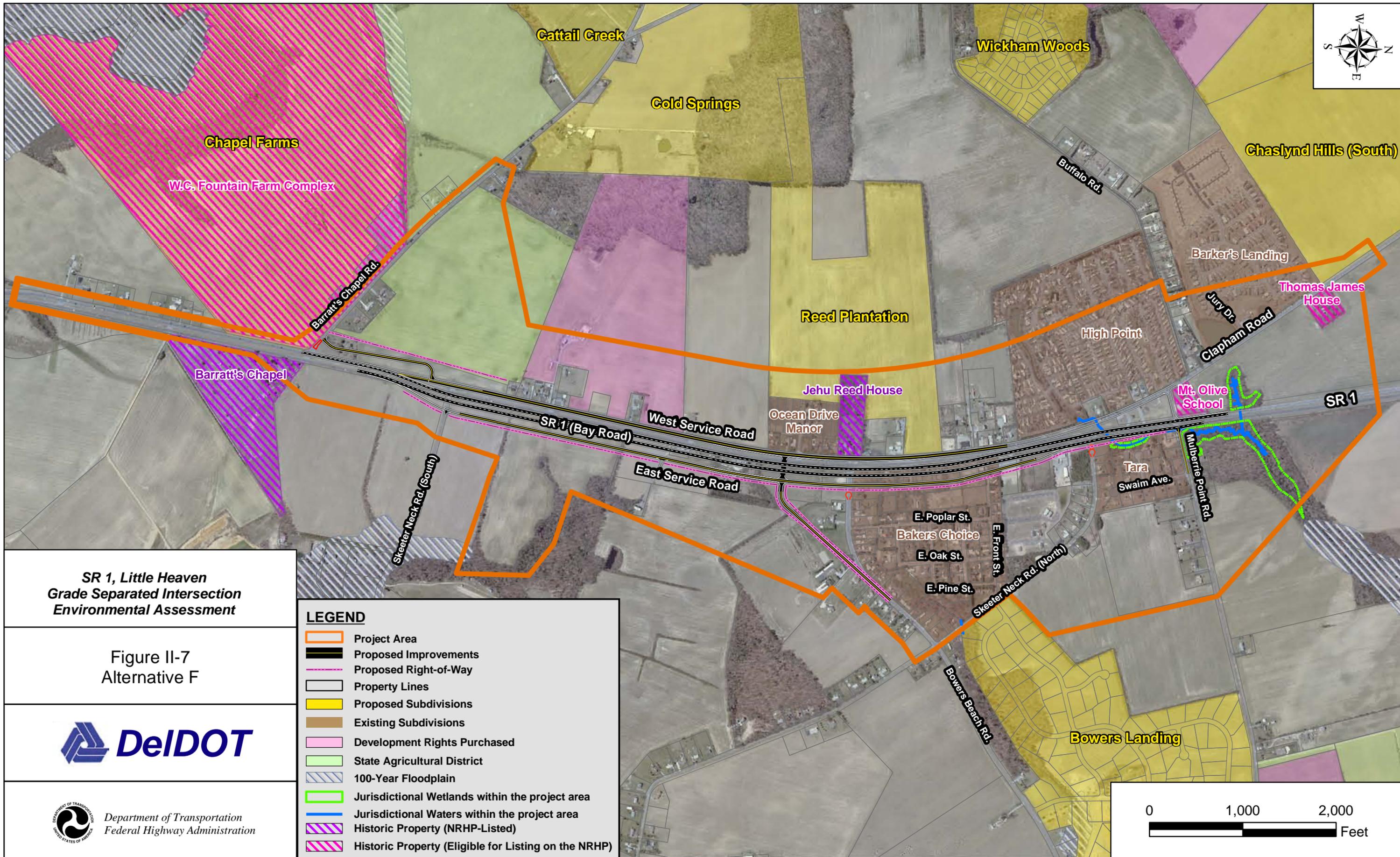
**SR 1, Little Heaven
Grade Separated Intersection
Environmental Assessment**

Figure II-6
Alternative E



Department of Transportation
Federal Highway Administration

LEGEND	
	Project Area
	Proposed Improvements
	Proposed Right-of-Way
	Property Lines
	Proposed Subdivisions
	Existing Subdivisions
	Development Rights Purchased
	State Agricultural District
	100-Year Floodplain
	Jurisdictional Wetlands within the project area
	Jurisdictional Waters within the project area
	Historic Property (NRHP-Listed)
	Historic Property (Eligible for Listing on the NRHP)



**SR 1, Little Heaven
Grade Separated Intersection
Environmental Assessment**

Figure II-7
Alternative F



Department of Transportation
Federal Highway Administration

LEGEND

- Project Area
- Proposed Improvements
- Proposed Right-of-Way
- Property Lines
- Proposed Subdivisions
- Existing Subdivisions
- Development Rights Purchased
- State Agricultural District
- 100-Year Floodplain
- Jurisdictional Wetlands within the project area
- Jurisdictional Waters within the project area
- Historic Property (NRHP-Listed)
- Historic Property (Eligible for Listing on the NRHP)

D. Selection of the Preferred Alternative

An evaluation of all alternatives was conducted to determine how well they met the purpose and need (Table II-1) and an evaluation of the impacts to the socio-economic, cultural and natural environment (see Table II-2 for a summary of impacts for all alternatives). A detailed discussion of environmental resources and their impacts is provided in the following chapter.

Table II-1: Alternatives Analysis

Accessibility and Mobility Elements	Retained Alternatives			
	C*	D	E	F
<u>SR 1 Northbound</u>				
-Off-ramp to East Service Road from SR 1 (south of Skeeter Neck Road)	✓	✓	✓	✓
-Grade separated crossing of SR 1 over Bower’s Beach Road	✓	✓	✓	✓
-Right-in/right-out low speed ramps at Mulberrie Point Road	--	✓	--	✓
<u>SR 1 Southbound</u>				
-Right-in/right-out low speed ramps at Mulberrie Point Road	✓	✓	✓	✓
-On-ramp to West service Road/Barratt’s Chapel Road	✓	✓	✓	✓
-Off-ramp to West service Road/Barratt’s Chapel Road	✓	✓	✓	✓
<u>East Service Road</u>				
-Access to/from South Skeeter Neck Road	✓	✓	✓	✓
-Access to/from Bower’s Beach Road	✓	✓	✓	✓
-Access to/from East Front Street	✓	✓	✓	✓
-Access to/from North Skeeter Neck Road	✓	--	✓	--
-Access to/from Mulberrie Point Road	✓	--	--	--
-Provides access to all local streets and East Service Road	✓	--	--	--
-Eliminates weave along northbound SR 1 between East Service Road and Mulberrie Point Road.	✓	--	✓	--
<u>Clapham Road/West Service Road</u>				
-Access to/from Buffalo Road	✓	✓	✓	✓
-Access to/from Barratt’s Chapel Road	✓	✓	✓	✓
-Provides safer radius on ramps entering and exiting SR 1 southbound from Clapham Road/West Service Road	✓	--	--	--
-Consolidates offset intersection at Buffalo Road and Mulberrie Point Road into a 4-way intersection.	✓	--	--	--
-Realigns/relocates Barratt’s Chapel Road to provide for future grade separated crossing to accommodate future traffic.	✓	--	--	--

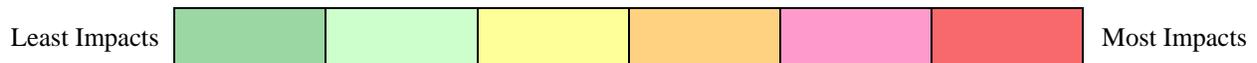
*Alternative C is the Preferred Alternative

✓-Indicates that the alternative provides this element in the proposed design.

Table II-2: Summary of Impacts for All Alternatives

FEATURE	UNIT	Alternatives						
		NO-BUILD	A	B	C**	D	E	F
Total Right-of-Way Acquisition	Acres	0	85.92	79.86	76.93	62.48	64.63	64.10
Commercial/Business	Acres	0	11.93	11.84	12.40	9.24	10.46	9.52
Residential/Agricultural	Acres	0	73.99	68.02	64.53	53.24	54.16	55.20
Total of Properties Affected*	Number	0	56	52	72	35	38	42
Residential Relocations	Number	0	22	17	5	14	14	14
Business Relocations	Number	0	10	10	7	8	8	8
Active Agriculture Land	Acres	0	16.51	16.51	21.21	22.23	22.23	22.23
Prime Farmland Soils	Acres	0	0	0	0	0	0	0
Forest Cover	Acres	0	10.72	7.27	2.86	0.07	1.29	0.35
Public Parks/Recreational Areas	Number	0	0	0	0	0	0	0
Adverse Effects on National Register of Historic Places Listed or Eligible Properties	Number	0	2	2	2	2	2	2
Archeological Sites Impacted	Number	0	0	0	0	0	0	0
Noise (NSAs impacted @ 67 dBa level)	Number	2	2	2	2	2	2	2
Meets National Ambient Air Quality Standards	Yes/No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Potential Hazardous Materials Sites	Number	0	8	8	8	8	8	8
Jurisdictional Wetlands	Number	0	3	3	3	2	2	2
	Acres	0	3.91	3.87	0.989	0.22	0.49	0.22
Streams Crossed***	Number	0	2	2	2	1	1	1
Jurisdictional Waters****	Linear Feet	0	739	759	834	344	624	344
Floodplain Encroachment	Acres	0	0	0	0	0	0	0
Additional Impervious Area	Acres	0	21.16	19.58	27.78	36.28	38.46	36.14
Total Length	Miles	0	2.09	2.09	2.73	1.81	1.81	1.81
Estimated Construction Cost	\$ million	0	\$31.8	\$31.7	\$38.6	\$37.1	\$38.1	\$39.6
Estimated Right-of-Way Cost	\$ million	0	\$13.6	\$12.5	\$13.8	\$10.3	\$10.7	\$10.8
Total Cost*****	\$ million	0	\$45.4	\$44.2	\$52.4	\$47.4	\$48.8	\$50.4

* Affected properties are any lots or tax parcels where encroachment of the project alternative may occur.
 ** Alternative C is the Preferred Alternative
 *** Excluding Wetlands
 **** All waterways have not been verified as Jurisdictional by USACE
 ***** Total cost includes Right-of-Way and Construction Cost. (Does not include Project Development or Engineering Fees.)



1. Alternatives Not Selected as the Preferred Alternative

Alternatives A and B were dismissed from further consideration earlier in the process because they did not satisfy the purpose and need. The grade separated intersection location had extensive impacts to wetlands and had major right-of-way impacts to the local communities and it did not provide sufficient safety because it did not address access and service roads south of Bower's Beach Road.

Alternative D does not accommodate current and future traffic along SR 1 or the local roadway connections. It does not provide sufficient local road access to the East Service Road because it excludes access to and from North Skeeter Neck Road forcing traffic to use East Front Street or Bower's Beach Road and increasing traffic on these roadways. It also does not provide access to the East Service Road for Mulberrie Point Road and forces that traffic to use northbound SR 1 therefore does not separate local and through traffic sufficiently. Alternative D does not meet the need for traffic safety or future traffic because a proposed weave section on northbound SR 1 (between traffic entering onto SR 1 from the East Service Road and traffic entering/exiting SR 1 from Mulberrie Point Road, may contribute to future accidents as traffic volumes increase.

Alternative E does not accommodate current and future traffic along SR 1 or the local roadway connections. It does not provide sufficient local road access to the East Service Road because it excludes access to and from Mulberrie Point Road, nor does it provide access to Mulberrie Point Road to/from SR 1. Under Alternative E the weave section along SR 1 northbound is eliminated which improves safety; however, it effectively isolates residents along Mulberrie Point Road from the transportation system by providing a 3.5-mile circuitous route to access SR 1.

Alternative F is the same as Alternative D with the exception that SR 1 at Bower's Beach Road grade separated intersection is relocated along a new extension of Bower's Beach Road and the existing intersection of Bower's Beach Road is removed and converted to a cul-de-sac. This alternative was developed to reduce the potential for a visual effect on the National Register-listed Jehu Reed House. This alternative does not satisfy the purpose and need for the same reasons described for Alternative D. The relocation of the intersection also increases the cost of implementing this alternative by \$3 million compared to Alternative D and this relocation provides no additional traffic or safety benefit.

2. Alternative C – The Preferred Alternative

An evaluation of all alternatives determined that Alternative C is the only alternative that provides safe access to and from the service roads and SR 1 while providing local service road access to the entire existing local roadway network. Alternative C was advanced into the detailed design phase as the Preferred Alternative because Alternative C is the only alternative that meets all aspects of the purpose and need. Alternative C was selected as the Preferred Alternative because it provides interconnection of the roadways, separates local and through traffic, maintains access for emergency response vehicles and is the best alternative for addressing safety concerns and maintaining community cohesiveness. Additionally, Alternative C was the preferred design of the local communities in the project area. Several refinements have been made to Alternative C throughout the design phase to avoid, minimize and/or mitigate impacts to the existing socio-economic, cultural and natural environmental resources within the project area.

III. IMPACTS

***SR 1, Little Heaven Grade Separated Intersection Project
Environmental Assessment / Section 4(f) Evaluation***



*U.S. Department of Transportation
Federal Highway Administration*



Delaware Department of Transportation

III. IMPACTS

This section describes the socio-economic, cultural and natural environmental resource impacts that are associated with the Preferred Alternative. Other alternatives, discussed in the previous chapter are also discussed where appropriate for comparative purposes.

A. Socio-Economic Environment

Table III-1 shows the State of Delaware, Kent County and the Project Area’s general socio-economic characteristics. Census Blocks were used for the Project Area statistics because they provide the most detailed socio-economic data at the Project Area level of detail.

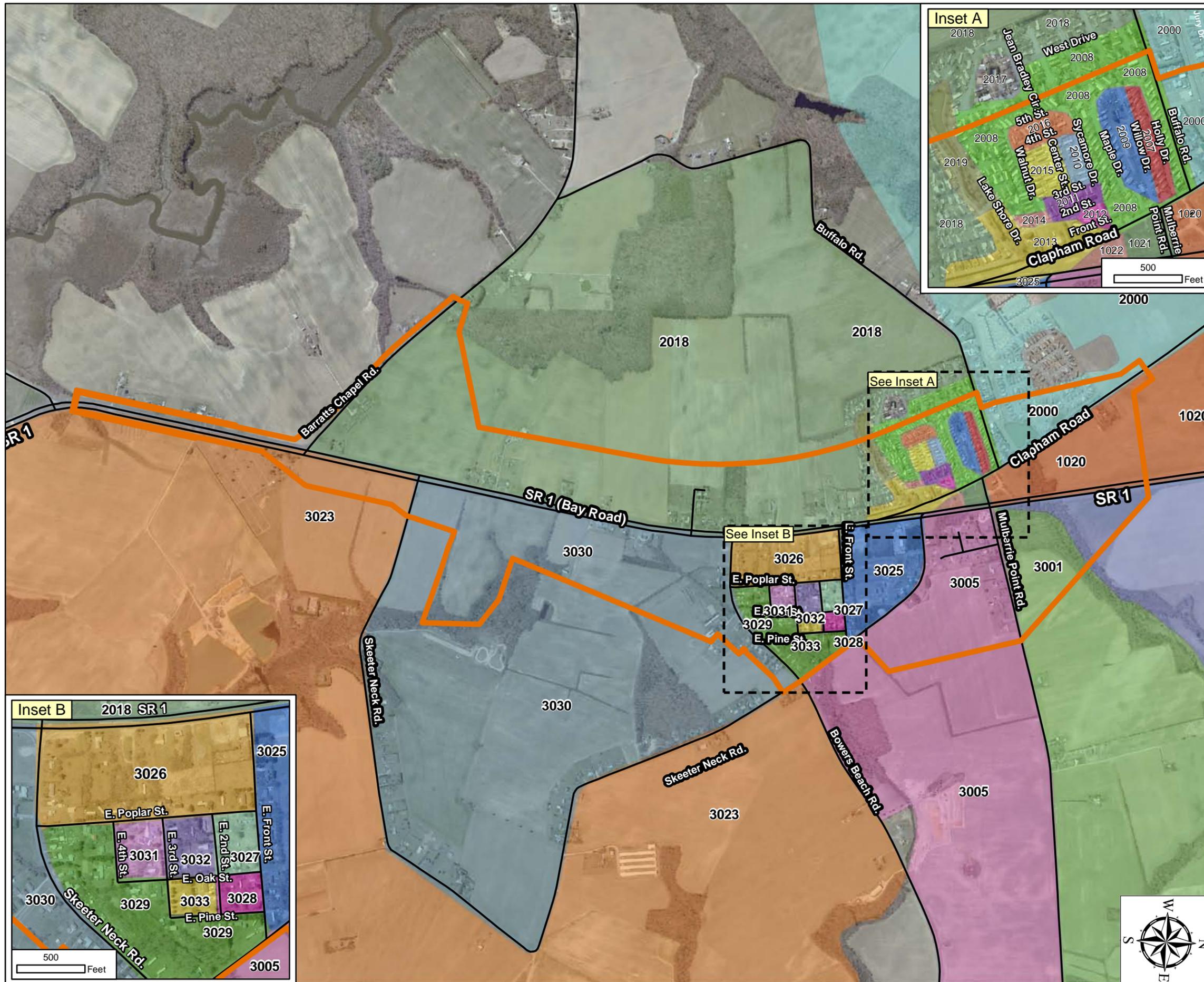
Table III-1: Population and Housing Characteristics for Delaware, Kent County and the Project Area

Summary Statistics	Delaware	Kent County	Project Area ¹
Total Population	783,600	147,601	1,480
*Projected total Population (2020)	1,032,974	160,911	N/A
Housing Units	343,072	60,172	356
% Male/ % Female	48.5% / 51.5%	47.6% / 52.4%	49.6% / 50.4%
% Population 65 Years and Older	13.0%	12.5%	18.5%
Median Household Income	\$47,381	\$47,772	\$40,807
Race/Ethnicity²			
Population of One Race Only	770,567 (98.33%)	143,403 (97.2%)	1,645 (97.4%)
White alone	584,773 (74.63%)	103,777 (70.3%)	1,390 (82.3%)
Black or African-American alone	150,666 (19.23%)	31,585 (21.4%)	211 (12.5%)
American Indian and Alaska Native alone	2,731 (0.35%)	701 (0.5%)	4 (0.24%)
Asian alone	16,259 (2.07%)	3,209 (2.2%)	19 (1.12%)
Native Hawaiian and Pacific Islander alone	283 (0.04%)	84 (0.1%)	2 (0.12%)
Some Other Race alone	15,855 (2.02%)	4,047 (2.7%)	19 (1.12%)
Two or more Races	13,033 (1.66%)	4,198 (2.8%)	44 (2.60%)
Hispanic or Latino	37,613 (4.8%)	5,662 (3.8%)	58 (3.43%)
Notes: *Delaware Population Consortium 1. Census tract data from two census tracts included in Project Area. 2. Race/Ethnicity does not sum to the total number of persons in each tract because: <ul style="list-style-type: none"> • Hispanics can be of any race • Some Census participants may identify themselves with more than one race 			

Source: 2000 US Census

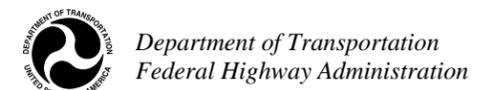
The eastern portion of the Project Area is contained within Census Tract 424 and the western portion in Census Tract 422.02. **Figure III-1** shows the Census Tracts and Block Groups that overlap the Project Area.

SR 1, Little Heaven
Grade Separated Intersection
Environmental Assessment



 Project Area
 Census Blocks

Figure III-1
Census Blocks



1. Neighborhoods and Communities

The Project Area is home to approximately 1,480 residents that reside in the area's 356 housing units. Most of those residents live within the five residential subdivisions of Barker's Landing, High Point, Tara, Bakers Choice and Ocean Drive Manor (shown on **Figure III-2**). Several residential subdivisions are proposed in close proximity to the Project Area.

Access to all of these subdivisions would be maintained either at their existing access points or at new safer, relocated access points. Each of the communities would benefit from safer access to SR 1 and across SR 1 via the grade separated intersection. No adverse impacts to this subdivision would result from implementing the Preferred Alternative.

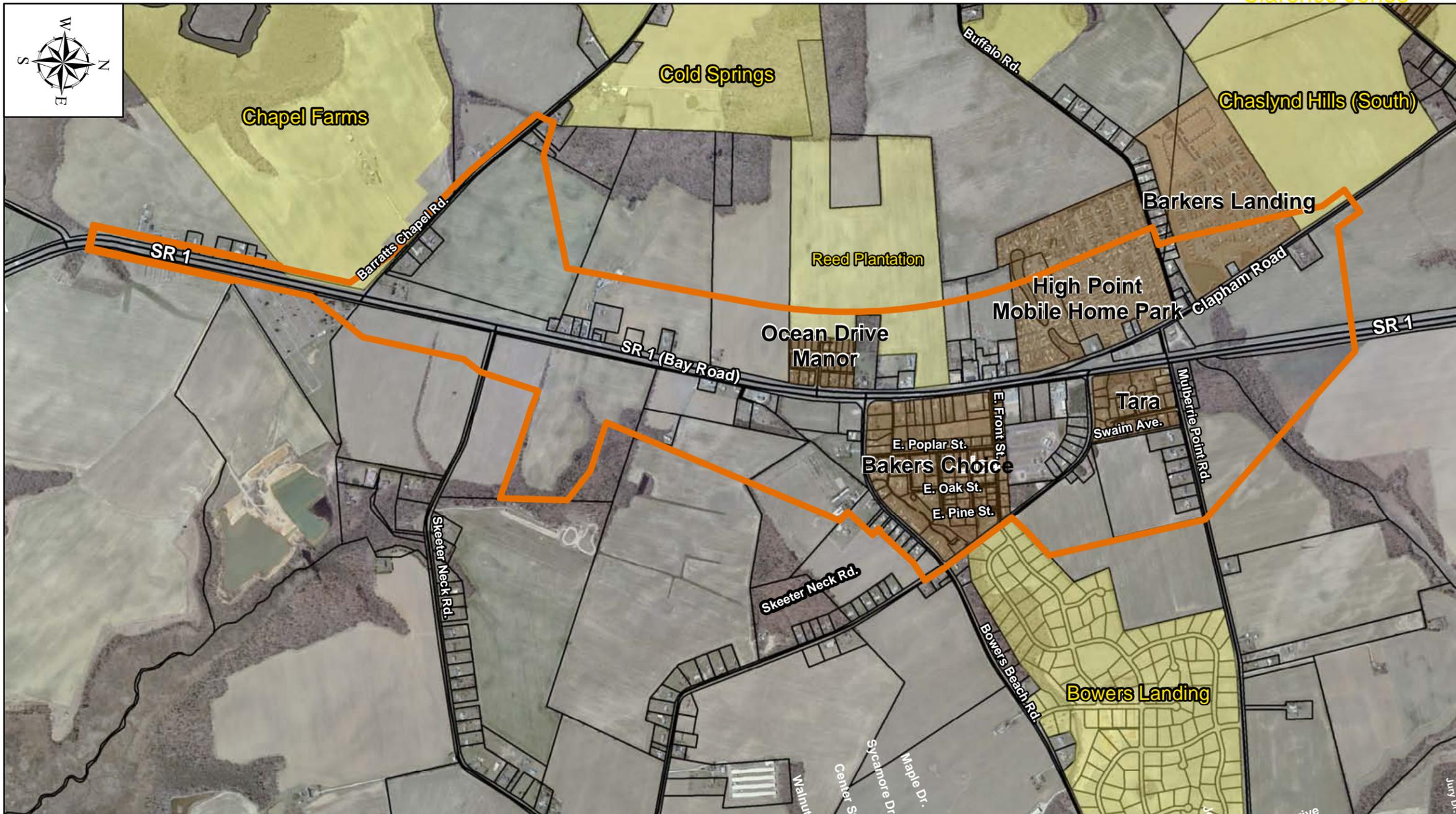
Barker's Landing is a medium-density residential subdivision composed of approximately 125 manufactured homes. It is located northwest of the intersection of Clapham Road and Buffalo Road. Jury Drive provides the sole access point onto Clapham Road.

The High Point subdivision is comprised of approximately 200 manufactured homes. It is located at the southwest quadrant of the intersection of Clapham Road and Buffalo Road to the south of the Barker's Landing subdivision. This community was identified as a potential Environmental Justice community. There are two existing access points to this community along southbound Clapham Road. One would be closed due to traffic safety issues. A new access point would be provided along Buffalo Road as a result of the implementing the Preferred Alternative. This new access point would result in a partial right-of-way acquisition and the relocation of two manufactured homes. No adverse impacts to this subdivision would result from implementing the Preferred Alternative.

The Tara subdivision consists of 18 single-family homes. It is located off of eastbound Mulberrie Point Road and is bordered by North Skeeter Neck Road to the south and to the east by a single-family residence fronting Mulberrie Point Road and an agricultural field. The Tara subdivision consists of two cul-de-sacs (Swaim Avenue and Blevins Street). The only access point to this neighborhood is at Swaim Avenue off Mulberrie Point Road. Two total acquisitions with residential relocations would result as part of the implementation of the Preferred Alternative in order for a new road connecting Mulberrie Point Road and the new east service road. The community would maintain its existing access point at Swaim Avenue and Mulberrie Point Road. Direct access to SR 1 would be removed. No adverse impacts to this subdivision would result from implementing the Preferred Alternative. The new access would be safer and would divert through traffic around the subdivision instead of in front of it.

The Bakers Choice subdivision is comprised of approximately 80 manufactured homes. It is bound by SR 1 to the West, East Front Street to the North and Skeeter Neck Road to the South and East. There are six total acquisitions with relocations in the subdivision that would result from the acquisition of right-of way.

The Ocean Drive Manor subdivision consists of 14 single-family homes, ten of which front southbound SR 1 to the north and south of Wilkins Avenue. The other four are located along the cul-de-sacs of Wilkins and Govans Avenues, which are cul-de-sacs where their only access is to SR 1. There are an additional 14 undeveloped subdivided parcels along the right-of-way for what would be a future extension of Govans Avenue.



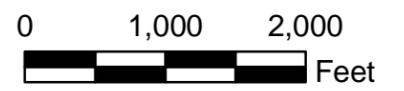
**SR 1, Little Heaven
Grade Separated Intersection
Environmental Assessment**

Project Area

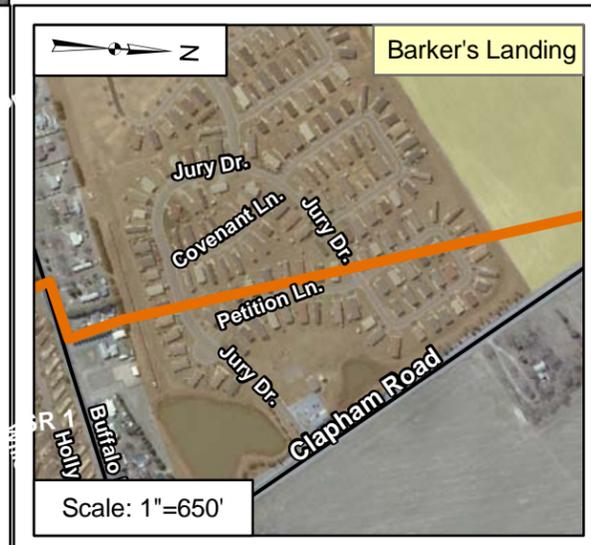
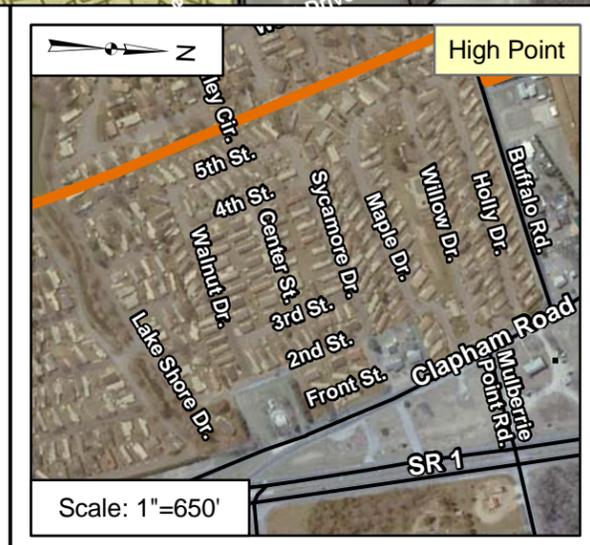
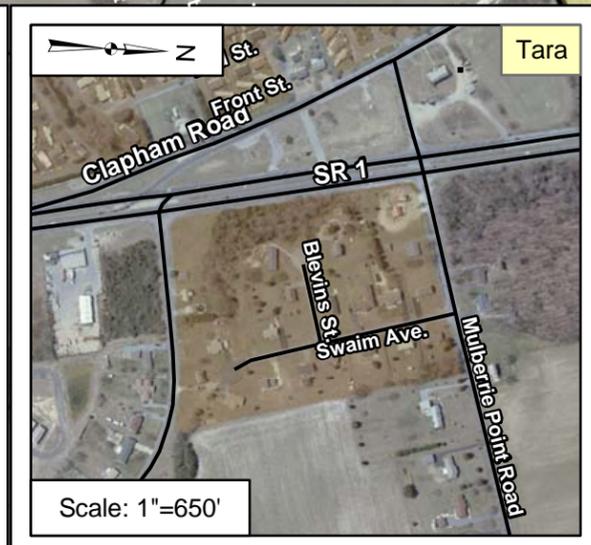
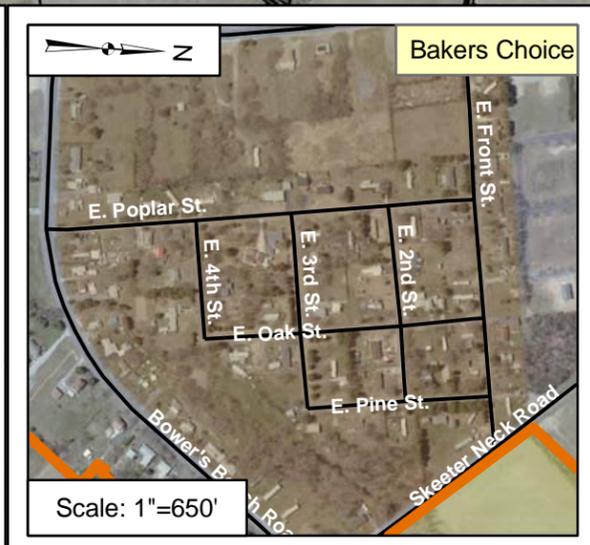
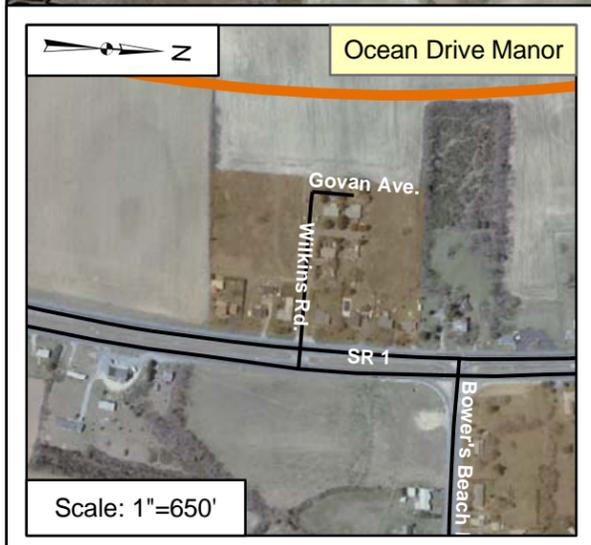
Neighborhood/Community

- Existing Subdivision
- Proposed Subdivision
- Property Boundaries

**Figure III-2
Neighborhoods and Communities**



Department of Transportation
Federal Highway Administration



2. Relocations

There are twelve parcels requiring relocation assistance and payments under Preferred Alternative C. Ten of the parcels would be total acquisitions and two would be partial acquisitions. Although some of the parcels have multiple uses they generally consist of seven of the twelve parcels being businesses and five of the twelve parcels consisting of residential uses.

Most of the businesses in the Project Area have access directly to SR 1. No impacts to residential or business properties are anticipated for the No-Build Alternative. Each of the build alternatives (Alternatives A, B, C, D, E and F) would require some right-of-way acquisitions and/or relocations of residences and businesses as shown in **Table III-2**.

All right-of-way acquisitions and relocations will be done in accordance with the requirements of the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970* as amended in 2000. According to the *Act* persons displaced by federally funded projects will be provided with relocation assistance and are to be treated fairly, consistently and equitably so that they will not suffer disproportionate impacts as a result of the project. Businesses and residential properties that currently have direct access to SR 1 would be provided with alternate access via the service roads in place of SR 1.

A project relocation plan was developed to address relocations. There is presently an ample supply of comparable or better replacement housing available and it would appear that an adequate supply of available housing will be available at the time of relocation as the area continues to maintain its current levels.

Table III-2: Properties Affected under Each of the Build Alternatives*

Potential Right of Way Impacts	Unit	Alternatives						
		No-build	A	B	C	D	E	F (1.81 miles)
Total of Properties Affected*	Number	0	56	52	72	35	38	42
Total Right-of-Way Acquisition	Acres	0	85.92	79.86	76.93	62.48	64.63	64.10
Residential/Agricultural	Acres	0	73.99	68.02	64.53	53.24	54.16	55.20
Business	Acres	0	11.93	11.84	12.40	9.24	10.46	9.52
Residential Relocations	Number	0	22	17	5	14	14	14
Business Relocations	Number	0	10	10	7	8	8	8

*Affected properties are any lots or tax parcels where encroachment of the project alternative may occur.
NOTE: The length of Alternatives A and B is approximately 1.42 miles. The length of Alternatives C is approximately 2.76 miles and the length of Alternatives D through F is approximately 1.95 miles.

3. Environmental Justice Communities

Executive Order (EO) 12898 *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations* was signed on February 11, 1994. The EO requires the assessment of disproportionately high adverse human health and environmental impacts on minority and low-income populations resulting from proposed federal actions.

EO 12898 requires that every project using federal aid develop its own unique public outreach program that specifically addresses the individual community needs within that Project Area. The public outreach program utilized during the project development of these improvement alternatives was previously discussed in *Chapter II. A. Project History and Public Involvement*. Several meetings provided public outreach opportunities to individuals in the Project Area and allowed them to provide meaningful input and comments that were taken into consideration the alternatives development, the selection of Preferred Alternative C and the refinements made to

the preferred alternative as it progressed through the design. Based on the information provided in this section no adverse impacts are anticipated based on the implementation of the preferred alternative because it provides safe and efficient access to these communities.

a. Low Income Population

EO 12898 adds low income populations to the list of populations which should be investigated to ensure that they are not excluded from the benefits of the project, or subject to discrimination caused by federal programs, policies and activities. The EO identifies *low-income persons* as individuals whose median household income is at or below the Department of Health and Human Services (DHHS) poverty guidelines. The poverty guidelines issued by the DHHS are abstracted from the original poverty thresholds and are updated each year by the United States Census Bureau. Despite being several years old, the 2000 U.S. Census provides the only complete data at the Census block group level for individuals at or below the poverty level.

Based on the 2000 U.S. Census, about 8.10% of families and 10.70% of the population of Kent County were below the poverty level. As shown in **Table III-3** persons below the poverty level are greatest in Block Group 1 of Census Tract 422.02, where 168 or 9% of individuals in that Block Group are below the level and Block Group 3 of Census Tract 424 where 125 or 12% are below the poverty level. In Block Group 2 of Census Tract 422.02, eight percent, or 95 persons were below the poverty line.

Table III-3: Project Area Census Block Groups by Number of Persons at or Below the Poverty Level

Census Tract/Block Group	Persons at or Below the Poverty Level	
	Number	Percent of Census Block
Tract 422.02/Block Group 1	168	9%
Tract 424/Block Group 3	125	12%
Tract 422.02/Block Group 2	95	8%
Block Group Totals:	388	13%

Source: Year 2000 U.S. Census

b. Minority Population

The EO reaffirms the provisions of Title VI of the Civil Rights Act of 1964 and related statutes. Title VI requires federal agencies to ensure that their programs, policies and activities do not have the effect of excluding populations from the benefits of the project, or subjecting persons or populations to discrimination based on race, color, or national origin.

The EO identifies *minority persons* as a person who is African American (a person having origins in any of the black racial groups of Africa); Hispanic (a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture origin, regardless of race); Asian American (a person having origins in any of the original peoples of the Far East, South East, the Indian subcontinent, or the Pacific Islands); American Indian and Alaskan Native (a person having origins in any of the original people of North America and who maintains cultural identification through tribal affiliation or community recognition).

Table III-4 summarizes the race, ethnicity and minority population for each of the 26 Census Blocks that overlap the Project Area and ranks them in order by minority population which coincides with the mapping on **Figure III-3**.

Twenty-one percent or 314 individuals of the total 1,480 population in the Census Blocks that overlap the Project Area are minorities. Based on the analysis, the two communities of High Point and Baker’s Choice were identified as potential Environmental Justice communities.

Table III-4: Project Area Census Block Groups Ranked by Total Minority Population

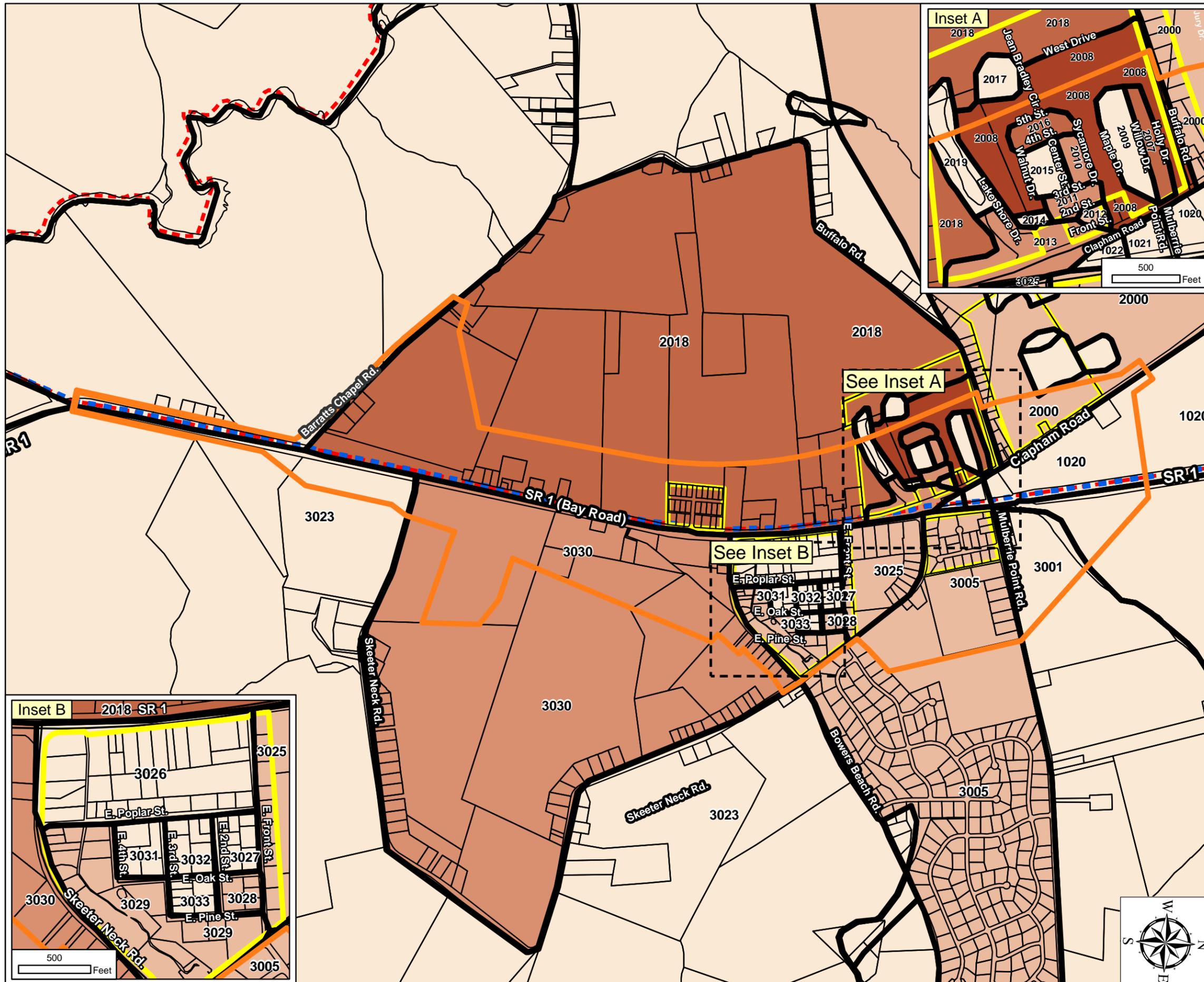
Geography		Race							Ethnicity	Totals		
Census Tract	Census Block	White alone	Black or African American alone	American Indian or Alaska Native alone	Asian alone	Native Hawaiian or Pacific Islander alone	Other Race alone	Two or More Races	Hispanic or Latino	Total Population	**Minority Population	Percent Minority
422.0	2008	236	60	--	7	--	13	7	23	323	110	34%
422.0	2000	176	40	--	--	--	--	4	4	220	48	22%
422.0	2018	273	14	3	--	--	--	11	4	301	32	11%
422.0	2007	46	15	1	4	--	--	6	--	72	26	36%
422.0	2010	21	8	--	2	--	2	2	8	35	22	63%
424	3030	161	11	--	--	--	2	4	3	178	20	11%
422.0	2011	30	8	--	1	--	--	--	7	39	16	41%
422.0	2013	36	14	--	1	--	--	1	--	52	16	31%
422.0	2016	21	6	--	--	2	--	--	6	29	14	48%
424	3005	60	10	--	--	--	--	1	--	71	11	15%
422.0	2012	20	2	--	--	--	--	8	--	30	10	33%
424	3025	41	9	--	--	--	--	--	--	50	9	18%
424	3023	37	7	--	--	--	--	--	--	44	7	16%
424	3028	8	2	--	--	--	2	--	2	12	6	50%
424	3029	60	4	--	--	--	--	--	1	64	5	8%
422.0	2009	42	--	--	2	--	--	--	--	44	2	5%
424	3001	19	--	--	2	--	--	--	--	21	2	10%
424	3026	41	1	--	--	--	--	--	--	42	1	2%
422.0	1020	5	--	--	--	--	--	--	--	5	--	>1%
422.0	2014	9	--	--	--	--	--	--	--	9	--	>1%
422.0	2015	0	--	--	--	--	--	--	--	0	--	>1%
422.0	2019	0	--	--	--	--	--	--	--	0	--	>1%
424	3027	12	--	--	--	--	--	--	--	12	--	>1%
424	3031	10	--	--	--	--	--	--	--	10	--	>1%
424	3032	21	--	--	--	--	--	--	--	21	--	>1%
424	3033	5	--	--	--	--	--	--	--	5	--	>1%
TOTALS:		1,390	211	4	19	2	19	44	58*	1,689*	357*	21%

Notes: Lighter gray shading on table is provided to make totals for each census block group more visually discernable among other records which have no totals.

*Hispanics may be of any race and people may consider themselves of multiple races and therefore summing the Hispanic or Latino and Minority populations may be greater than the actual minority population.

**Minority Population is the sum of minority race and Hispanic or Latino persons.

**SR 1, Little Heaven
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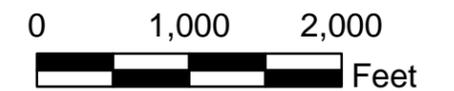


- Project Area
- Census Blocks
- Census Tract 422.02
- Census Tract 424
- Existing Communities

Minority Population

- 0 - 2
- 3 - 12
- 13 - 22
- 23 - 33
- 34 - 110

Figure III-3
Environmental Justice



Department of Transportation
Federal Highway Administration

The High Point subdivision had the greatest concentration of minority population within the Project Area. It is contained within Census Tract 422.02 and the census blocks shown in **Table III-5**, which consist of 248 minority individuals, or 79% of the minority population within the Project Area living in that community. Census Block 2017 is not within the Project Area. Two residences would need to be relocated in order to add an entrance along Buffalo Road. No adverse impacts are anticipated based on these access improvements.

Table III-5: High Point Community Census Block Groups

Geography			Race							Ethnicity		Totals	
Rank	Census Tract	Census Block	White	Black or African American	American Indian and Alaska Native	Asian	Native Hawaiian and Pacific Islander	Other Race	Two or more Races	*Hispanic	**Minority	Population	Percent Minority
1	422.02	2008	236	60	--	7	--	13	7	23	110	323	35%
2	422.02	2018	273	14	3	--	--	--	11	4	32	301	10%
3	422.02	2007	46	15	1	4	--	--	6	--	26	72	8%
4	422.02	2010	21	8	--	2	--	2	2	8	22	35	7%
6	422.02	2013	36	14	--	1	--	--	1	--	16	52	5%
7	422.02	2011	30	8	--	1	--	--	--	7	16	39	5%
8	422.02	2016	21	6	--	--	2	--	--	6	14	29	4%
11	422.02	2012	20	2	--	--	--	--	8	--	10	30	3%
15	422.02	2009	42	--	--	2	--	--	--	--	2	44	1%
21	422.02	2014	9	--	--	--	--	--	--	--	--	9	>1%
25	422.02	2015	--	--	--	--	--	--	--	--	--	--	--
26	422.02	2019	--	--	--	--	--	--	--	--	--	--	--
Totals:			734	127	4	17	2	15	35	48	248	934	79%

Notes: Lighter gray shading in the table is provided to make totals for each census block group more visually discernable among other records which have no totals.

*Hispanics may be of any race and people may consider themselves of multiple races.

**Minority Population is the sum of minority race and Hispanic or Latino persons.

4. Land Use/Land Cover

a. Existing Land Use/Land Cover

The SR 1, Little Heaven Project Area is dominated primarily by agricultural and residential land uses with commercial land uses adjacent to SR 1, as shown in **Figure III-4**. Residential land use occurs throughout the Project Area. The neighborhoods and communities are discussed in Section III.5. There are approximately 259 land parcels totaling 153,876 acres with at least a portion of them overlapping the Project Area boundary. Of the 259 total parcels 193 of them are in residential uses, 50 are agricultural uses and 16 are business uses. **Table III-6** shows the acreage and percentage of each land use present within the Project Area.

Table III-6: Existing Land Use/Land Cover in the Project Area

Land Use/Land Cover	Acres (approximate)	Percent of Total
Residential	217	33%
Commercial	19	3%
Agricultural	346	53%
Forests	10	2%
Shrub/Brush Rangeland	8	1%
Recreational	2	0%
Wetlands	8	1%
Water	2	0%
Public Roads	47	7%
Total:	659	100%

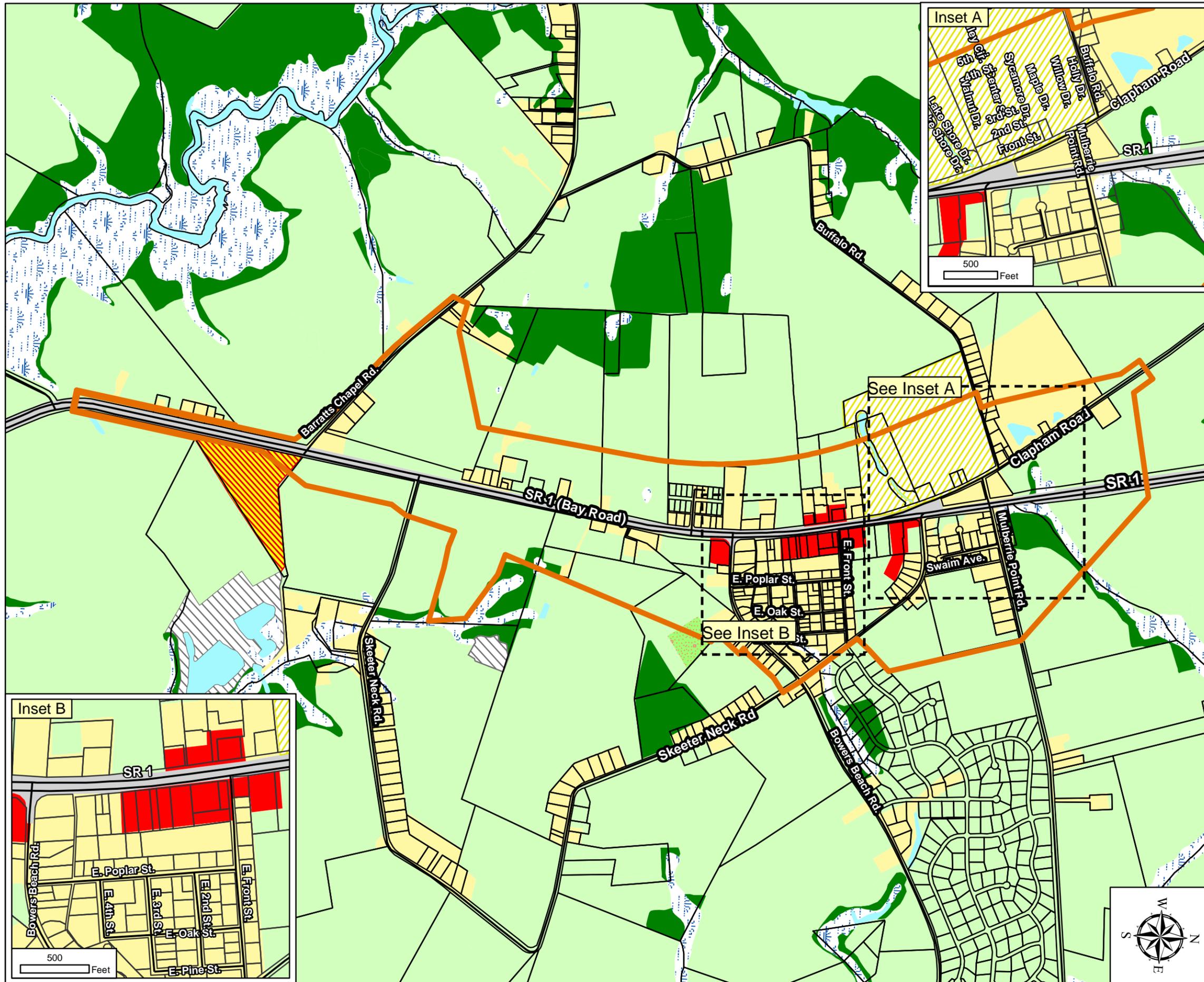
b. Future Land Use/Land Cover

Some changes will occur at the parcel-level for the purchase of right-of-way for the improvements, however generally, future land use will not be affected in the Project Area. Future land use within the Project Area will be primarily influenced by the recommendations of existing master plans and zoning ordinances. With the implementation of the build alternatives an alternative future land use may need to be developed based on the changes to access to SR 1. Several new developments are proposed in the vicinity of the study area. Based on current zoning and development practices, land use within the Project Area is expected to become more urban, particularly in the area designated for growth west of SR 1. Future land uses, proposed development and the LDI Investment Level Areas are shown in **Table III-7** and on **Figure III-5**.

Table III-7: Future Land Use/Land Cover in the Project Area

Land Use/Land Cover	Acres (approximate)	Percent of Total
Neighborhood Business	46	7%
Multi-Family	7	1%
Single Family	3	0.5%
Residential Manufactured Home	119	18%
Agricultural Residential	66	10%
Agricultural Conservation	272	41%
Agricultural Preservation District	57	9%
Area of Roads	89	13.5%
Total:	659	100%

**SR 1, Little Heaven
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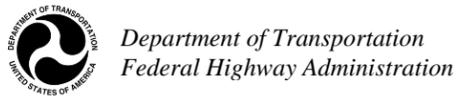


Legend

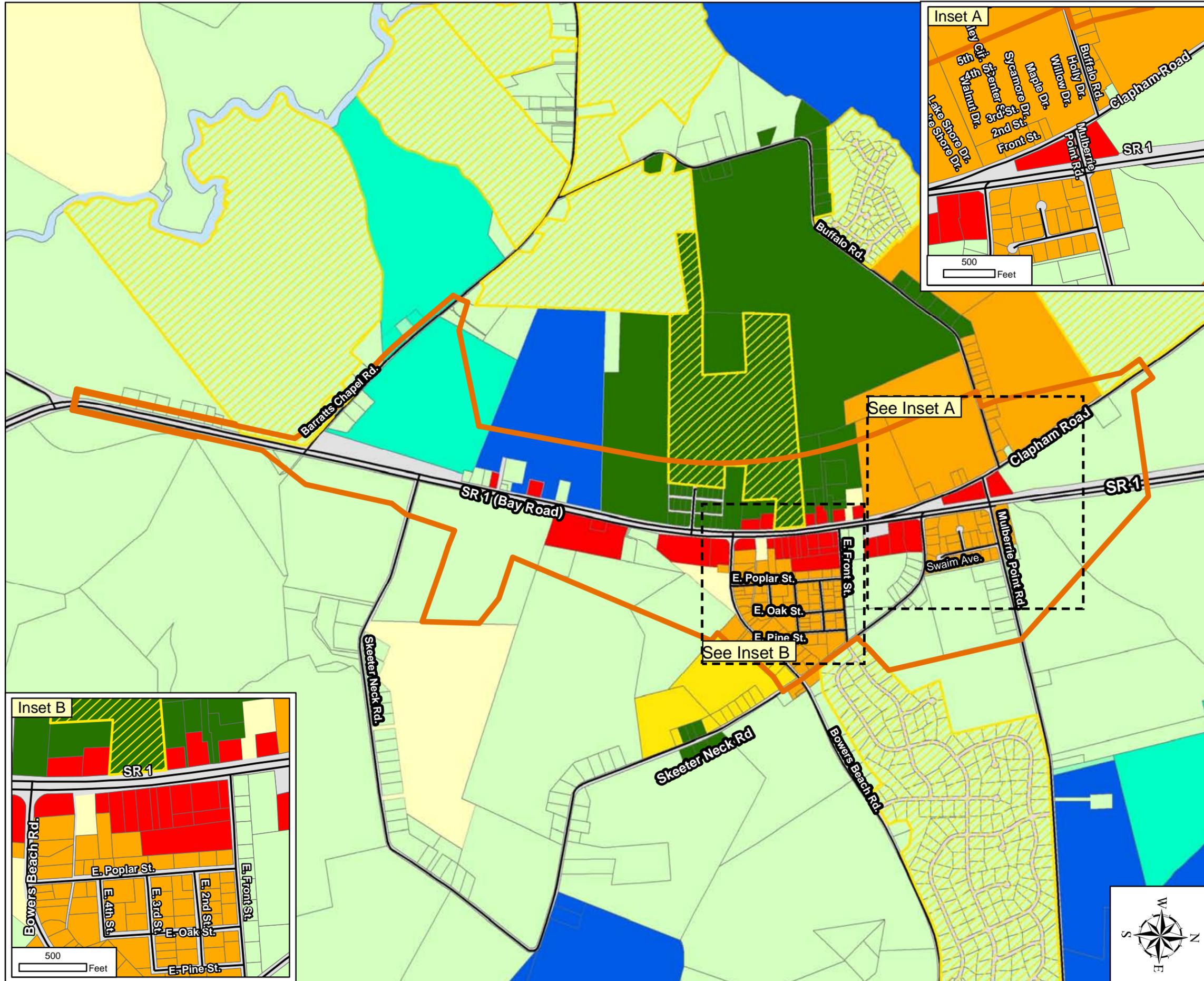
- Project Area
- Single Family Residential
- Multi-Family Residential
- Mobile Home Parks
- Retail
- Other Commercial
- Industrial
- Transportation/Communication
- Utilities
- Urban/Built-up
- Institutional/Gov't
- Agricultural
- Recreational
- Forestland
- Clear Cut
- Water
- Wetlands
- Beach/River Bank/Sandy Areas
- Extraction
- Transition

Source: Delaware Office of State Planning Coordination, 2002

**Figure III-4
Existing Land Use**



**SR 1, Little Heaven
Grade Separated Intersection
Environmental Assessment**



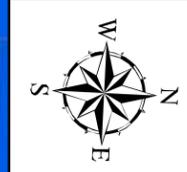
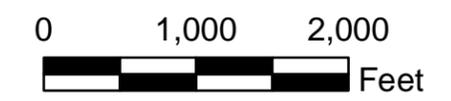
Legend

- Project Area
 - Proposed Major Subdivision
 - Right of Way
- *Kent County Zoning Code**
- Neighborhood Business (No maximum density)
 - Multi-family Residential
 - Single Family Residential (3.5 units/1 acre)
 - Residential Manufactured Home
 - 2 units/1 acre (growth zone major subdivision);
 - 1 unit/1 acre (outside growth zone major subdivision);
 - 4 one acre (minimum) units with a remainder of 1 unit per 10 acres (minimum) (minor subdivision);
 - 2 units/1 acre single family) or (5 units/1 acre in Manufactured home subdivision)
 - Agricultural Conservation
 - 1 unit/1 acre (major subdivision);
 - 4 one acre (minimum) units with a remainder of 1 unit per 10 acres minimum (minor subdivision);
 - 3 units/1 acre (on central sewer and water)
 - Agricultural Residential (AR)
 - 3 units/1 acre (on central sewer and water)
 - Agricultural Preservation Overlay District
 - Agricultural Preservation District with Purchased Development Rights

Source: Delaware Office of State Planning Coordination, 2002

*NOTE: Only zoning represented within the mapped area are shown in the legend.

**Figure III-5
Future Land Use**



Department of Transportation
Federal Highway Administration

c. Livable Delaware Initiative

On March 28, 2001, Governor Minner signed an EO formalizing the LDI. The LDI is a State strategy for directing future growth to areas with existing or planned infrastructure in order to curb sprawl and to preserve agricultural lands and open space throughout the state and target development in and around established communities. **Figure III-6** shows that LDI Investment Level Areas 2, 3 and 4 are located in the Project Area. The Investment Levels are as follows:

Investment Level 1 Areas:

- are often municipalities, census designated places, etc.
- may be an area with a density generally higher than in surrounding areas
- may have a variety of transportation opportunities available
- may have mixed building uses
- may be characterized as having a sense of place, character and shared identity
- may be considered as Transfer of Development Rights (TDR) receiving areas

Investment Level 2 Areas:

- may be less developed areas within municipalities
- may be rapidly growing areas in the counties that have or will have public water and wastewater services
- may be considered as TDR receiving areas
- may be generally adjacent to or near Investment Level 1 Areas

Investment Level 3 Areas:

- may be areas susceptible to leapfrog development that is not contiguous with existing infrastructure
- may be high priority agricultural lands directly adjacent to natural areas
- may be environmentally sensitive areas adjacent pro-development areas
- may be areas that are experiencing some development pressure
- may be areas with existing but disconnected development
- may be areas planned for long term growth, but where development within the next five years may not represent proper and efficient phasing of development
- may be considered as TDR sending or receiving areas

Investment Level 4 Areas:

- Areas where development is not currently preferred and where the State will make investments that will help preserve a rural character, such as investments to promote open space and agriculture.

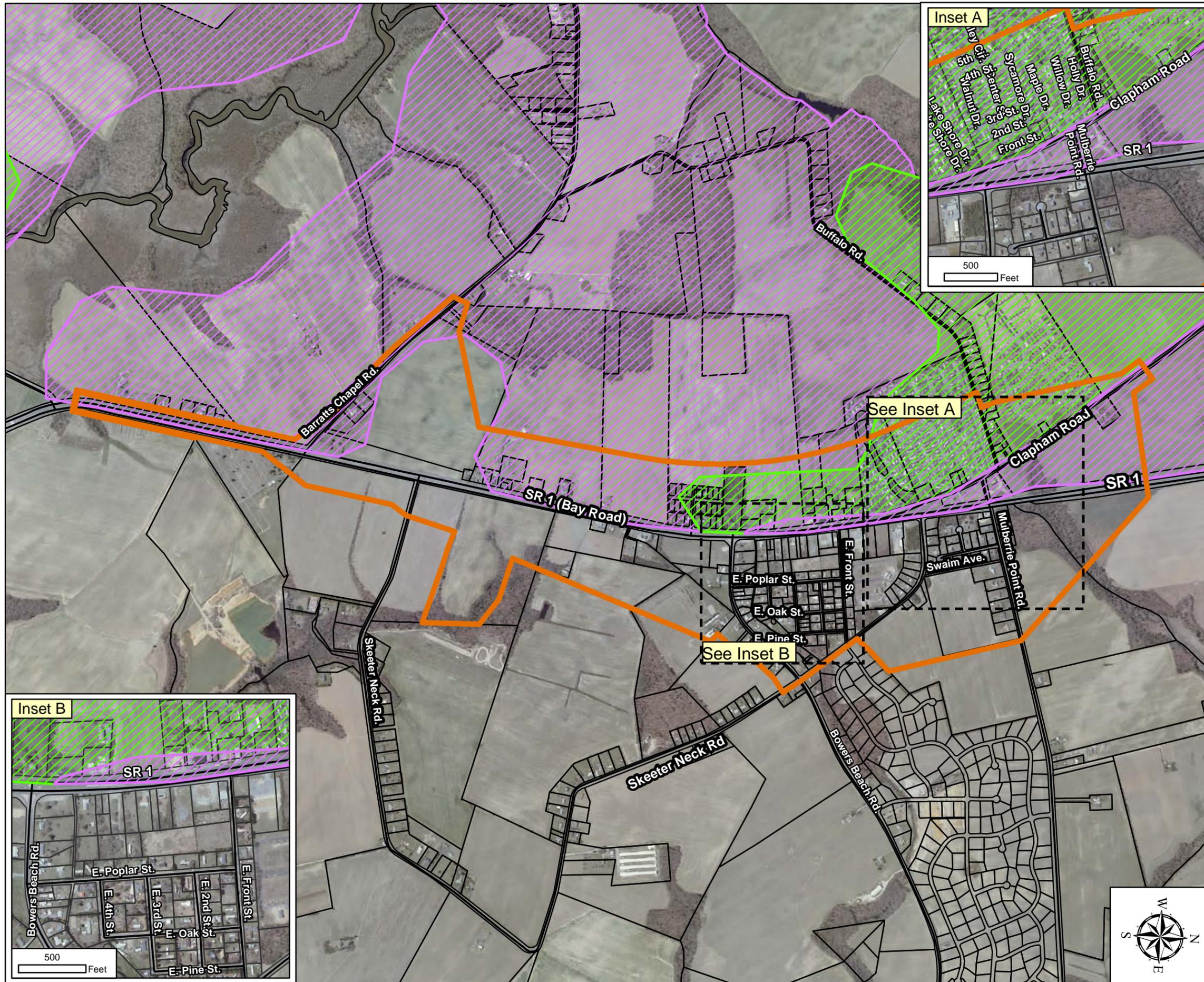
Out-of-Play Areas:

- Lands that generally cannot be developed for reasons that might include: they are Federal-owned or State-owned protected parkland, their development rights have been purchased, State or local regulations prohibit development on them.

d. Land use/Land Cover Impacts

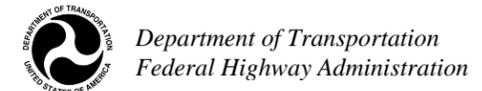
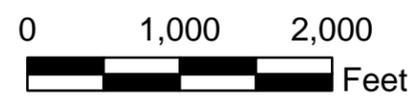
There are no plans for future development that would be impacted by the No-Build Alternative. The build alternatives would convert developed (either residential or commercial) and agricultural land to transportation land use, however the project is not anticipated to adversely impact existing or future planned land use.

SR 1, Little Heaven
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-  Project Area
-  Investment Level 1
-  Investment Level 2
-  Investment Level 3
-  Investment Level 4 (no shading)

Figure III-6
Livable Delaware



5. Agricultural Preservation

Delaware Agricultural Preservation District (APD) are established under the Delaware Agricultural Lands Preservation Program to preserve agricultural lands in Delaware from being re-zoned to any use other than agricultural and primary residential use of the owner of the property and those lands shall not be subject to any major subdivision. This is a voluntary incentive program that allows eligible landowners to receive tax benefits, right-to-farm protection and an opportunity to sell their preservation rights to the State that keeps the land free from development permanently through a process known as Purchase of Development Rights (PDR), if the property qualifies.

The connection between SR 1 and the Barratt's Chapel Road proposed under Alternatives C, D, E and F would impact a portion of the Somy Expansion of the Miller APD which is located north of Barratt's Chapel Road, west of SR 1 as shown in **Figure III-7** on page III-16. The Preferred Alternative will not contribute to the development of this land because the APD designation for the unused portion still designates only agricultural or agricultural-related land uses for the property.

6. Community Institutions, Facilities and Services

A variety of community institutions, facilities and services exist in and around the Project Area as shown on **Figure III-8** on page III-17 and as discussed in the sections below. The improvements will have a benefit to the public because they provide improved travel time to these facilities by eliminating existing traffic signals along SR 1 in the Project Area. The Project also improves access to and from SR 1 from side streets. The project replaces existing bus stops where needed and provides sidewalks at pedestrian locations.

a. Schools and Libraries

There are no schools or libraries located within the Project Area boundary, however the Preferred Alternative will allow for safer school bus routes throughout the community and will provide sidewalks at various locations. The preferred alternative separates the north/south SR1 through traffic from the local traffic.

b. Churches and Cemeteries

The Mount Olive Church, located east of the proposed roadway improvements on Skeeter Neck Road and Barratt's Chapel and Cemetery are located in the Project Area. No right-of-way would be acquired from either facility. Trees would be planted as part of the Preferred Alternative to provide screening of SR 1 from the Barratt's Chapel. A commemorative bell in the right-of-way adjacent to northbound SR 1 will be relocated onto the Chapel's property. No impacts to either property would result from the implementation of the Preferred Alternative. The Preferred Alternative will also improve access to Barratt's Chapel by increasing the shoulder width prior to the entrance to the Cemetery.

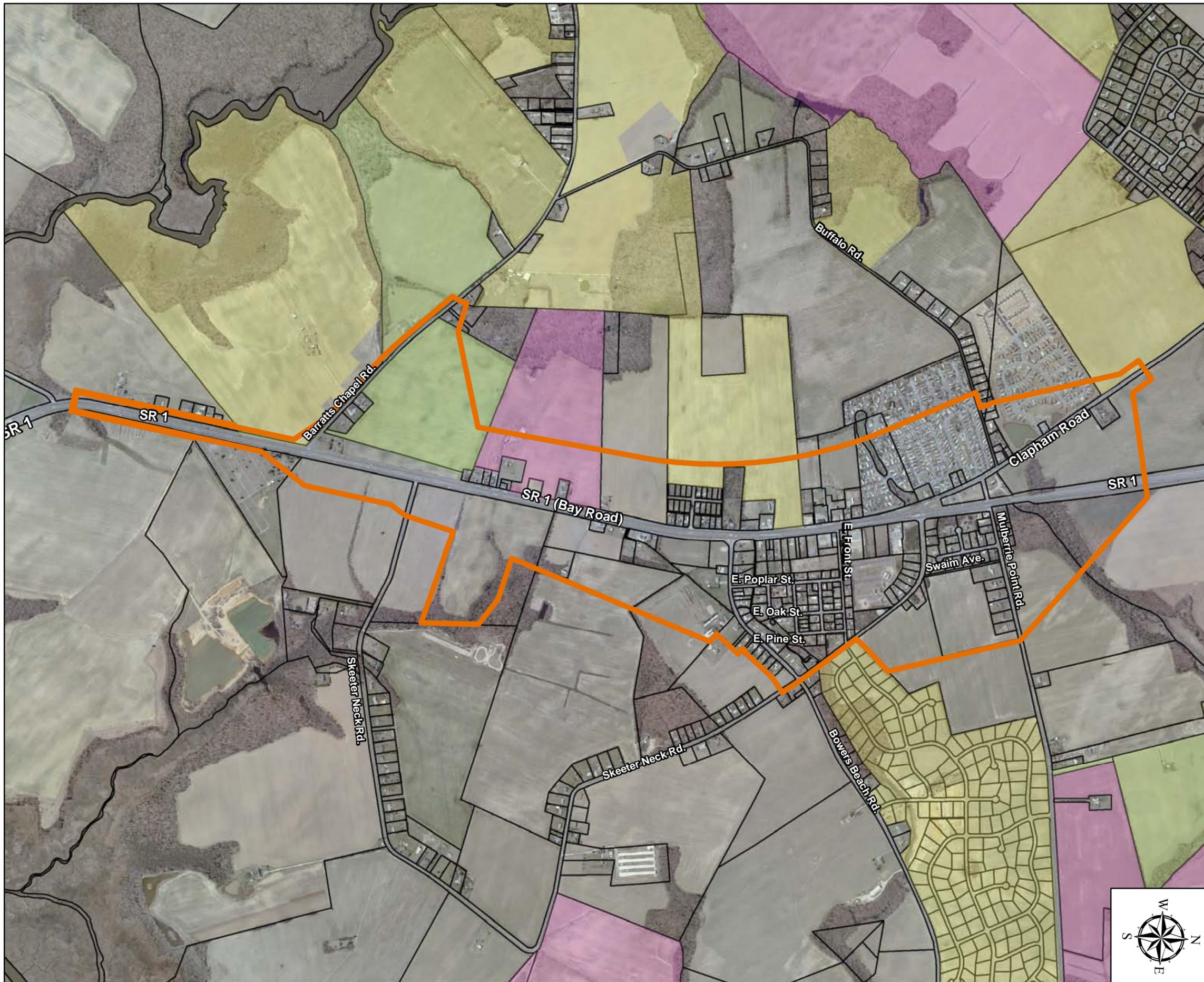
c. Parklands and Recreational Facilities

There are no parklands or recreational facilities located within the Project Area.

d. Health Care Facilities

There are no health care facilities located within the Project Area. The nearest hospital is Milford Memorial Hospital, located in Milford and Kent General Hospital in Dover.

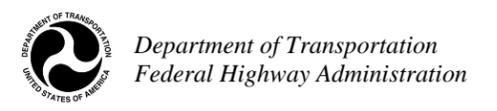
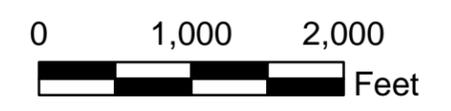
**SR 1, Little Heaven
Grade Separated Intersection
Environmental Assessment**

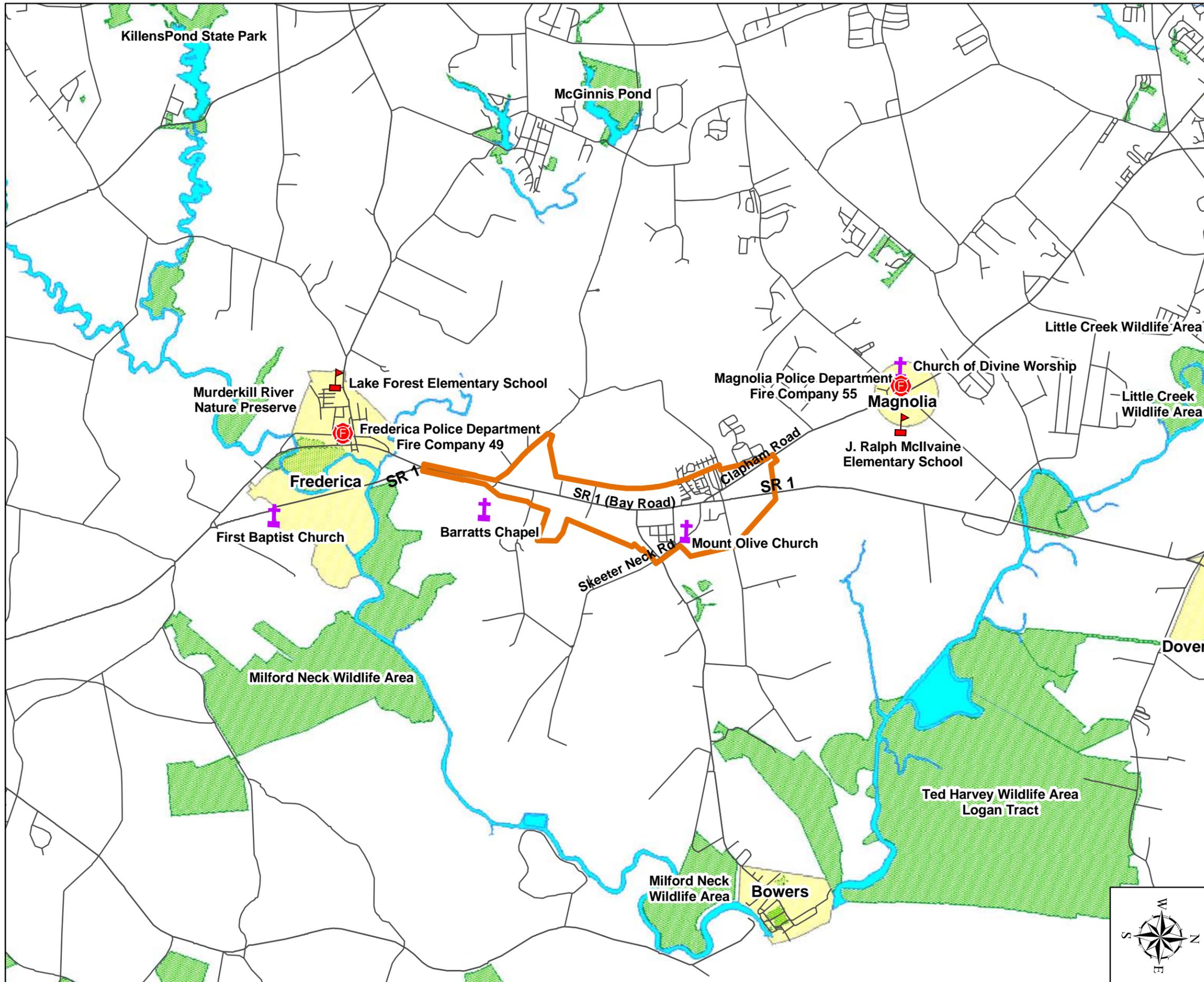


Legend

-  Project Area
-  Proposed Subdivisions
-  Development Right Purchased
-  State Agricultural Preservation District

**Figure III-7
Agricultural Preservation**

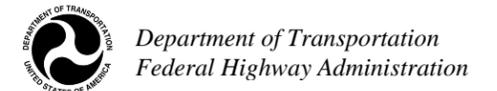
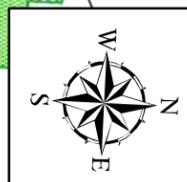
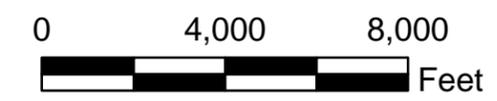




**SR 1, Little Heaven
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-  Project Area
-  Schools
-  Libraries
-  Cemeteries
-  Churches
-  Fire and Police
-  Parkland/Open-Space
-  Water
-  Municipalities

**Figure III-8
Community Facilities**



e. Emergency Services and Law Enforcement

Three (3) fire districts are located around the Project Area: Magnolia, to the north (Fire Company 55); Bower's Beach, to the east (Fire Company 40); and Frederica, to the south (Fire Company 49). All three of these fire districts converge in the Project Area. Additionally, Frederica and Bower's Beach share an ambulance service. Both Magnolia and Frederica police departments respond to the Project Area. It should be noted that the Preferred Alternative has been refined based on comments received from the various emergency services agencies and the Project Area and they concur with the Preferred Alternative which are are beneficial to provide better travel times for emergency and law enforcement to destinations in the Project Area.

f. Public Utilities

There are existing electric and communications utilities throughout the project limits that would be relocated under the build alternatives. A cell phone tower is located near the intersection of SR 1 and Mulberrie Point Road. There is no impact to the cell phone tower under any of the build alternatives. The water supply to portions of the area is supplied by Artesian Water Company, Inc. There are no anticipated impacts to the water infrastructure supplying water to the residents.

g. Independent Utilities

There are existing electric and communications utilities throughout the project limits that would be relocated as part of the project. A cell phone tower is located near the intersection of SR 1 and Mulberrie Point Road. There is no impact to the cell phone tower under any of the build alternatives. The water supply to portions of the area is supplied by Artesian Water Company, Inc. There are no anticipated impacts to the water infrastructure supplying water to the residents.

h. Multi-modal Transportation Facilities and Services

In Kent County, local bus transit is only available in the Dover area, with some intercity services between Dover and points to the north and southeast. The DART First State intercity transit operation provides Kent County service with stops in Smyrna, Dover, Milford, Harrington and in the Project Area, in Little Heaven. The preferred alternative upgrades the existing DART bus stops and includes sidewalk along Clapham Road from Buffalo Road to Bowers Beach Road.

Paratransit and special transit services are available throughout Kent County for elderly and disabled residents. DART First State Paratransit provides door-to-door shuttle service for residents aged 60 years or older who are physically or mentally disabled. The Senior Citizen Affordable Taxi (SCAT) offers 50% discounted taxi services to senior citizens and disabled persons. In Kent County, City Cab of Dover and Watkins Cab of Milford provide these services.

Kent County offers facilities and services to promote ridesharing, which includes Park-and-Ride lots and a Statewide Employees Vanpool Program. The average usage of the Park-and-Ride lots is approximately 20 vehicles per weekday. These lots are mostly located within a few miles of downtown Dover and therefore may not be well utilized by residents of the Project Area. There are no Park-and-Ride lots located in the Project Area.

Kent County has seven public aviation facilities, the biggest of which is located at the DAFB. The DAFB permits limited public use at a civil terminal, the Central Delaware Commuter Air Facility. Approved flights may use the facilities at DAFB in limited numbers (not to exceed 37 flights per day and 13,500 per year). Flights in excess of 37 per day are permitted only on NASCAR race days. None of the other public aviation facilities are located within or adjacent to the Project Area.

B. Cultural Resources

1. Methodology

Architectural surveys and evaluations and Phase IA and Phase IB Archaeological Surveys were performed in accordance with Section 101(b) (4) of the NEPA; Section 1 (3) and 2 (b) of *Executive Order 11593*; Section 106 of the *National Historic Preservation Act of 1966, as amended in 1999*; 23 CFR 771; the guidelines developed by the Advisory Council on Historic Preservation (November 26, 1980) and currently being revised; and the amended “Procedure for the Protection of Historic and Cultural Properties,” as set forth in 36 CFR 800 (1991). These statutes and regulations requires that the effect of any federally assisted undertaking on historically significant buildings, structures, objects or sites be taken into account during the project planning process. Significant sites are those listed in or eligible for listing in the National Register of Historic Places (National Register). All survey and evaluations were also undertaken in accordance with the DE SHPO Guidelines for Architectural and Archaeological Surveys in the State of Delaware (1993).

The methodology used for the Phase IA and Phase IB archaeological surveys and the historic architectural identification and evaluation included background research, field surveys and report preparation. The background research included examination of the National Register files, survey reports and maps related to the Delaware Register of Historic Places and National Register and cultural resource surveys and historic site surveys at the DE SHPO. Individual property research was conducted at the Kent County Courthouse in Dover, Delaware and references to archival materials were obtained from the University of Delaware Library. Other repositories visited for property-specific research included the Hagley Eleutherian Mills Museum and Library in Wilmington, Delaware and the Delaware State Archives in Dover, Delaware.

Based on plan concepts of the Preferred Alternative C, an overall Area of Potential Effect (APE) was later established and confirmed for both archaeological and architectural studies to identify historic and archaeological properties that may be involved with the project. For the purposes of Section 106 and NEPA compliance, the project APE is defined as “the geographic area within which an undertaking may cause changes in the character or use of historic properties, if any such properties exist and included resources directly or indirectly impacted by project activities, including acquisition of property, property easements and/or visual and audible effects” (36 CFR Part 800: Protection of Historic Properties).

2. Archaeological Resources

For archaeological resources, a Phase IA Survey was used to assess prehistoric and historic archaeological sensitivity of the APE to archaeological deposits based on the *potential* for archaeological sites to exist or to have been formed in a given area and the *sensitivity* of that area for intact cultural resources. In areas where no sites were documented, the potential presence of prehistoric resources was based primarily on environmental setting – topography, proximity to water and soil quality. The potential presence of historic resources was determined through documentary research. The potential for prehistoric or historic cultural resources to exist in a given area was measured on an ordinal scale as low, moderate, or high. The archaeological potential of 19 parcels was assessed between the years 2007 and 2008.

A Phase IB survey was conducted in 2004/2005 within the initial Archaeology APE. A Phase IB Archaeology Survey Management Summary (Emory 2005) was prepared in 2005 documenting the results of the survey. An addendum to the 2005 Phase IB report was prepared in February 2008. A Phase IB Management Summary that overviews the findings in the surveys that were

conducted in the summer and autumn of 2008 and in the winter of 2008-2009 were submitted to DelDOT in March 2009. A Comprehensive Phase IB Archaeological Survey Report was completed in 2009.

A Phase IB Archaeological Survey of the SR 1, Little Heaven Grade Separated Intersection project was ultimately completed in 2009. Parcels 1-7 have been surveyed; this work took the form of a Phase IB Survey Management Summary Report (Emory 2005) and a Phase IB Addendum report (Lenert 2008). Parcels 8, 10, 12, 14, 16-20 and 23-26 were surveyed in mid-to-late 2008 and early 2009. This work is reported in a Phase IB Management Summary Report (March 2009) and in the Comprehensive Phase IB Archaeological Report (May 2009). The remaining parcels (9, 11, 13, 15, 21-22) constitute areas that were dismissed as a result in changes to the construction plans or were not tested because in consultation with DelDOT Archaeology staff and DE SHPO they were determined to contain no-to-low potential for containing historic or prehistoric archaeological resources.

The current archaeological studies and coordination with the DE SHPO are based on the proposed limits of construction for the Preferred Alternative C. This also includes all areas of stormwater management and wetland mitigation. To date, the archaeological studies consists of 26 parcels containing areas of low, moderate and high potential for prehistoric and historic archaeological resources as listed in **Table III-8**. The historic properties and archaeological sites depicted in **Figure III-9** are listed in **Table III-9**.

a. Impacts to Archaeological Resources

The Comprehensive Phase IB Archaeological Report presents the findings in each of the 26 parcels and the details of the recommendations for additional archaeological investigations. Recommendations for further work were based on finding artifact concentrations that suggest the presence of historic or pre-contact archaeological sites. Specifically, potential archaeological sites have been identified in nine parcels: Parcels 1, 2 (three separate sub-parcels), 5, 7, 18, 25 and 26. The additional work would allow archaeologists to better characterize the nature and integrity of the archaeological deposits, prior to being disturbed by the transportation improvements. DelDOT and DE SHPO will determine the need for any additional investigations.

Provisions for additional archaeological investigations are better prescribed in the Memorandum of Agreement (MOA) can be found in **Appendix A**. The MOA between the FHWA, DelDOT, and the State Historic Preservation Office (SHPO) outlines final steps to be taken to complete the Section 106 consultation process with regards to archaeological sites and disposition of any excess property in the future. Ultimately, archaeological data recovery, public outreach, preservation in place, consulting party protocol with the Native American Federally Recognized Tribes, and other mitigation measures are discussed and administered under the MOA.

Table III-8: Potential Prehistoric and Historic Archaeological Resources in the APE

Parcel Designation	Project APE (Acre)	Archaeological Resource Potential	
		Prehistoric	Historic
1	11.9	L	M to H
2	27.3	M	M to H
3 and 4	9.7	L	M
5	3.3	L	M to H
6	2.8	M	M to H
7	4.9	H	H
8	5.0	H	L
9	5.0	H	L
10	1.1	L	H
11	0.4	L	L
12	7.4	H	H
13	3.4	L	L
14	3.0	H	L
15	5.8	L	L
16	1.7	H	L
17	4.3	L	L
18	63.8	H	H
19	1.4	H	H
20	2.6	H	H
21	6.0	H	H
22	6.0	H	L
23	2.0	L	H
24	1.2	L	M to H
25	8.0	H	H
26	11.5	H	L

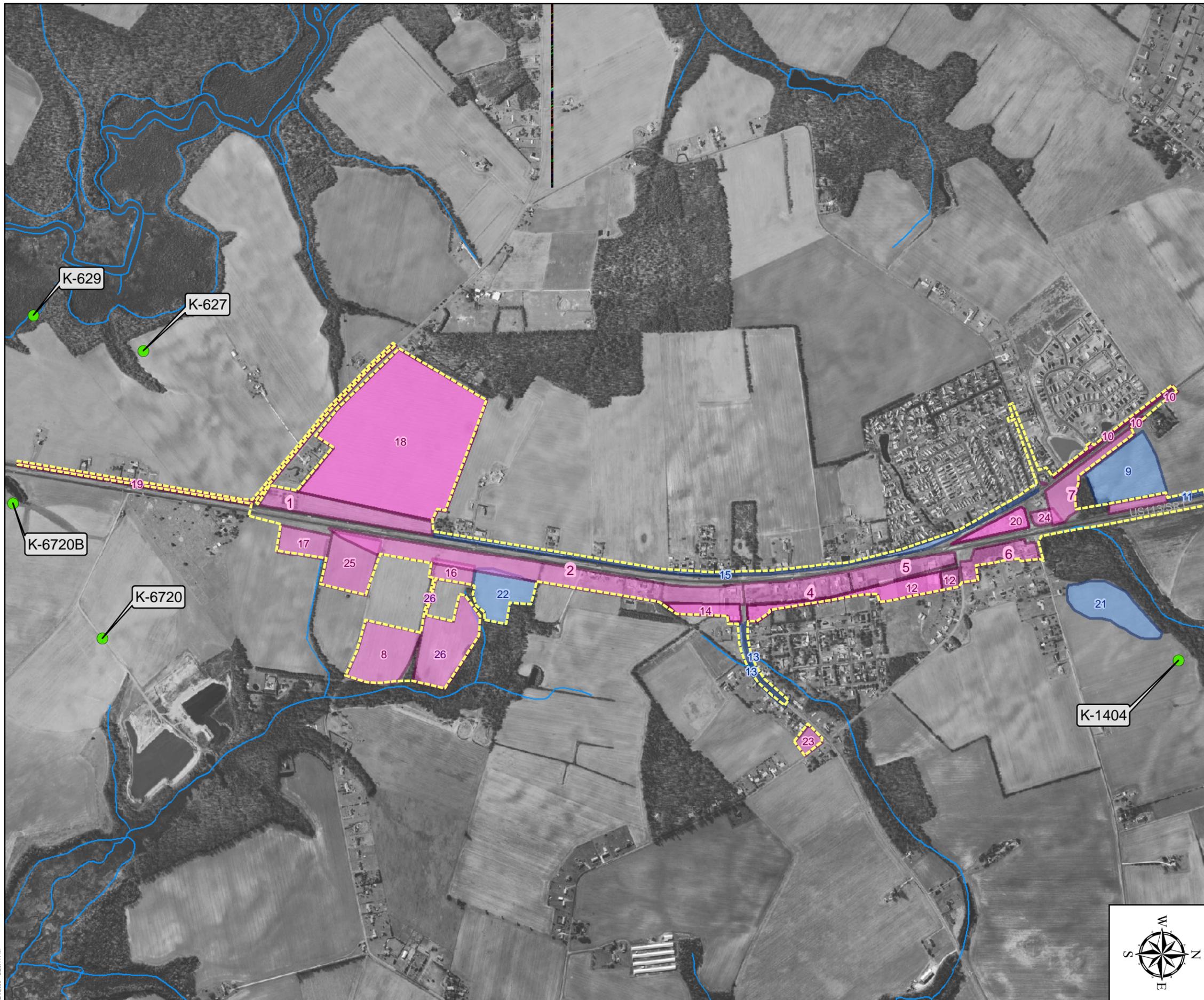
Test Intervals: (M) Medium - 75.0 feet, (H) High - 50.0 feet.

Table III-9: Key to CRS Numbers for Archaeological Resources in APE and Surrounding Project Area

CRS #	Resource Name; Street Address or Location	Resource Type	Age (approximate)	Comments
West Side				
K-627	Sipple Farm #2 Site 7K-F-54	Precontact site	Unknown	--
K-629	Robbins Farm #2 Site 7K-F-44	Precontact site	Woodland	--
East Side				
K-1404	7K-F-92	Precontact site	Unknown	--
K-6720	Southeast of Barratt's Chapel, east side SR 1, near Frederica	Precontact/Historic site	Unknown	"prehistoric / historic scatters"
K-6720B	South of Barratt's Chapel, east side of SR 1	Precontact/Historic site	Unknown	"prehistoric / historic scatters"

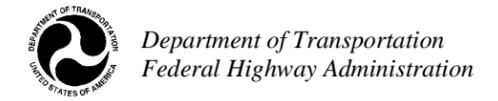
Source: CRS files and Photographic Identification Cards; on file at DE SHPO, Dover, Delaware.

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- Archeological Site
- Area of Potential Effect (APE)
- Agreed Not Tested
- Tested Area
- Stream

**Figure III-9
Archeological Areas
of Potential Effect (APE)**



Map Document: (X:\Projects\SR1_CCP\mappings\73 EA_Document\June2008\Revisions\FigIII-09ArcheoAPE.mxd) 2/2/2008 12:20:14 PM

3. Historic Architectural Resources

Within the defined APE, historic architectural resource surveys were first conducted in 2003 and continued until 2008. They included examination of all buildings within the APE. Historic maps were used to determine approximate dates of construction for resources and properties previously evaluated for National Register eligibility.

As part of the historic identification for architectural resources, all properties dated through 1960 on the east side of SR 1, and properties primarily dating through 1954 on the west side of SR 1 were surveyed for the National Register of Historic Places.

In all, a series of separate reports or supplements (see links below) were generated to help identify historic properties. Results of eligibility assessments and other boundary clarifications were all confirmed by the DE SHPO and DeDOT in a series of stages or different volumes.

- http://www.deldot.gov/archaeology/little_heaven/architectural/index.shtml
- http://www.deldot.gov/archaeology/little_heaven/vol2/index.shtml
- http://www.deldot.gov/archaeology/little_heaven/architectural/addendum_2007/index.shtml
- http://www.deldot.gov/archaeology/little_heaven/bowers_beach_rd/index.shtml
- http://www.deldot.gov/archaeology/historic_pres/north_frederica/index.shtml
- http://www.deldot.gov/archaeology/barratts_chapel_rd/index.shtml

Based on background research efforts and coordination with the DE SHPO, five (5) individual cultural resources with properties listed in or eligible for the NRHP were confirmed, as shown on **Table III-10** and **Figure III-10**. Please see the Section IV of this EA for a detailed description and evaluation of impacts to these resources.

Table III-10: Surveyed Historic Architectural Resources in the APE

CRS No.	Resource Name/Address/Location	Resource Type	Age (approximate)	National Register Status
K-137	Jehu Reed House, 7585 Bay Rd.	Residence/mansion; former farmstead	circa 1770	Listed (Criteria A & C)
K-103	Barratt's Chapel and Cemetery, 6416 Bay Rd.	Church and Cemetery	circa 1780	Listed (Criteria A & C)
K-2686	Thomas James House, 628 Clapham Rd.	Residence; former farmstead	circa 1845	Eligible (Criterion C)
K-2685	Mt. Olive Colored School, 288 Clapham Rd.	African American School	circa 1923	Eligible (Criteria A & C)
K-01689	W. C. Fountain Agricultural Complex 4988 Barratt's Chapel Road	Residence; former farmstead	circa 1730	Eligible (Criteria C & D)

a. Impacts to Historic Resources

A Determination of Effects Report has been prepared for Section 106 compliance and is included on DeDOT's Archaeology/Historic Preservation Website:
http://www.deldot.gov/archaeology/little_heaven/dae/index.shtml.

The project would have an adverse effect on the following resources:

- Jehu Reed House (CRS No. K-137)
- Mt. Olive Colored School (CRS No. K-2685)

The Section 4(f) Evaluation chapter of this Environmental Assessment discusses the avoidance, minimization and mitigation of these properties in detail. The project as an undertaking would experience some adverse effects and therefore a Memorandum of Agreement (See **Appendix A**) between FHWA, DeDOT and the DE SHPO was developed to resolve any adverse effects that may occur as a result of implementing the project.



LEGEND

- Area of Potential Effect (APE)
- Property Lines
- Tax Parcel of Historic Property (NRHP-Listed/Eligible)

Aerial Photo: 2007
Note: Map does not depict archaeological sites due to privacy reasons and further efforts are needed to confirm National Register status.

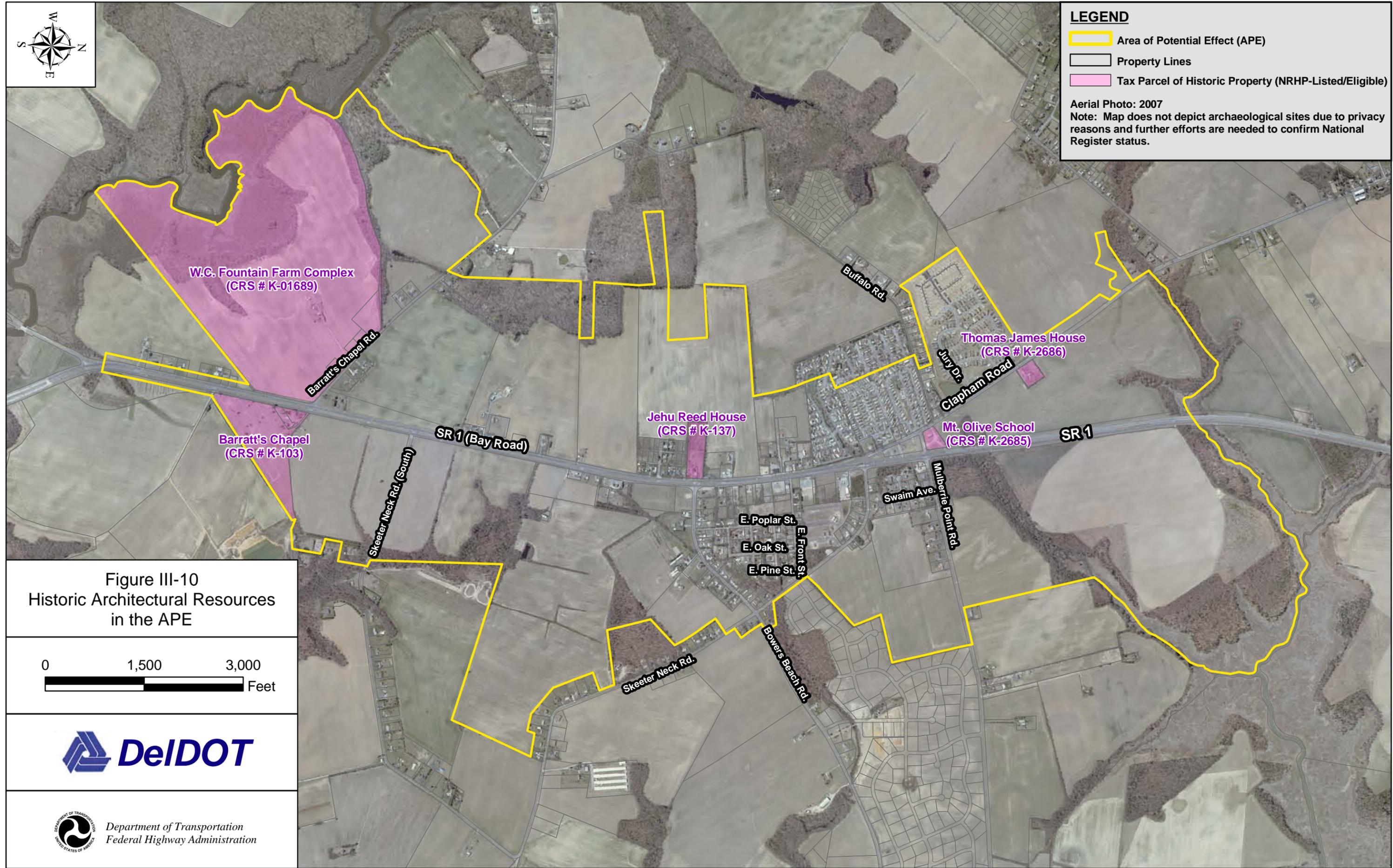
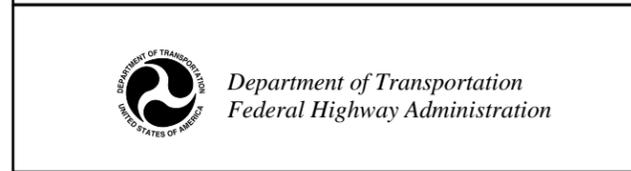
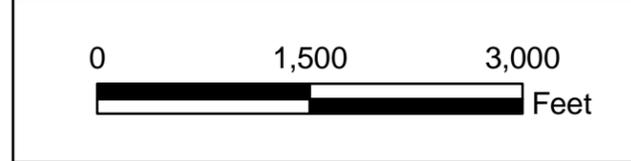


Figure III-10
Historic Architectural Resources
in the APE



C. Natural Environment

1. Open Waters and Wetlands: USACE and DNREC Jurisdictional Resources

A brief description of the open waters and wetlands follows and a summary of their functions and values are summarized in **Table III-13** and their locations shown on **Figure III-11**. A summary of the history of the wetland and waterway delineation, started in 2004 and revised in 2008 and 2009, follows. A detailed discussion of the five jurisdictional wetlands and eight waterways identified in the Project Area is provided under a separate cover in a report entitled *SR 1, Little Heaven Grade Separated Intersection Project Waters of the U.S Identification and Delineation Report (February 2004, Revised December 2008, Addendum September 2009)*.

This Identification and Delineation of Waters of the U.S. Report is based on readily available secondary source information as well as detailed field reconnaissance. The Routine On-Site Determination Method in accordance with the Corps of Engineers Wetlands Delineation Manual (USACE, 1987) was used to identify and delineate the wetlands within the Project Area. The presence of hydric soil, hydrophytic vegetation, and wetland hydrology was documented for each area determined to be a wetland. Federal and state permits will be necessary prior to initiating any fill or encroachment (e.g. filling, draining, crossing, etc.) activities in the identified wetlands.

a. History of Project-level Open Water and Wetland Delineation

Surface water and wetland inventories, field investigations and delineations were conducted in the Project Area in 2003/2004 and 2008. The inventories included a review of the U.S. Fish and Wildlife Service's National Wetland Inventory (NWI) Mapping, the Natural Resource Conservation Service of the United States Department of Agriculture Soil Survey of Kent County, Delaware Natural Resources and Environmental Control's (DNREC) System-Wide Monitoring Program (SWMP) wetland mapping (Frederica, DE) and field reconnaissance surveys.

Field investigations and delineations of water and wetland resources were conducted throughout the Project Area to satisfy the requirements of the U.S. Army Corps of Engineers (USACE), which has jurisdictional authority over the Waters of the U.S., including wetlands, under the purview of Section 404 of the Clean Water and the requirements of DNREC under the purview of Chapter 72 Subaqueous Lands Act of Title 7. These field delineations, completed on October 29, November 3 and 17, December 17, 2003 and June 9, 2004, determined that six wetland areas exist within the project study area. Following the November 2004 USACE Jurisdictional Field view, two of the six wetlands areas were determined to not meet jurisdictional determination criteria and were removed from the plan, leaving four jurisdictional wetland areas (Wetland 1, 3, 5 and 6) and three waterways (WA 1, WA 2 and WA 3) located in the Project Area.

The project was placed on-hold until 2007 due to budgetary constraints. In September 2007, the Project Area was re-evaluated for compliance with new waterways guidance. In addition, new areas associated with an expanded project study limit were surveyed in January 2008 for additional wetlands and waterways as shown on **Figure III-11**. This survey did not identify any additional wetland areas and eight waterway areas, bringing the total wetlands identified to four and the total waterways identified to eleven. However, during a USACE Jurisdictional Field Review of the resources in the expanded Project Area conducted in July 2008, one previously identified wetland (Wetland 5) was determined to not meet the three wetland criteria; therefore there are only three Jurisdictional wetlands within the Project Area, those consisting of Wetlands 1, 2 and 6.

2. Jurisdictional Open Waters

The field delineations of the Project Area identified eight additional waterways, three along Barratt’s Chapel Road (WA 6, 7 and 8), four waterways associated with the extended portion of WA 2 (WA 9, 10, 11 and 12) and a waterway located adjacent to the Skeeter Neck Road/Bower’s Beach intersections (WA 13). Combined with the previous survey results, there were 11 waterways identified in the Project Area, including the previously identified WA 1, WA 2 and WA 3. Seven of these are relatively permanent waterways (RPW), which are defined as waterways that have relatively permanent waters at least three months of the year. All seven RPW waterways were reviewed in the field by USACE on July 31, 2008 and determined to be jurisdictional, including WA 2, 3, 9, 10, 11, 12, 13 from the 2004 delineation.

WA 1, a previously identified waterway, and the three non-RPW waterways, as well as a portion of WA 3 were identified as non-jurisdictional by the USACE representative and are depicted as non-jurisdictional wetlands and waterways on **Figure III-11**. These waterways have been removed from the following discussion. The seven jurisdictional waterways within the Project Area are WA 2, 3, 9, 10, 11, 12 and 13.

A final identification and delineation of “Waters of the U.S.” was conducted for this project on April 16, 2009 for the area in the vicinity of the wetland mitigation site (See **Figure III-11**). There were not any non-jurisdictional ditches were identified on the site, beyond the portion of the farm field ditch, identified by the USACE, during a previous field visit. The field reconnaissance identified two palustrine wetlands (WL and WM) and two open water channels potentially regulated by Section 404 of the Clean Water Act.

a. Impacts and Avoidance/Minimization Efforts

Throughout the project development process measures to avoid and minimize waterway impacts were pursued; however, it would be necessary to encroach on approximately 782 linear feet of waterway (**Table III-11**).

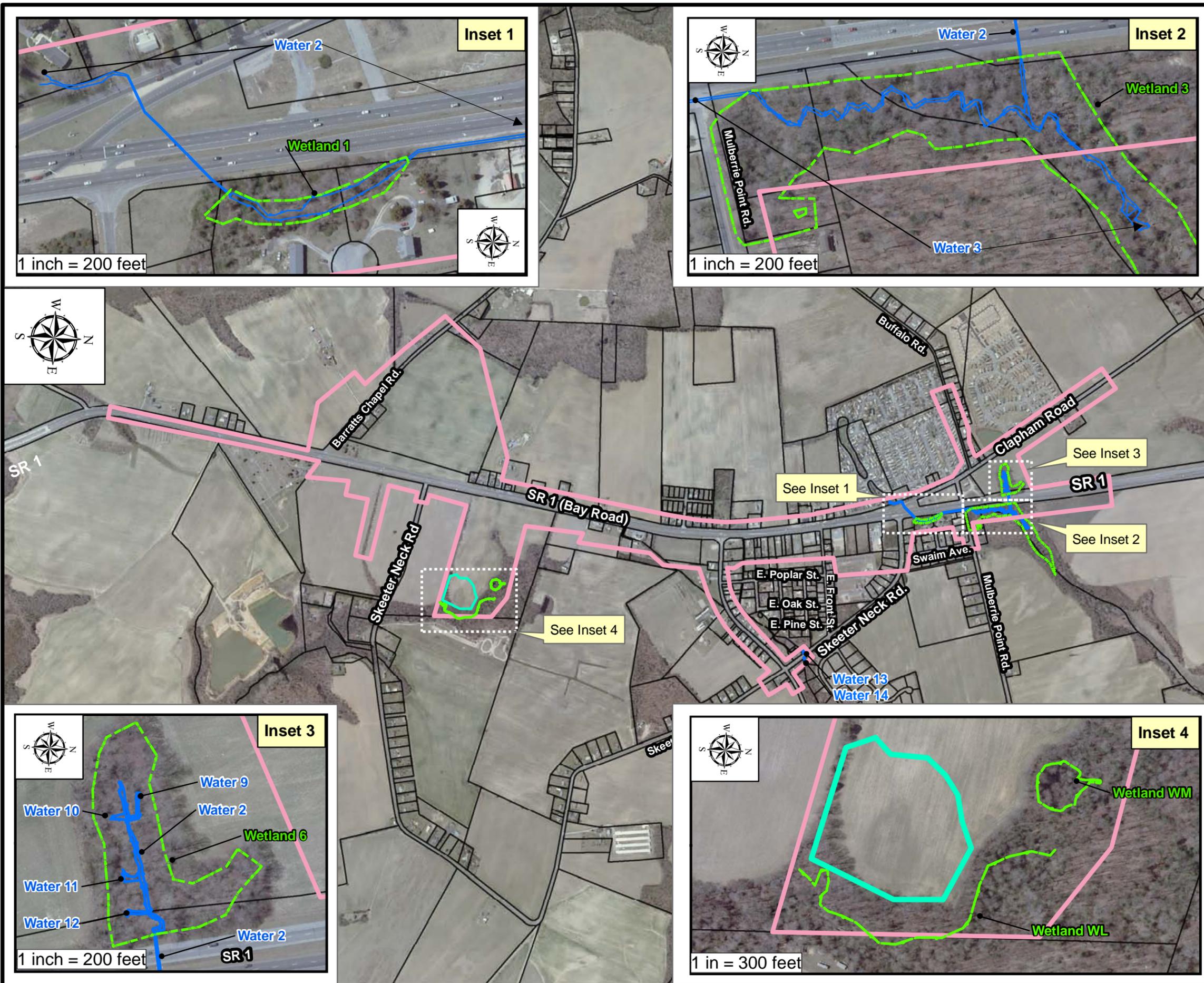
Table III-11: Impacts to Jurisdictional Open Waters in Linear Feet (LF)

Alternatives	Jurisdictional Waters								
	WA 2	WA 3	WA 9	WA 10	WA 11	WA 12	WA 13	WA 14	Total
A	115	624	--	--	--	--	--	--	739
B	115	644	--	--	--	--	--	--	759
*C	146	624	--	--	--	--	12	--	782
D	--	344	--	--	--	--	--	--	344
E	--	624	--	--	--	--	--	--	624
F	--	344	--	--	--	--	--	--	344

Note: *Alternative C is the Preferred Alternative

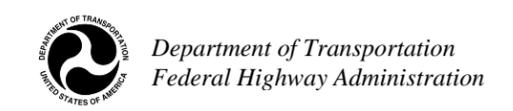
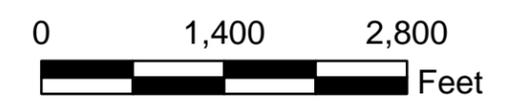
Additional measures to minimize impacts would continue through final design as grading and stormwater management needs are finalized. Potential water quality impacts associated with construction activities would be managed with erosion and sediment control practices, such as sediment traps, silt fences and biofiltration swales to prevent water quality problems. Sedimentation impacts should be minimal and would not have an adverse effect on the wetlands so long as strict adherence to the project’s erosion and sediment control plan is carried out. Roadway pollutant impacts would also be minimized through proposed stormwater management facilities.

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- Wetland Study Area Boundary
- Delineated Wetlands (Jurisdictional)
- Jurisdictional Waters (Jurisdictional)
- Wetland Mitigation Site

Figure III-11
Jurisdictional Waters and Wetlands



3. Jurisdictional Wetlands

There are five jurisdictional wetlands located within the project study area: Wetland 1, 3, 6, WL and WM. **Table III-12** provides a summary of the jurisdictional wetlands classification and functions.

Table III-12: Summary of Wetland Characteristics

Wetland ID	Cowardin Classification System	Dominant Vegetation	Primary Functions
Wetland 1	PFO	black gum, spicebush, royal fern, arrowwood viburnum, red maple	GWD, S/TR, NR/T, WD /A
Wetland 3	PFO	ostrich fern, American holly, summersweet, sensitive fern, greenbriar, white oak, persimmon	GWD, S/TR, NR/T, WD/A R, VQ/A, U
Wetland 6	PFO	red maple, sensitive fern, greenbriar, Japanese honeysuckle, arrowwood	GWD, S/TR, NR/T, WD /A
Wetland WL	PFO	red maple, skunk cabbage, willow oak	FA, S/TR, NR/T, WD/A
Wetland WM	PFO	red maple, silver maple	GWD, FA, S/TR, WD/A
Notes: PEM=Palustrine Emergent; PFO=Palustrine Forested; GWD=Groundwater Discharge; S/TR=Sediment & Toxicant Retention; FA=Floodflow Alteration; N R/T=Nutrient Removal & Transformation; W D/A=Wildlife Diversity & Abundance; R=Recreation; U=Uniqueness;V Q/A=Visual Quality & Aesthetics			

Wetland 1 – A PFO classified wetland located along the eastern edge of SR 1 between Mulberrie Point Road and Skeeter Neck Road. A perennial waterway bisects the wetland and continues under Mulberrie Point Road into Wetland 3. Functions and values for Wetland 1 are groundwater discharge, sediment/toxicant retention, nutrient removal and wildlife habitat.

Wetland 3 – A PFO classified wetland located in a heavily wooded area along the eastern edge of SR 1, north of Mulberrie Point Road. The wetland extends beyond the Project Area boundary to the northwest. The same perennial stream bisecting Wetland 1 traverses through Wetland 3 and is hydrologically connected to Wetland 6 via a drainage pipe under SR 1. Functions and values for Wetland 3 are groundwater discharge, sediment/toxicant retention, nutrient removal, wildlife habitat, recreation, uniqueness and visual quality/aesthetics.

Wetland 6 – A PFO classified wetland located in a wooded area along the northern edge of the Project Area between Clapham Road and SR 1. It is hydrologically connected via a pipe under SR 1 to Wetland 3. Functions and values are groundwater discharge, sediment/toxicant retention, nutrient removal and wildlife habitat.

Wetland WL – A PFO classified wetland that is seasonally flooded by the unnamed tributary that flows through the system. The wetland system is located on the outer limits of the project study area both along the east and north edge of the site. Wetland WL is hydrologically connected to the stream that flows through the system.

Wetland WM – A PFO classified wetland that is a seasonally inundated system, with strong vegetative morphological adaptations of the tree species and sparse ground cover. Wetland WM is a broadleaf deciduous forested wetland (PFO1C) that is seasonally flooded and is hydrologically connected to the unnamed tributary flowing through Wetland WL via a single outlet to the channel.

a. Impacts and Avoidance/Minimization Efforts

The following is a discussion of the wetland impacts resulting from the alternatives analysis as well as avoidance and minimization efforts taken to reduce impacts to the Project Area wetlands and waterways. **Table III-13** shows the wetland impacts associated with each build alternative.

Table III-13: Individual Wetlands: Impacts in Acres (ac.)

Alternative	Wetland Number/Existing Wetland Size within Project Area (Acre)					
	W1	W3	W6	WL	WM	Total
A	0.14	3.57	0.20	0.00	0.00	3.91
B	0.18	3.49	0.20	0.00	0.00	3.87
*C	0.276	0.472	0.241	0.00	0.00	0.989
D	0.01	0.21	0.00	0.00	0.00	0.22
E	0.276	0.21	0.00	0.00	0.00	0.486
F	0.01	0.21	0.00	0.00	0.00	0.22

*Note: Alternative C is the Preferred Alternative

(1) No-build

Implementation of the No-Build Alternative would have no effect on the wetlands or streams in the project study area.

(2) Alternative Analysis

Alternatives A and B were evaluated for impacts to wetlands during the initial alternatives analysis as shown in **Table III-13**. Alternative A would impact approximately 3.91 acres of wetland in the Project Area, including 0.14 acres of Wetland 1, 3.57 acres of Wetland 3 and 0.20 acre of Wetland 6. Alternative B would impact 3.87 acres of wetland including 0.18 acres of Wetland 1, 3.49 acres of Wetland 3 and 0.20 acres of Wetland 6. In both cases, the alternatives would result in impacts to approximately half of Wetland 1, severely affecting the functions it provides.

In response to the significant wetland impacts associated with Alternatives A and B, these alternatives were no longer pursued and Alternatives C through F were further developed and analyzed. Their design and impact on wetlands were evaluated and presented in public workshops. The following describes these alternatives.

The Preferred Alternative, Alternative C, was originally modified in 2007 to include a portion of Barratt's Chapel Road and extensions of the Project Area along Mulberrie Point Road and Bower's Beach Road. The Preferred Alternative has been refined since the initial impact evaluation as the project was carried forward through the project development process. Modifications include the widening of the median within the northern portion of SR 1 as it approaches the intersection of Skeeter Neck at Buffalo Road and the addition of deceleration lane in the northbound lane of SR 1. These modifications result in additional wetland impacts, including 0.241 acres of Wetland 6 and an increase (0.21 acres to 0.472 acres) of impacts to Wetland 3. The entire Wetland 1 area would be eliminated by the proposed project. Overall wetland impacts increased from 0.486 to 1.026 acres.

Alternative D would involve locating the proposed bridge over SR 1 to the south in order to avoid over 3.36 acres of impacts to Wetland 3. Alternative D proposes a cul-de-sac at Skeeter Neck Road and a right-in/right-out at Mulberrie Point Road where it intersects with SR 1. This modification separates the community along Mulberrie Point Road and the Tara subdivision. Feedback obtained at a public workshop indicated that the local community was opposed to Alternative D, due to the lack of connectivity between the community and the roadway system. Additionally, Alternative D does not meet the project needs for improved transportation safety

and does not completely address the overall SR 1 Corridor Capacity Preservation Program (CCPP) initiatives. Alternative D results in 0.22 acres of wetland impacts, including 0.01 acres of Wetland 1 and 0.21 acres of Wetland 3.

Alternative E is similar to Alternative C; however, Alternative E does not provide Mulberrie Point Road with either a connection to SR 1 or the east service road. Based on feedback obtained at a public workshop, the local community stated they were opposed to Alternative E due to the lack of connectivity between the community and the roadway system. Additionally, Alternative E does not meet the project needs for improved transportation safety and does not completely address the overall SR 1 CCPP initiatives. Alternative E results in 0.486 acres of wetland impacts, including 0.276 acres from Wetland 1 and 0.21 acres from Wetland 3.

Alternative F is similar in design to Alternative C. The SR 1 overpass would be relocated to the south of the existing Bower's Beach Intersection, avoiding over 3 acres of wetland impacts to Wetland 3. Feedback obtained at a public workshop indicated that the local community was opposed to Alternative F, due to the lack of connectivity between the community and the roadway system. Additionally, Alternative F does not meet the project needs of improved transportation safety and does not completely address the overall SR 1 CCPP initiatives. Alternative F results in 0.22 acre of wetland impacts, including 0.01 acres from Wetland 1 and 0.21 acres from Wetland 3.

Although Alternatives D and F result in fewer impacts, Alternative C is proposed for further study as the Preferred Alternative because it offers a design that provides interconnectedness of the roadways, separates local and regional traffic, provides adequate access for emergency response vehicles and is the best alternative for addressing safety concerns and community cohesiveness. In addition, Alternative C was the preferred alternative design of the local community.

As noted above, the implementation of the Preferred Alternative C would result in the direct loss of approximately 1.03 acres of wetlands. As shown in **Table III-13**, the impacts would occur to three of the five wetlands within the Project Area.

Throughout the project development process, measures to avoid and minimize wetland impacts were pursued. Based on the current preliminary design it would be necessary to encroach on approximately 0.276 acres from Wetland 1, 0.472 acres from Wetland 3 and 0.241 acres from Wetland 6. Additional measures to minimize impacts would continue through final design, including the use of increased slopes or retaining walls, wherever practical.

The potential water quality impacts associated with construction activities would be managed with current construction practices, such as sediment traps and silt fencing, to prevent water quality problems. All of the alternatives have the potential to adversely impact water quality caused by sedimentation during construction. Prior to construction, project activities would obtain the necessary construction authorizations: sediment and erosion control, stormwater management and water quality certification. To manage the water quality impacts, DelDOT would follow standard procedures contained in the most recent *Delaware Erosion and Sediment Control Handbook* (1989), the *Delaware Sediment and Stormwater Regulations* (1991) and *DelDOT's Standard Erosion Control Details and Specifications* (2001). These procedures may include stream diversion and temporary water crossings, if necessary. For the Preferred Alternative, a detailed sequence of construction, along with an extensive erosion and sediment control plan would be developed. This erosion and sediment control plan would be included in the project documentation and approved by the Department's Stormwater Engineer.

The proposed project also has the potential for indirect impacts that could affect wetlands in the Project Area. Because the project would alter existing topography and most of the wetlands rely on surface water to provide at least some hydrologic support, there is the potential for altering the hydrologic support for the wetlands. There is also the potential of wetland impacts occurring as a result of sedimentation deposition during construction and the release of roadway pollutants (i.e. automotive oils, road-deicing agents) once the new roads are opened to travel. The extensive exposure of soil during construction activities could create sedimentation deposition in adjacent wetlands.

b. Wetland Mitigation

Throughout the project development process, measures to avoid and minimize wetland impacts were pursued; however, based on the current preliminary design, it will be necessary to encroach on 0.989 acres of wetlands. Additional measures to minimize impacts will continue through final design, including use of increased slopes and/or retaining walls where necessary. In addition, the potential water quality impacts associated with construction activities will be managed with routine construction practices, such as sediment traps and silt fences, to prevent water quality problems.

As part of the USACE permitting process, the acreage and function of the impacted wetlands will require mitigation. Wetland replacement requirements are based on the area of wetlands lost, the type of wetlands lost, and the functions and values of the wetlands and other aquatic resources impacted by the proposed project. The overall design goal for the replacement of impacted wetlands would be to replace the functions lost and the total wetland area impacted.

Three mitigation sites were identified, evaluated and later discussed with the USACE at the July 31, 2008 Jurisdictional Determination Field Review. Ultimately a preferred site was selected at a location on the east side of SR 1 in an agricultural field located between Skeeter Neck Road and a forested windbreak/drainage ditch. The site is located in the Murderkill River watershed upstream from the area of tidal influence. Existing conditions at the proposed site consists of active agricultural fields adjacent to a drainage ditch and woodland. A PFO wetland and associated perennial stream system is located on the east and southeast edge of the proposed mitigation area. Soils at the proposed mitigation site include Hammonton-Fallsington-Mullica Complex soils (HoA), zero to two percent slopes, Hammonton Sandy loam (HnA), zero to two percent slopes, Ingleside loamy sand (IeA), zero to two percent, and Fallsington loam (FgA), zero to two percent slopes. The mitigation site soils are Ingleside series, a well drained soil with a seasonal high water table at a depth of 48 to 72 inches from January to May. The Fallsington soils, located in the adjacent wetland, have a seasonal high water table within six inches of the soil surface. More detailed evaluations will be performed to determine whether site conditions are conducive for wetland replacement at Site #1. These evaluations may include the installation of groundwater monitoring wells, on-site soil testing and preparation of water budgets.

The proposed wetland mitigation may be combined with other mitigation strategies for the project, such as required mitigation for tree impacts under Delaware's *Senate Bill #324*. Coordination with the regulatory agencies in selecting the most appropriate mitigation strategies for the project will continue through Final Design. If adequate mitigation cannot be achieved with a 1:1 replacement ratio, the 1:1 wetland replacement design can be combined with a mitigation package potentially including stream restoration, wetland enhancement, riparian buffer enhancement or mitigation at a higher ratio.

c. Wetland Permits

No permits would be required for the No-Build Alternative. Approximately 0.989 acres of wetlands and 782 feet of waterways would be encroached upon as a result of implementing Preferred Alternative C. These impacts would require the following permits: Coastal Zone Management (CZM) consistency determination, an individual Section 404 Permit from the USACE, a Subaqueous Lands Permit from DNREC if impacts are within an area greater than 800 acres and a Section 401 Water Quality Certification.

4. Floodplains

There are no one-hundred-year floodplains that occur in the Project Area, therefore resulting in no impacts under any of the build alternatives. The closest one-hundred-year floodplains are located outside of the Project Area along an unnamed tributary of Trunk Ditch, northeast of the Project Area and along a tributary of Murderkill River, approximately 1,600 feet east of the SR 1/Bower's Beach Road intersection on Bower's Beach Road, east of the Project Area; and 3) along a tributary of Double Run, approximately 1,800 feet west of the SR 1/Bower's Beach Road, west of the Project Area, as shown on **Figure III-12** on page III-33.

5. Threatened and Endangered Species

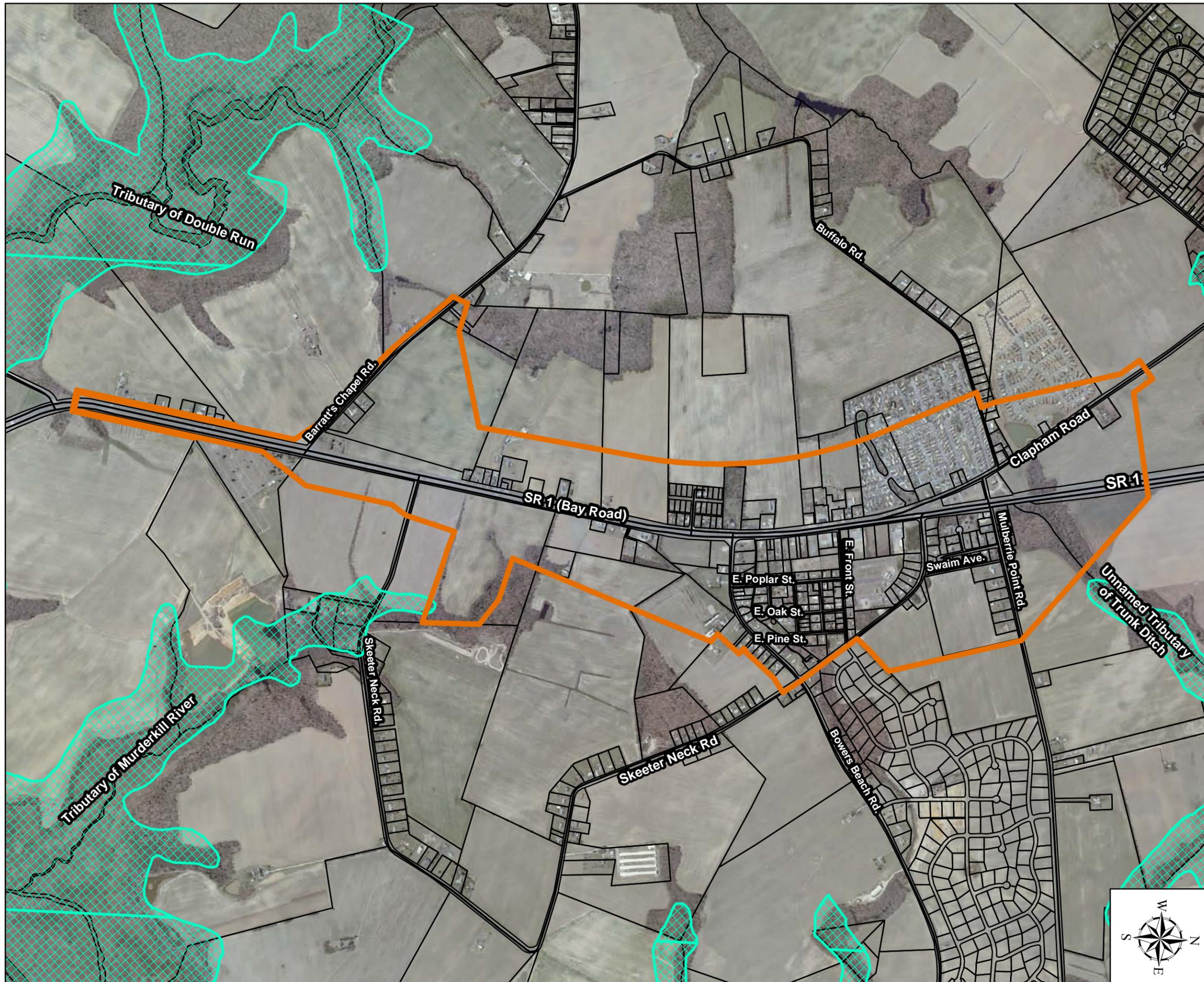
The DNREC, United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) have been contacted regarding the presence of threatened and endangered species located in the Project Area. Responses have been received from all three of the regulatory agencies. According to the agencies, except for occasional transient species, there are no known threatened or endangered species that would be affected by the project (**Appendix B**).

6. Air Quality

The SR 1 Little Heaven Grade Separated Intersection is located within the United States Environmental Protection Agency (USEPA)-designated Kent County, Delaware Non-attainment Area for Ozone. This project is a safety project and the proposed construction parameters of this project will not add any vehicle miles traveled in the Project Area. This project was deemed "Not Regionally significant" by the Delaware Interagency Transportation Conformity Consultation Workgroup and therefore would not trigger a new regional analysis under the rules for transportation conformity. In concurrence with the USEPA and the DNREC, FHWA and FTA have determined that the Air Quality Conformity Determination - Kent County Portion of the 2008-2013 Delaware Capital Transportation Program for the Kent County, Delaware Ozone Non-attainment Area adequately address and meet the requirements as specified in the November 1993 Federal Conformity Rule and its subsequent amendments. The existing Air Quality Conformity determination for Kent County, Delaware will stay in effect until Jan 9, 2010 or until such time as a new regional analysis is deemed necessary.

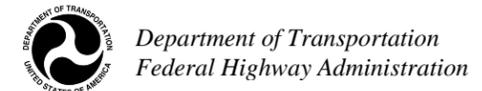
At a project level, there will be no meaningful changes in traffic volumes, vehicular mix, location of the existing facility or any other factor that would cause an increase in emissions or impacts relative to the no-build alternative. As such, this project will generate minimal air quality impacts for the Clean Air Act criteria pollutants and has not been linked with any special Mobile Source Air Toxics (MSAT) concerns. Consequently, this project is exempt from an analysis for MSATs.

SR 1, Little Heaven
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 Project Area
 100 Year Floodplain

Figure III-12
Floodplains



a. Air Quality Impacts

The project is located within the USEPA designated Kent County, Delaware Non-attainment Area for Ozone. Due to the relatively small area the proposed project covers, it is unlikely the roadway improvements will have a stand-alone effect on statewide air quality. Because a grade separated intersection lane will eliminate traffic idling, vehicle emissions concentrations in the vicinity of the project study area will be decreased and therefore the overall air quality will be improved.

Therefore, at a project level, there will be no meaningful changes in traffic volumes, vehicular mix, location of the existing facility or any other factor that would cause an increase in emissions impacts relative to the no-build alternative. As such, this project will generate minimal air quality for the Clean Air Act criteria pollutants and has not been linked with any special Mobile Source Air Toxics (MSAT) concerns. Consequently, this project is exempt from an analysis for MSATs.

Some temporary degradation of air quality may result from construction activities. This condition will be remedied at the completion of the project.

7. Noise

a. Noise Fundamentals

The descriptor selected for analysis of existing and potential noise impacts on the Project Area is the Hourly Equivalent Sound Level (L_{eq1h}). L_{eq} is defined as the equivalent steady state sound level, which in a designated time period (normally one hour) would contain the same acoustic energy as the time-varying sound level during the same period. The unit of measure for L_{eq} is the decibel (dB) measured on the "A" scale, commonly referred to as dBA. The dBA scale is the accepted standard measure used in assessing community noise exposure because this scale closely approximates the frequency level of the human ear.

b. Noise Abatement Criteria

Noise Abatement Criteria (NAC) for various land uses have been established by the FHWA in Title 23 of the Code of Federal Regulations, Part 772 (23 CFR, Part 772), Procedures for Abatement of Highway Traffic Noise and Construction Noise. These categories and criteria are presented in **Table III-14**. The NAC for land uses occurring in the project are included within Activity Category B.

According to the procedures described in 23 CFR, Part 772, noise impacts occur when predicted traffic noise levels for the design year approach or exceed the NAC prescribed for a particular land use category, or when the predicted noise levels are substantially higher than the existing ambient noise levels. Noise levels are considered to be approaching the NAC when they are within one dBA, which would equate to 66-dBA for Category B land uses.

**TABLE III-14: Noise Abatement Criteria (NAC), 23 CFR, Part 772
 Hourly A-Weighted Sound Level in Decibels (dBA)***

Activity Category	L _{eq} (h)	L ₁₀ (h)	Description of Activity Category
A	57 (Exterior)	60 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (Exterior)	70 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries and hospitals.
C	72 (Exterior)	75 (Exterior)	Developed lands, properties or activities not included in Categories A or B above
D	--	--	Undeveloped lands
E	52 (Interior)	55 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals and auditoriums.
* Either L _{eq} (h) or L ₁₀ (h) (but not both) may be used on a project. Note: These sound levels are only to be used to determine <u>impact</u> . These are the absolute levels where abatement must be considered. Noise abatement should be designed to achieve a substantial noise reduction - not the noise abatement criteria.			

c. Data Collection

Noise monitoring for this project was conducted in 2004. Field measurements of ambient noise levels were performed for use in determining existing and future noise levels via FHWA’s Traffic Noise Model (TNM) Version 2.5. Ambient noise describes the current existing noise environment. Noise measurements were performed using Metrosonics dB 308 and Metrosonics dB 3080 Noise Monitors, which recorded noise levels at one-minute intervals during a 20-minute session. Classified traffic counts and vehicle speeds were recorded during the same periods.

Noise Sensitive Areas (NSA), as defined as picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries and hospitals were identified in the Project Area. Receptors were selected within the NSAs to represent the overall noise environment and to determine locations where residences may be impacted by traffic noise. Seven NSAs and thirty-four receptor locations were identified in the Project Area (see **Figure III-13** on page III-37). A description of each NSA is provided below. The receptor locations along with the measured noise levels are shown in **Table III-15**.

NSA 1 consists of manufactured homes within the High Point subdivision, located west of Clapham Road in the northwest quadrant of the Project Area. NSA 1 is represented by Receptors 1, 2, 3, 4, 11 and 14.

NSA 2 consists of single-family residences, located east of SR 1 along Mulberrie Point Road and Skeeter Neck Road in the Bower’s Landing Community, in the northeast quadrant of the Project Area. NSA 2 is represented by Receptors 5, 6, 7, 8, 9, 10, 12 and 13.

NSA 3 consists of single-family residences and businesses, located within the town of Little Heaven, west of SR 1. NSA 3 is represented by Receptors 16, 19 and 26. Receptor 19 was located at the National Register-listed Jehu Reed House, on SR 1 across from the intersection of SR 1 and Bower’s Beach Road.

NSA 4 consists of single family residences located east of SR 1 in the Bakers Choice Community. NSA 4 is represented by Receptors 17, 18, 20, 21, 22, 23, 24 and 25.

NSA 5 consists of single family residences located west of SR 1, south of the intersection of SR 1 and Bower’s Beach Road. NSA 5 is represented by Receptors 28 and 30.

NSA 6 consists of single family residences along Barratt’s Chapel Road, west of SR 1. NSA 6 is represented by Receptor 33, located at the intersection of Barratt’s Chapel Road and SR 1.

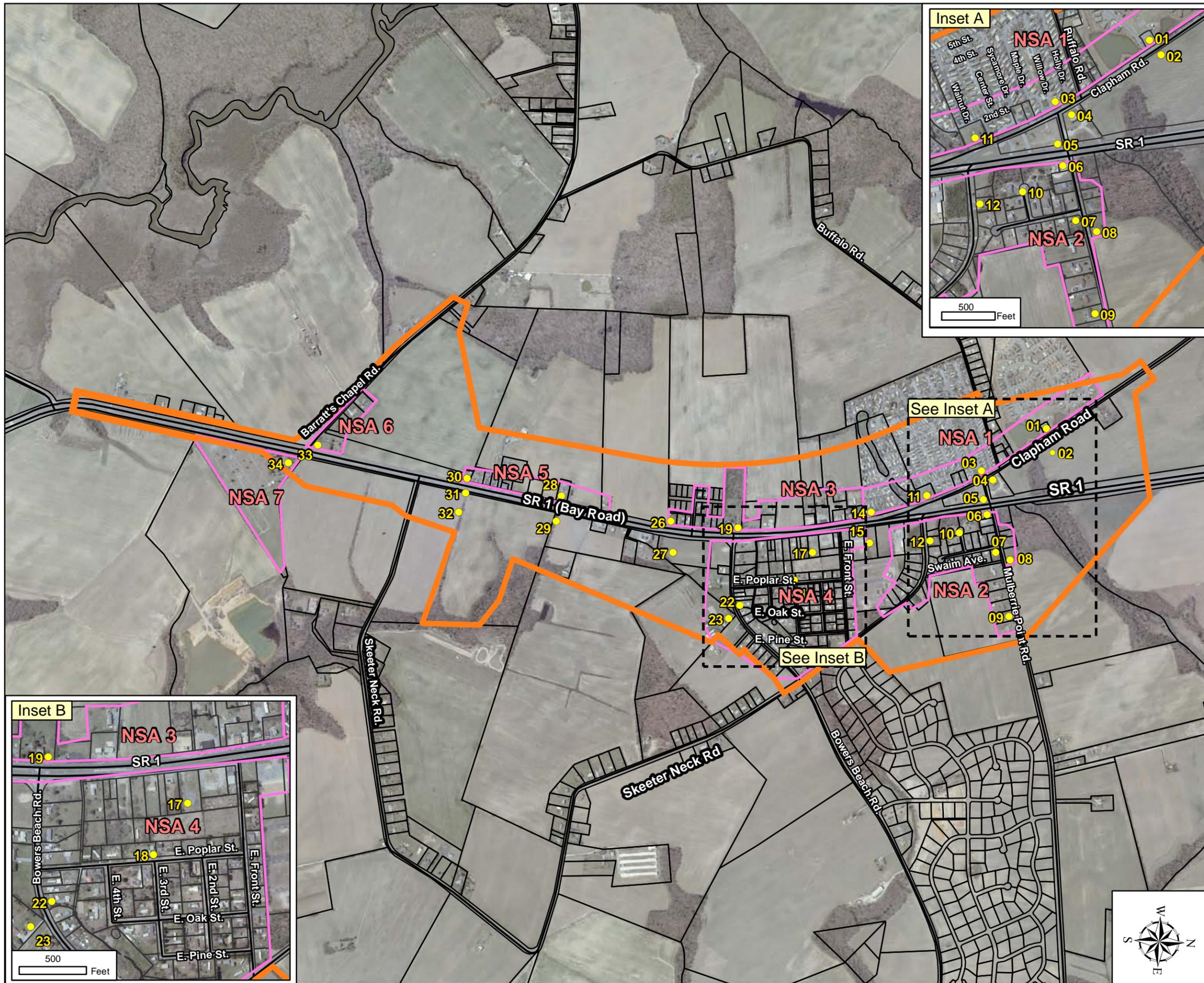
NSA 7 consists of the National Register-listed Barratt’s Chapel and cemetery, located at the intersection of Barratt’s Chapel Road and SR 1, east of SR 1. NSA 7 is represented by Receptor 34. Receptors 15, 27, 29, 31 and 32 were used to determine the 66-dBA noise impact contours.

Table III-15: Field Measured Noise (L_{eq}) in the Project Area

NSA	Receptor #	Location	Field Measured Noise L_{eq} 20 minutes
1	1	Clapham Road @ Jury Drive	64
1	2	Clapham Road	68
1	3	145 Willow Drive	62
1	4	Clapham Road @ Mulberrie Point Rd.	64
1	11	117 Clapham Rd.	67
1	14	195 Lake Shore Drive	66
2	5	SR 1 @ Mulberrie Pt. Rd.	72
2	6	SR 1 @ Mulberrie Pt. Rd. (Pump Station)	70
2	7	17 Swaim Ave.	54
2	8	223 Mulberrie Pt. Rd.	49
2	9	380 Mulberrie Pt. Rd.	49
2	10	55 Swaim Ave.	59
2	12	3040 Skeeter Neck Rd.	60
3	16	Flea Market on southbound SR 1	74
3	19	Jehu Reed House	68
3	26	7421 SR 1 (Bay Road)	72
4	17	Abandoned lot (adjacent to SR 1)	57
4	22	171 Bower’s Beach Rd.	61
4	23	226 Bower’s Beach Rd.	55
4	24	299 Bower’s Beach Rd.	58
4	25	264 Bower’s Beach Rd.	60
5	28	7137 SR 1 (Bay Road)	72
5	30	Residence along southbound SR 1 (Bay Rd.)	72
6	33	Corner of SR 1 @ Barratt’s Chapel Road	73
7	15	Abandoned lot (adjacent to SR 1)	62
7	27	Abandoned lot (opposite Receptor # 26)	63
7	29	Abandoned lot (opposite Receptor # 28)	65
7	31	Agricultural Field across from Receptor # 30)	67
7	32	Agricultural Field across from Receptor # 30)	62
7	34	Barratt’s Chapel	65

Note: Receptor numbers 13, 20 and 21 are not listed in the table due to recording equipment errors during data collection.

SR 1, Little Heaven
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-  Project Area
-  Noise Sensitive Area (NSA) Boundary
-  Field Receptor

Figure III-13
Noise Sensitive Areas



Department of Transportation
Federal Highway Administration

d. Model Calibration

A noise prediction model was created using FHWA's computer modeling software TNM Version 2.5. The model was calibrated using the locations of the field receptors, along with traffic volumes and traffic speeds measured concurrently with the noise measurements were all entered into the model. A calibrated model is expected to produce reasonably accurate noise levels anywhere within the study area under whatever traffic conditions are entered into it. A control or No-build model was developed along with models for existing noise levels and the design year 2030 no-build and build scenarios utilizing the Preferred Alternative.

e. Existing Noise Levels

To represent the existing noise environment within the entire Project Area, baseline peak noise hour conditions, statistically derived traffic volumes obtained from DelDOT were entered into the model, replacing the field-counted data. Theoretical or "virtual" receptor sites were then placed within the model in a grid pattern that included the entire study area. The model was run and noise levels were obtained for all virtual receptors. From interpolation of the model-predicted noise levels at these receptors, the 66-dBA impact contour was determined and drawn on a map of the study area. **Figure III-14** shows the 66-dBA impact contours predicted for the baseline 2004.

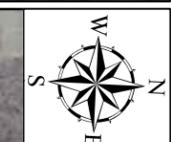
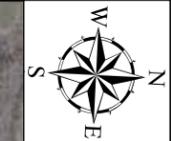
f. Design Year 2030 Noise Environment

The traffic data used for analysis of Design Year 2030 noise impacts were from statistical projections provided by DelDOT. Using the Summer Peak Annual Average Daily Traffic (AADT) predicted in that report for 2030, the Summer Peak Average Hourly Traffic was derived and entered into the model as the 2030 Design Year Volume (DHV), replacing the field-counted data. Since the traffic projections were only directionally distributed and not categorized by vehicle type or by its distribution across individual lanes, the traffic was assumed to have the same distribution proportions as the field-counted traffic. After adjusting the statistical traffic volumes to take into account that distribution, the traffic data was entered into the model.

Using the 2030 Peak Hour traffic volumes discussed above, the model was run and noise levels were obtained for all receptors for the No-build and Preferred Alternative models. From interpolation of the model-predicted noise levels at these receptors, the 66-dBA impact contours were determined for both sides of SR 1. **Figure III-14** shows the no-build and build conditions' 66-dBA impact contours predicted for the Design Year 2030, compared to the 66-dBA impact contours for Baseline Year 2004.

g. Impact Assessment and Mitigation

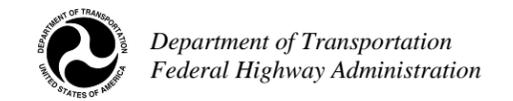
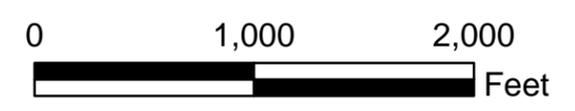
Based upon the TNM Model results, the Project Area can expect to experience a one to three dBA increase in traffic noise as a result of constructing Alternative C, the Preferred Alternative. **Figure III-14** shows the two 66-dBA impact contours as predicted for Design Year 2030, compared to the 66-dBA impact contours for Baseline Year 2004. The 66-dBA contours for 2004 and 2030 No-build are almost identical, indicating that, even with an expected increase in traffic volume, the noise environment would not change for the Project Area under No-build conditions. The 66-dBA contour for the 2030 Build generally follows the other contours; however the northbound SR 1 service road is shifted about 185 feet to the east of the existing SR 1. Since the alignment of SR 1 is shifted farther east, it is expected to have a decrease in noise levels at NSAs 3 and 5. Due to the shifting alignment, NSA's 2 and 4 will have an



**SR 1, Little Heaven
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-  2004 67 dBA Contour (No-Build)
-  2030 67 dBA Contour (No-Build)
-  2030 67 dBA Contour (Build - Preferred Alternative)
-  Noise Sensitive Area (NSA) Boundary
-  Alternative C (Preferred Alternative)
-  Proposed Right-of-way

**Figure III-14
Noise Impacts for 2004 No-Build
and 2030 No-Build and Build**



increase in decibels. NSAs 1, 6 and 7 will remain about the same regardless of whether the Preferred Alternative is constructed.

The 2030 Build 66-dBA contour extends further east into the Bakers Choice Community (NSA 4) and (NSA 2); however, all of the properties within the 66-dBA contour that front existing northbound SR 1 are being relocated due to the need to acquire them for right-of-way in which to construct the relocated northbound SR 1 lanes.

NSA's 1 and 6 would exceed the 66-dBA under the existing and future build and no-build conditions; however, the 2030 Build condition's 66-dBA noise contour would recede slightly to the east due to the shift in the alignment of SR 1. Noise mitigation in the form of constructing structural walls or earthen berms would not be possible due to the numerous driveways entering onto the new west service road, nor would using them effectively reduce noise due to the number of drive-way breaks that would be needed to maintain access to the properties. Furthermore, the access provided by these driveways is essential for community mobility and, therefore, must be retained.

NSA 7, the Barratt's Chapel and Cemetery property, would experience a year 2030 Build 66-dBA noise contour that is nearly identical to its existing No-Build condition location. Mitigation will be provided to this property in the form of landscaping and tree plantings along the property's frontage.

h. Construction Noise

Temporary increases in noise levels may be attributed to construction activities. This condition would be remedied at the completion of the project. Several mitigation procedures can be followed to assist in minimizing the temporary impacts of construction noise. Adjustments to the equipment, the provision of temporary noise barriers, varying the construction activity areas to redistribute noise events, public involvement and financial incentives to contractors are alternates to decrease temporary noise impacts. These mitigation measures will be considered during final design to minimize public exposure to short-term noise impacts.

8. Hazardous Materials

To identify properties with environmental issues regarding compliance with state and federal solid and hazardous waste and underground storage tank regulations, an Environmental Site Assessment (ESA) was conducted for the Project Area, completed in April 2003. The ESA consisted of the following: a review of historical aerial photographs; a thorough inspection of the properties located within the Project Area; an examination of records of relevant federal, state and local environmental agencies; and a review of the DNREC UST Branch's project files for active LUST sites located within the project limits.

A screening of properties in the Project Area revealed that seven LUST sites were present within the Project Area. Three of the sites, Shore Stop #245 (DNREC Facility ID #1-000209), Del Gas (DNREC Facility ID #1-000154) and the William Roop Property (DNREC Facility ID #1-000490) were identified as active facilities, indicating that they are still undergoing investigation or remediation. The four other facilities, Kamar Bus Service (DNREC Facility ID #1-000283), Appel's Marine Incorporated (DNREC Facility ID #1-000321), Cain's Furniture (DNREC Facility ID #1-000475) and the Little Heaven Pump Station (DNREC Facility ID #1-000619), have been issued "No Further Action" letters from DNREC indicating that all investigative and remedial activities at these properties have been completed. A low concentration, residually contaminated soil may still be present in the subsurface at the Cain's Furniture Property, at the

Appel's Marine Property, at the Del Gas Property and at the Shore Stop #245 Property. No additional investigative or remedial work has been performed on the Roop Property since 1994; therefore, it is likely that residually contaminated soil still exists in the subsurface at the site.

The following are potential environmental conditions present within the Project Area:

Numerous properties located along the northbound side of SR 1 use individual residential water supply wells located on the individual properties for their drinking water. According to Delaware Water Well regulations, the wells would need to be properly abandoned by a Delaware-licensed well driller during any property development activities. The properties on the northbound side of SR 1 use on-site septic fields for their sewage waste disposal.

The Del Gas (Tax Parcel #SM-00-122.00-02-37.01), Conley (Tax Parcel #SM-00-122.00-02-21.00), Roop (Tax Parcel #SM-00-122.15-01-05.00) and Appel's Marine (Tax Parcel #SM-00-122.15-01-11.00) properties potentially have residually contaminated soil and groundwater related to the former presence of leaking underground storage tanks, which may be encountered during construction activities. The potential that contaminated soil or groundwater would be encountered increases with the depth of disturbance required to construct the new roadway with its associated utilities.

At the Little Heaven Towing property (Tax Parcel #SM-00-122.11-01-09.00), auto salvage material was observed on the eastern portion of the site. This is an environmental concern because oil and lubricating oils could have leaked from the salvaged cars into the subsurface at the property.

At Tax Parcel #SM-00-122.11-01-19.00, two vent pipes associated with UST's were observed on the north side of the building. On the DelDOT 1973 photo-log, the property had been a Mobil gas station. The property is not listed on DNREC's databases for UST or LUST sites. Therefore, it is likely that the property was formerly an old retail gas station that went out of business prior to 1989 when the current UST regulations were enacted. It is also likely that at least two UST's are still present in the subsurface at the site and the potential exists that soil and groundwater at the site have been contaminated as a result of releases from them.

At Tax Parcel #SM-00-122.15-01-12.00, the footprint of a former gasoline dispenser island was observed. This observation is consistent with the observation of active gasoline dispensers on the property on the DelDOT 1973 photo-log. The property is not listed on DNREC's databases for UST or LUST sites. Therefore, it is possible that the property was formerly an old retail gas station that went out of business prior to 1989. It is also possible that UST's from the former gasoline station are still present at the property.

Based on these findings, there is increased potential for encountering petroleum contaminated soil and/or groundwater, or buried solid waste during the installation of underground utilities and installation of building footers. The recommended contract item and specifications to remove and dispose of any contamination has been added to the contract in accordance with all Occupational Safety and Health Administration (OSHA), USEPA, and DNREC requirements.

IV. SECTION 4(f) EVALUATION

*SR 1, Little Heaven Grade Separated Intersection Project
Environmental Assessment / Section 4(f) Evaluation*



*U.S. Department of Transportation
Federal Highway Administration*



Delaware Department of Transportation

IV. SECTION 4(f) EVALUATION

A. Introduction and Methodology

Section 4(f) of the U.S. Department of Transportation Act of 1966 (23 USC 138 and 49 USC 303 and implementing regulation 23 CFR 774) permits the use of land from a publicly-owned public park, recreation area, wildlife or waterfowl refuge, or land of a historic site of national, state or local significance (as determined by federal, state and local officials having jurisdiction over such resources), only if there is no prudent and feasible alternative to the use of such land and if the action includes all possible measures to minimize harm in accordance with the FHWA Section 4(f) regulations, 23 CFR 774 as well as FHWA's Section 4(f) Policy Paper (March, 2005) and is consistent with the criteria for a Section 4(f) Evaluation (discussed herein).

A Section 4(f) "use" occurs when property identified as a Section 4(f) resource is permanently acquired and incorporated into a transportation project or when there is occupancy of land that is adverse in terms of the integrity of the Section 4(f) resource. The requirements of Section 4(f) apply to the SR 1, Little Heaven Grade Separated Intersection Project because the proposed build alternatives would require the direct take and use of land from three historic properties listed on or eligible for listing on the National Register of Historic Places (NRHP).

If there is no prudent and feasible alternative that completely avoids Section 4(f) resources, the prudent and feasible alternative that causes the "least harm" to Section 4(f) resources must be selected (FHWA *Section 4(f) Policy Paper*, pp. 4-5). If two or more alternatives cause substantially equal harm to Section 4(f) resources, FHWA can choose freely between them.

This Section 4(f) Evaluation describes historic properties within the study area for which Section 4(f) is applied, as well as the location and design of alternatives developed to avoid and minimize harm to Section 4(f) resource. As part of this evaluation, additional right-of-way needed for the project as well as any structures (buildings, fences, driveways, signs, walls, etc.) potentially impacted that may contribute to the significance of the Section 4(f) resource are discussed. Their impacts are described, as are any potential temporary uses of the Section 4(f) resources that might be applied under *de minimis* (23 CFR 774).

The Section 4(f) Evaluation also justifies the *de minimis* impact findings with respect to minor impacts and temporary impacts associated with two of the three historic properties involved. No other Section 4(f) resources are involved. Under the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) amendment to the Section 4(f) requirements allows the U.S. Department of Transportation (DOT) to determine that certain uses of Section 4(f) land will have "no effect" or "no adverse effect" on that specific protected resource. When this is the case, and the responsible official(s) with jurisdiction over the resource agrees in writing, compliance with Section 4(f) is satisfied.

Section 4(f) coordination was initiated during the early stages of this Transportation Planning and Environmental Assessment (EA) process. Chapter I of this EA identifies the need for transportation improvements in the project area. The process undertaken to develop and confirm alternatives for the project was coordinated between DelDOT, FHWA, DE SHPO, DNREC, USACE, USFWS, USEPA, Delaware Office of State Planning, property owners, elected officials, and the larger community.

In compliance with the Section 106 process, and in order to identify the Section 4(f) resources in the project area, coordination was conducted with the DE SHPO who served as the official having jurisdiction over Section 4(f) resources. In this project the Advisory Council on Historic Preservation did not participate in consultation, and was not involved in the effort to identify

historic properties, therefore does not constitute a an official having jurisdiction in the Area of Potential Effect (per 23 CFR Section 774.17(b)).

B. Project Action

As previously covered in this EA, DelDOT is considering various roadway improvement options including grade separating the intersection of SR 1 at Bowers Beach Road, providing north-south service roads on both sides of existing SR 1 in the area of Little Heaven, Delaware (see **Figures I-1** and **I-2**). The limits of the proposed project extend along SR 1 from north of the Mulberrie Point Road intersection to south of the Barratt's Chapel Road intersection (approximately 2.76 miles).

As defined in Chapter I of this EA, the *purpose and need* of the project is to improve traffic safety and relieve traffic congestion along SR 1 and at its roadway crossings while providing access for existing and planned developments and avoiding or minimizing adverse effects to the socio-economic, cultural and natural environmental resources within the project area. The project purpose is consistent with the SR 1 CCPP's four main goals, as follows:

1. Maintain the road's ability to handle traffic efficiently and safely.
2. Minimize the transportation impacts of increased economic growth.
3. Preserve the ability to make future transportation-related improvements, as needed.
4. Prevent the need to build an entirely new road.

The purpose of the SR 1, Little Heaven Grade Separated Intersection Project is supported by the project *needs* listed below and further described in subsequent sections:

1. Traffic Safety
2. Preserve Roadway Capacity for Current and Future Traffic

Six Build Alternatives and a No-Build Alternative were evaluated to determine how closely they met the purpose and need for the project and the extent of their impacts to the socio-economic, cultural and natural environment. The alternatives are discussed in detail in Chapter II of this EA.

All of the Build Alternatives preserve capacity and enhance safety on SR 1 by separating local and through traffic. Variations between them exist mainly in local roadway connectivity, notably in the area of the Tara subdivision to the east of northbound SR 1. (See **Figures II-2** through **II-7** for comparisons). The Preferred Alternative is shown on **Figure II-4**.

Alternative C is DelDOT's Preferred Alternative because it provides interconnection of roadways, separates local and through traffic, maintains access for emergency response vehicles and was evaluated to be the best alternative for addressing safety and maintaining community cohesiveness. Alternative C is the only alternative that provides access to the service road for all of the roadways that previously had access to SR 1. Alternative C was advanced into preliminary engineering as the Preferred Alternative because Alternative C is the only alternative that meets all aspects of the purpose and need. Additionally, Alternative C was the preferred design of the local communities in the project area. Several refinements have been made to Alternative C to avoid, minimize and/or mitigate impacts to the existing socio-economic, cultural and natural environmental resources within the project area, including Section 4(f) properties.

The Preferred Alternative would shift SR 1 to the east of the existing SR 1 roadway corridor; would provide two-way north-south parallel service roads on each side of SR 1; would construct/reconstruct several intersections to tie into the proposed improvements; and; would provide a grade separated crossing of SR 1 over Bowers Beach Road. The Bowers Beach Road

crossing would connect to the new two-way, north-south service roads that would be constructed parallel to SR 1. This element would in turn provide connections between local roadways and would provide access to and from SR 1 via ramps. The west service road would connect Clapham Road in the north to Barratt's Chapel Road in the south. The east service road would connect Mulberrie Point Road in the north to south Skeeter Neck Road in the south (See **Figure II-4**).

The proposed typical cross section for the Preferred Alternative consists of reconstructing SR 1 to a four lane divided, access controlled freeway consisting of two 12-foot travel lanes in each direction with 10-foot outside shoulders and 4-foot inside shoulders. A 42-foot open grass median would divide the northbound and southbound lanes (See **Figure II-1**). A service road would be provided adjacent to the east of northbound SR 1 and to the west of southbound SR 1 in order to provide access to properties and public streets. The typical cross section for the two-way service roads consists of two 12-foot lanes (one in each direction) and 10-foot shoulders on both sides of the roadway.

Locating the grade separated crossing of SR 1 to Bowers Beach Road instead of north of Mulberrie Point Road would avoid direct impacts to several communities. It would also avoid further impacts to the historic Mt. Olive School located near the intersection of Clapham Road and Mulberrie Point Road as well as minimizing wetland impacts and a sewer pumping station and underground line for Kent County.

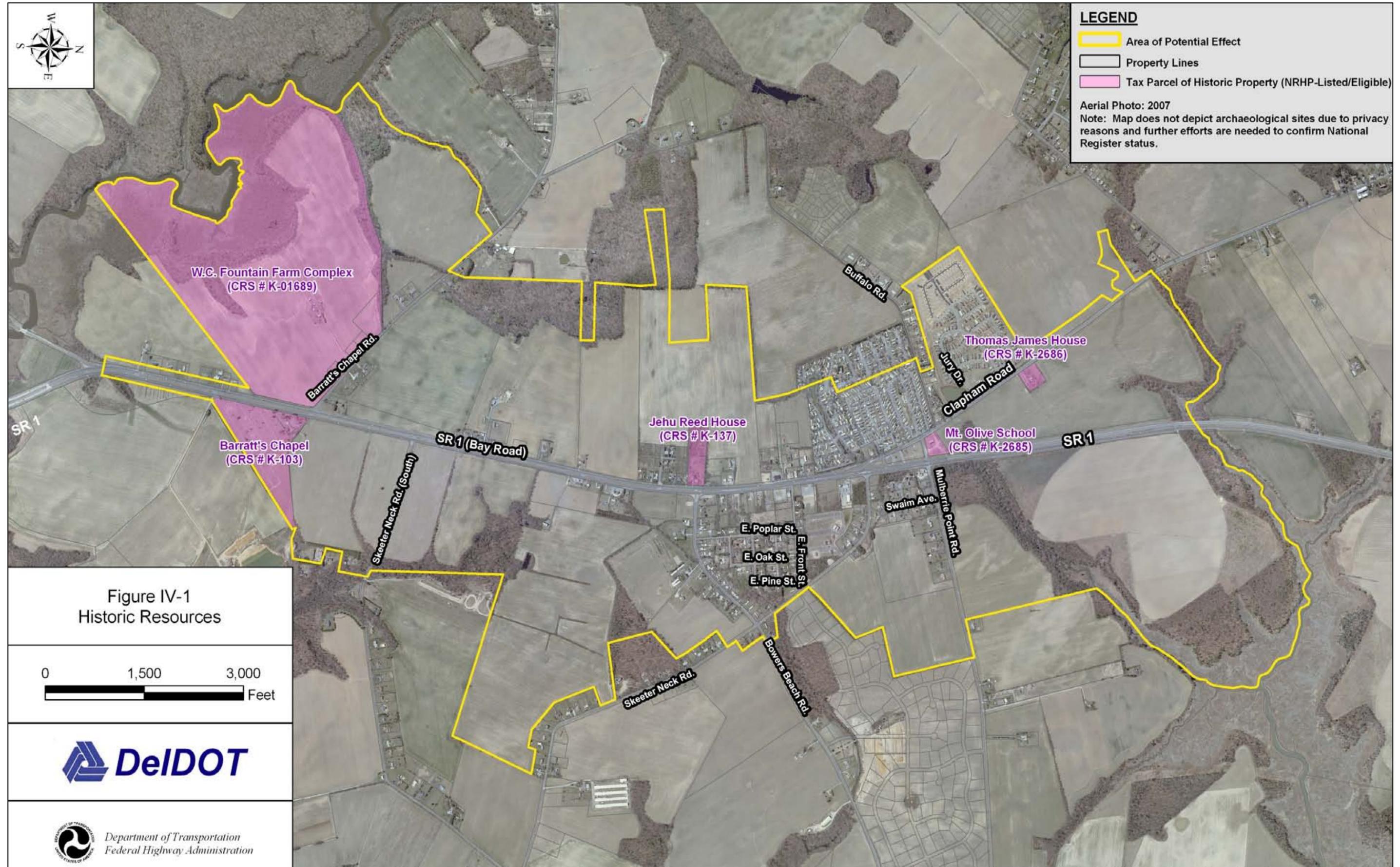
The intersection improvements would align the intersections of south Skeeter Neck Road and Barratt's Chapel Road and would provide ramps connecting Clapham Road to and from southbound SR 1 and would provide access to and from southbound SR 1 and Clapham Road. The existing SR 1 intersection with Barratt's Chapel Road would be closed in favor of using this new configuration.

The Preferred Alternative would improve the local road network while helping to preserve the capacity of SR 1. The project limits for Alternative C extend to Barratt's Chapel Road, which is further south on SR 1 than either Alternative A or B. The Preferred Alternative requires right-of-way acquisition of 21.18 acres of residential and agricultural property and 23.62 acres of commercial property. There are five residential relocations and 13 business relocations necessary for the construction of this alternative.

The Preferred Alternative is consistent with the goals and objectives identified in the State of Delaware's Long-Range Transportation Plan, the SR 1 Corridor Capacity Preservation Program, the Strategies for State Policies and Spending and the Livable Delaware Initiative. The proposed action is also consistent with the Kent County Comprehensive Plan and the Dover/Kent County Metropolitan Planning Organization's Long-Range Transportation Plan and is included in their Transportation Improvement Program.

C. Description of Section 4(f) Properties

Five (5) properties (See **Figure IV-1**) listed in or eligible for the NRHP were identified in the project's area of potential effect. Section 4(f) applies to three of the five historic properties (Barratt's Chapel and Cemetery, Thomas James House and the Mt. Olive Colored School/Mt. Olive School). The other two historic properties (W.C. Fountain Agricultural Complex and the Jehu Reed House) are not subject to Section 4(f) uses and therefore will not be discussed in this 4(f) Evaluation.

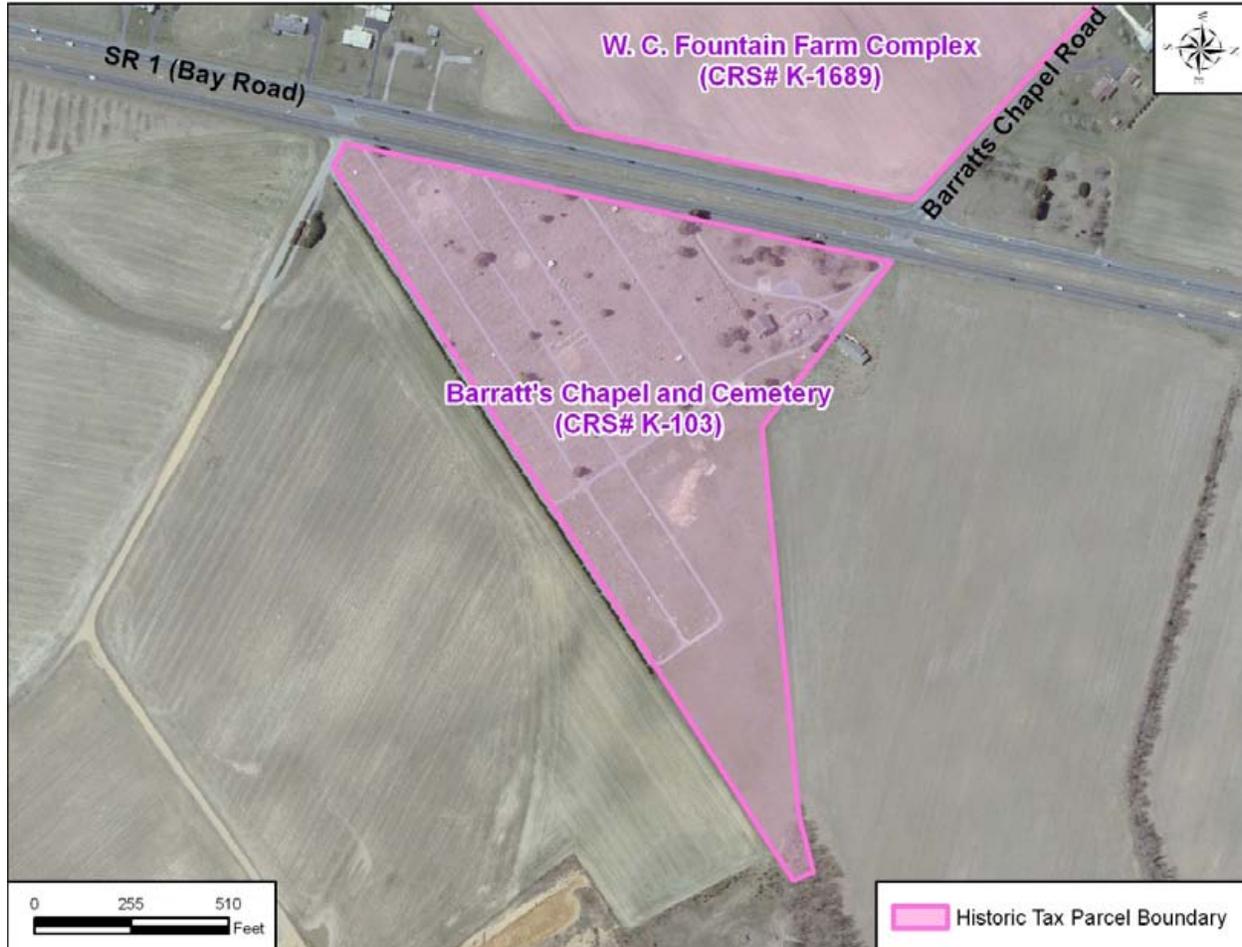


Archaeological sites have also been identified, but have not yet been evaluated for eligibility to the NRHP. The commitment to undertake this effort is addressed in the Section 106 Memorandum of Agreement (MOA) (See **Appendix A**). If, as a result of this effort, archaeological sites are found to be eligible chiefly for the information they contain (i.e., Nation Register Criterion D), then the sites would be exempt from 4 (f) evaluation (per 23 CFR 774.13(b)). If, however, sites are found to have value for preservation in place, this Section 4(f) Evaluation would need to be revisited.

1. Barratt's Chapel and Cemetery (CRS # K-103)

The Barratt's Chapel and Cemetery is listed on the NRHP under Criteria A and C (36 CFR Part 800) as significant for its broad patterns of religious affiliation and architecture. Barratt's Chapel and Cemetery historic boundary is made up of a multi-parcel, triangular piece of land comprising 24.6 acres abutting the east side of SR 1 (**Figure IV-2**) and contains standing buildings and the cemetery. The complex of buildings at this site is at the northwestern corner of the property, near SR 1 now includes a small parking lot and several paved driveways.

Figure IV-2: Barratt's Chapel and Cemetery (CRS # K-103)



The cemetery occupies most of the large expanse of land at this site, and the cemetery has been expanded to the east. The cemetery features a variety of headstones, ranging from simple flat (vertical) stone slabs to obelisks and other, larger features and structures, including at least one mausoleum and an elevated tomb. There are also a variety of markers, including tall granite shafts. The cemetery grounds feature low-cut grass and several walkways.

Trees are sparse, and a brick wall encloses part of the cemetery. Although the brick wall is not actually a part of the chapel, it abuts the building at two ends and has been rebuilt and extended in more recent modern times.

There are several non-contributing buildings that due to their age (post-1960's) are not eligible for the NRHP. Since the original NRHP nomination was completed in 1972, four other buildings have been erected in addition to the chapel. These modern buildings include a brick museum building (ca. 1964-1965), a brick vestry (1991), and two modern utility sheds (ca. 1990s). The non-contributing buildings include the Museum (ca. 1964-1965), the Vestry (1991), two modern sheds (ca. 1990s) and the "new" caretaker's house (2004). According to the caretaker the previous caretaker's house, a frame Colonial Revival (ca. 1940s), was dismantled in order to enlarge the parking lot.

2. Thomas James House (CRS # K-2686)

The Thomas James House (CRS # K-2686) is located on a 2.06 acre parcel on the east side of Clapham Road, approximately 0.75 miles northwest of Little Heaven at 628 Clapham Road (see **Figure IV-3**). As a former farmstead, the Thomas James House is only eligible for listing in the NRHP under Criteria C for its architecture; however the tax parcel serves as the logical NRHP historic boundary.

Figure IV-3: Thomas James House (CRS # K-2686)



The property consists of a nineteenth-century farmhouse and an early twentieth-century, frame, tool/wood shed. The farmhouse is a *circa*-1855, two-and-one-half-story, side gable front block with a *circa*-1845, one-and-one-half-story, side gable, rear ell extending from the southeast

corner. The frame dwelling sits upon a full brick foundation. Aluminum siding covers the exterior walls of the dwelling, which features aluminum corner boards. The gable ends of the front block are clad in vertical aluminum siding. The steeply pitched, side gable roof that caps the front block is sheathed in asphalt shingles and features gable end returns. Two interior, brick end chimneys protrude from the roof ridge. The rear ell is capped by a steeply pitched, asphalt shingle-clad, side gable roof. An interior brick end chimney protrudes from the eastern end of the roof ridge.

The dwelling features six-over-six light, double-hung sash, wood windows in the west and east elevations of the front block. The north and south elevations contain two evenly spaced, four-over-four light, double-hung sash, and wood windows in the gables. The south and north elevations of the rear ell contain six-over-six light, double-hung sash, wooden windows in the first story. The first story of the rear ell's north elevation features aluminum replacement windows hung in pairs. The upper story of each elevation features narrow, rectangular, double-hung sash windows, some of which have been replaced. Two evenly spaced, four-over-four light, double-hung sash wood windows light the east gable of the rear ell.

A one-story frame *circa*-1930 tool/wood shed, erected in three parts, is located immediately to the east of the dwelling. The building was converted for use as a dog kennel ca. 1965, and a wire-mesh fence extends outward from the east elevation of the building. The building sits atop a concrete slab, and vertical-board siding, painted white, covers the exterior walls. A steeply pitched, side gable roof, sheathed in asphalt shingles and featuring three separate planes along the ridge, caps the building.

A semi-circular gravel farm lane leads east from Clapham Road to the south side of the dwelling and tool/wood shed. A line of mature deciduous and evergreen trees delineate the north, south, and east borders of the property. Cultivated fields surround the property line outside the tree line to the south and west, and a post-2000 mobile home park (Barker's Landing) is located directly across Clapham Road, immediately to the west of the property.

3. Mt. Olive Colored School / Mt. Olive School (CRS # K-2685)

The Mt. Olive School is located on the west side of SR 1 in Kent County, Delaware. The property fronts Clapham Road to the west, existing SR 1 to the east and Mulberrie Point Road to the south (See Figure IV-4).

During the 1920s, schools for Caucasian children were consolidated to serve larger geographical areas with more grades under one roof, while those for African-American students remained small (usually one- or two-room) and limited to elementary grades. Mt. Olive was built as a "two-room" or "two-teacher" school. The Mt. Olive Colored School is recommended eligible for listing in the National Register of Historic Places under Criterion A for its importance as a locus of rural African-American education in Delaware and Criterion C as an example of the 1920s Colonial Revival schools, which were designed specifically for Delaware by nationally renowned school architect James Oscar Betelle.

The school sits back off of the highway. The front of the school building faces west toward Clapham Road at the end of a gravel drive and is surrounded by some yard space. Remnants of a one-story frame produce stand (ca. 1980) which is non-contributing are located northeast of the former school.

Figure IV-4: Mt. Olive School/Mt. Olive Colored School CRS # K-2685)



The one-and one-half-story, frame, side gable school (ca. 1923) faces west and is generally three times longer than it is wide. Overall, the frame walls of the building are clad in vinyl siding and the façade and rear elevation, although the original wooden-shingle siding remains visible at a portion of the rear elevation and at the side elevations. The building foundation is parged and painted white in color. The roof is clad in asphalt shingles.

The façade (west elevation) features a central pair of entrance doors which are accessed via steps. A fanlight is located above the central opening. The door opening is sheltered by a one-story portico with a curved underside roof and decorative crown which is supported by paired squared wooden columns. The southern portion of the west elevation retains four original windows, six-over-six double-hung sash, in their original fenestration pattern. To the north of the entrance door, only two window openings remain and the original windows have been replaced with one-over-one double-hung sash.

The fenestration at the rear elevation of the school includes six window openings with double-hung sash windows. The two southern window openings feature large nine-over-nine windows which are nearly double the size of the remaining four openings.

At the gable ends of the building there are cornice returns and brick end chimneys. The southwest and northwest corners of the building are unique in that they feature two cornice returns, which seem to indicate the building was widened; however, the school presented this appearance in a photograph taken soon after its initial construction.

The single addition to the school is a small one-story shed-roofed frame addition to the southwest corner of the building. This addition does not appear in a photograph of the building dating to 1941. The addition was possibly added to the house, also, a stove, as indicated by a metal pipe running from the east elevation of the shed is an addition to the chimney attached to the south elevation of the school.

Also located on the property is a non-contributing, one-story frame produce stand that appears to date to the third quarter of the twentieth century. The produce stand is clad in corrugated metal sheathing at the lower level and plywood at the upper level. The shallow gable roof which shelters the structure is also clad in corrugated metal sheathing. A shed roof addition is attached to the rear elevation. It is an accessory building that is not operating.

The property is owned by the State Department of Education, but has been unoccupied and vacant for several years. The school house is in poor condition and could not be adequately used or easily converted into an office, meeting room, and/or residential use without substantial renovation. Roof sheathing and shingles are missing in several areas and the building has probably suffered significant water damage.

D. Impacts to Section 4(f) Properties

Throughout the development of the Preferred Alternative refinements were undertaken and closely analyzed. Efforts in design were undertaken to meet the project needs and minimizing impacts to the project area. Efforts were also undertaken to minimize known impacts to Section 4(f) resources, while not introducing impacts to other historic properties that could be subject to Section 4(f).

As a result, in the application of the Criteria of Adverse Effect under Section 106 consultation with the DE SHPO, the Preferred Alternative was found to have a “no adverse effect” on the Barratt’s Chapel and Cemetery and the Thomas James House, therefore, application of *de minimis* findings were initiated for those two properties. The Preferred Alternative was found to have an adverse effect on the Mt. Olive School, and therefore is subject to further Section 4(f) Evaluation analyses.

Table IV-1 provides a quantified breakdown of impacts of each of the 4(f) resources and classified them whether they are fee simple right-of-way (RW) acquisitions, permanent easements (PEs) or temporary construction easements (TCEs) for the original Alternative C and Minimized Preferred Alternative C which includes minimization of impacts.

Table IV-1: Section 4(f) Resource Impacts by Alternative (in Acres)

4(f) Resource (Size of Historic Property)	Areas Impacted (in Acres)						Change in impacts (+/-) Comparing Alternative C with Minimized Alternative C		
	Alternative C			Minimized Preferred Alternative C					
	RW	PE	TCE	RW	PE	TCE	RW	PE	TCE
Barratt’s Chapel and Cemetery (24.60 acres)	0	0	0.19	0	0	0.19	0	0	0
Thomas James House (2.06 acres)	0.21	0	0.02	0.14	0	0.06	-0.07	0	+0.04
Mt. Olive Colored School / Mt. Olive School (2.07 acres)	0.78	0.53	0.18	0.50	0.78	0.19	-0.28	+0.26	0
Total:	0.99	0.53	0.39	0.64	0.78	0.44	-0.35	+0.26	-0.05
RW – Fee Simple Right-of-Way PE – Permanent Easement TCE – Temporary Construction Easement									

1. Barratt's Chapel and Cemetery (CRS # K-103)

Figure IV-5 shows the proposed undertaking at the Barratt's Chapel and Cemetery property. There are no right-of-way acquisitions to the Barratt's Chapel and Cemetery property. However, TCEs are required to conduct entrance improvements that were requested by the Barratt's Chapel personnel. They are not of themselves part of implementing the Preferred Alternative C. TCE's will also be required to widen along the existing right of way shoulder and remove some roadside trees that are within the clear zone. Due to the existing clear zone safety requirements, a commemorative bell, entrance sign, and sign marker conveying the historic significance of Barratt's Chapel will also be removed and relocated a few feet outside of the existing right-of-way on the Barratt's Chapel property. They will be reset east of its current location. Trees that will be removed will be mitigated on a one to one basis and re-established on the property by the roadside.

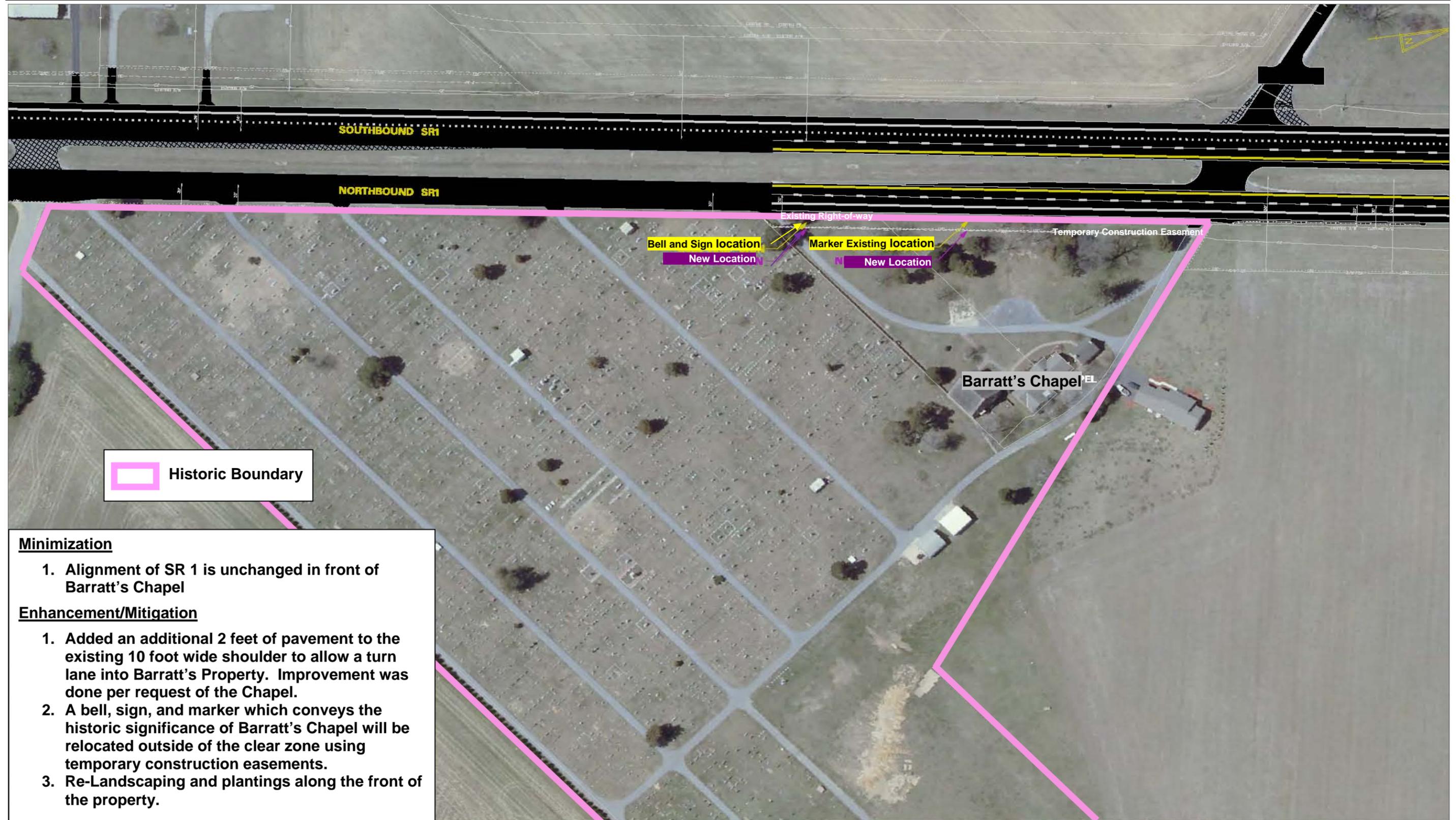
None of the elements that need to be removed, relocated, adjusted, or replanted are contributing elements or specific features within the nomination listing. However, in order to achieve the roadside shoulder and egress improvements to property as well as relocate non-character defining features of the property, access within the historic boundary area will be necessary. When complete, all temporary access or occupancy on the property will be restored to existing or better conditions.

In accordance with 23 CRF 774, impacts to the property apply to a Section 4(f) *de minimis* finding regarding the minor use and temporary occupancy impact to the property area. The minor impact consists of temporary construction easements needed and total 0.19 acres. This action will not alter or involve the characteristics that listed the property in the National Register of Historic Places. This *de minimis* finding satisfies the requirements of Section 4(f) and is supported by the DE SHPO consultation that the temporary occupancy, impacts, and anticipated construction methods are considered "not adverse" when judged against the property.

The DE SHPO has acknowledged and agreed with DelDOT's intent to seek a Section 4(f) *de minimis* impact finding. As the agency with jurisdiction over the Section 4(f) qualified resource, their comments are discussed in Part E. of this Section 4(f) Evaluation. Therefore, at the Barratt's Chapel and Cemetery the project qualifies for a Section 4(f) *de minimis* impact finding based on the following criteria:

- The DE SHPO, as part of the Section 106 process, determined that the project at this specific location and involving the property's temporary use is not adverse.
- The DE SHPO has been informed of FHWA's intent to make *de minimis* impact finding on specific properties based on their written concurrence in the Section 106 effects determination; and
- The views of and needs of the property owner have been considered and obligated. More importantly, it should be noted that their input and requested action caused the Section 4(f) applicability in the first place.

Copies of the DE SHPO's correspondence specific to the Section 106 adverse effect (Pages VI-21 to VI-22) and *de minimis* Section 4(f) finding (pages VI-23 to VI-24) are included in Appendix B.



DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	SCALE 0 60 120 180 FEET	SR1, LITTLE HEAVEN GRADE SEPARATED INTERSECTION	CONTRACT	BRIDGE NO.	-
				24-122-D2	DESIGNED BY:	SFP
				COUNTY	CHECKED BY:	WFC
				KENT		

**Figure IV-5
 Barratt's Chapel and
 Cemetery Minimization**

2. Thomas James House (CRS # K-2686)

Figure IV-6 shows the Preferred Alternative at the Thomas James House property. The undertaking would require that a 20' wide strip of right-of-way be acquired along the length of the property fronting Clapham Road. This calculates to 0.14 acres of acquisition or converted use of the property resulting in a Section 4(f) "Use" due to minor permanent impacts to the property. TCEs are also needed totaling 0.06 acres. The changes to the front of the property involve removal of strip vegetation and trees in order to widen the roadway. Several trees (although not contributing to the NRHP eligibility) will be replaced along the front of the newly improved road. Despite this encroachment, the dwelling historically contributing to the property is set back from the road and will not be affected.

The dwelling is NRHP-eligible under Criteria C for architecture and the landscape surrounding the house is not specifically identified as a contributing element of the historic property, the minor changes of the physical features resulting from widening the roadway will not result in an adverse effect because the location, setting, and feeling elements will continue to operate and function no differently than before. The undertaking is, therefore, recommended for a *de minimis* impact finding (per 23 CFR 774.3(b)). The application of a *de minimis* finding satisfies the requirements of Section 4(f) and is supported by the DE SHPO's consultation that the minor take and use of the property and the anticipated construction methods are not considered adverse.

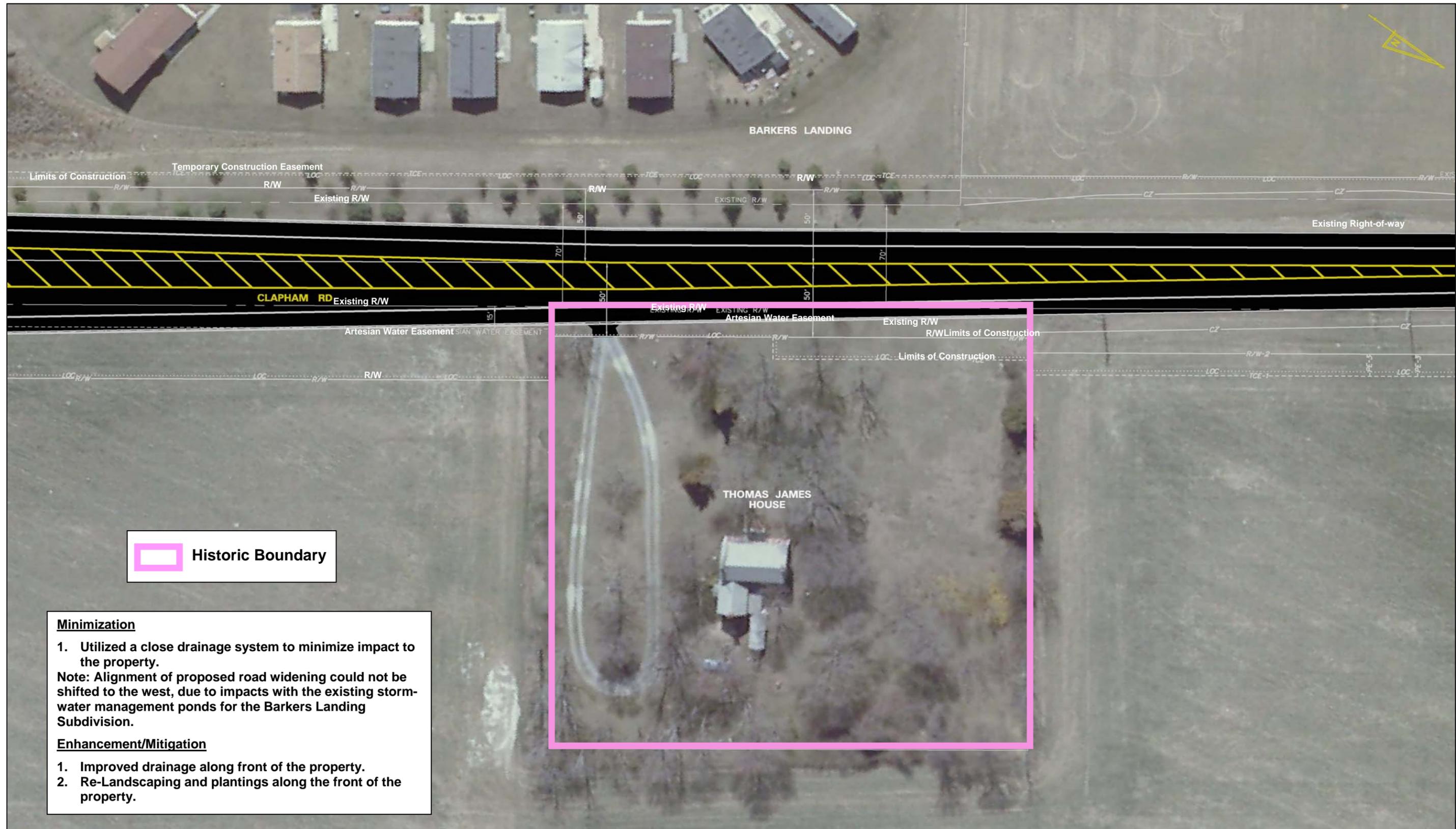
The DE SHPO has acknowledged and agreed with DelDOT's intent to seek a Section 4(f) *de minimis* impact finding. As the agency with jurisdiction over the Section 4(f) qualified resource, their comments are included in Part E. of this Section 4(f) Evaluation. The Thomas James House the project qualifies for a Section 4(f) *de minimis* impact finding based on the following criteria:

- The DE SHPO, as part of the Section 106 process, determined that the project at this specific location and involving the property's use is not adverse.
- The DE SHPO has been informed of FHWA's intent to make *de minimis* impact finding on specific properties based on their written concurrence in the Section 106 effects determination; and
- The views of and needs of the property owner (Trustees of Barratt's Chapel) will be considered and obligated. Any trees that are anticipated to be removed will be replaced on the property or state right of way on a one to one basis.

Additionally, TCEs totaling 0.06 acres will be required from the Thomas James House during construction and during the proposed tree replacements. Given that the access needs would occur on a temporary basis only, the requirements of Section 4(f) would not apply because:

- The duration of the impact will be temporary (less than the time needed for construction of the project);
- There will be no change in ownership of the land;
- The scope of work will be minor, (both the nature and magnitude of the changes to the Section 4(f) resource);
- There are no anticipated permanent adverse physical impacts; and
- The land being used will be fully restored, i.e. the resource will be returned to a condition which is at least as good as that which existed prior to the project.

Copies of the DE SHPO's correspondence specific to the Section 106 adverse effect (Pages VI-21 to VI-22) and *de minimis* Section 4(f) finding (pages VI-23 to VI-24) are included in Appendix B.



DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		SCALE 0 30 60 90 FEET	SR1, LITTLE HEAVEN GRADE SEPARATED INTERSECTION	CONTRACT	BRIDGE NO.	-
					DESIGNED BY:	SFP	
					CHECKED BY:	WFC	
					COUNTY	KENT	

**Figure IV-6
 Thomas James House
 Minimization**

3. Mt. Olive Colored School/Mt. Olive School (CRS # K-2685)

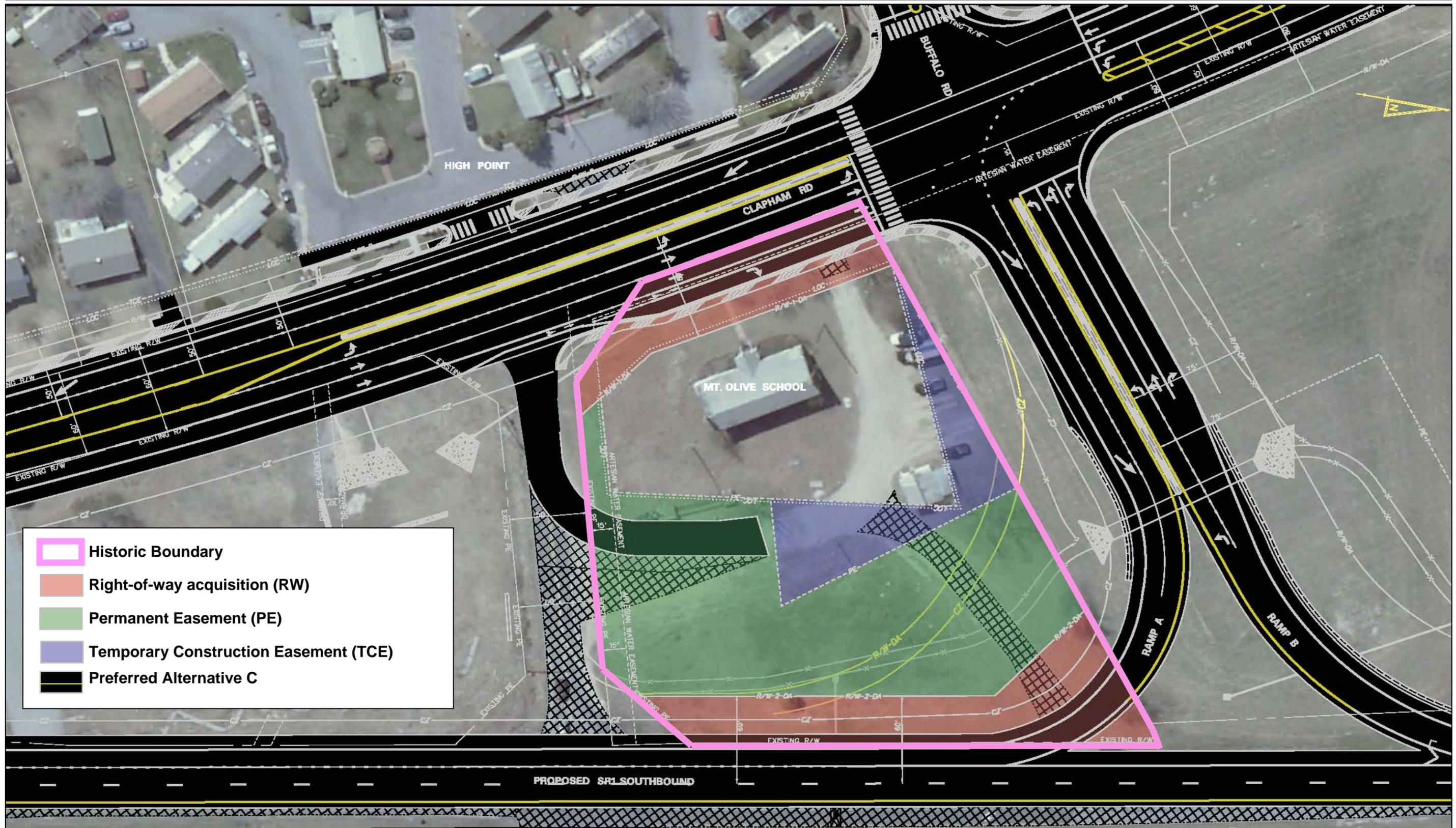
Figure IV-7 shows the Preferred Alternative at the Mt. Olive Colored School/Mt. Olive School property, which fronts Clapham Road to the west, existing SR 1 to the east and Mulberrie Point Road to the south. The Preferred Alternative would require the following right-of-way acquisitions to the property: a 50' wide strip of right-of-way along the length of the property fronting Clapham Rd (0.21 acres); an area adjacent to SR 1 (0.28 acres) and an area as a Permanent Easement (0.78 acres) for a total of approximately 1.27 acres of the property. Right-of-way and permanent easements constitute approximately 62% of the use of the total property.

Based on improvements in this area, driveway access from the property to and from SR 1 would be removed, however access to this property would be provided via an entrance on Mulberrie Point Road. Drainage and an underground sewer line (a primary line for the entire County) will also be implemented, adjusted, and re-graded along the property and will need to maintain a permanent easement for future maintenance, however the land will be landscaped and grass will be replanted after it is installed. However, there are no impacts to the former school building itself. If in the future any changes, including access would be needed it would need to be coordinated with the DE SHPO and FHWA and would be subject to additional Section 106 coordination and Section 4(f) Evaluation.

A 0.19- acre TCE will serve as a staging area during construction. The TCE would constitute an exception to the Section 4(f) requirements based on the following criteria:

- The duration of the impact will be temporary, i.e. less than the time needed for construction of the project;
- There will be no change in ownership of the land;
- The scope of the work will be minor, (i.e., both the nature and the magnitude of the changes to the Section 4(f) resource are minimal);
- There are no anticipated permanent adverse physical impacts; and
- The land being used will be fully restored, i.e. the resource will be returned to a condition which is at least as good as that which existed prior to the project.

Because the right-of-way and permanent impact acquisitions to the Mt. Olive Colored School/Mt. Olive School have adverse effects (under 36 CFR 800) it was necessary to undergo the development of a full avoidance alternative that would avoid this Section 4(f) property altogether (per 23 CFR 774.3(a)(1)). Avoidance Alternatives for this resource are discussed in the following section followed by the options to minimize harm, prevent harm, and provide mitigation.



DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 50px; height: 15px;"> </td><td style="width: 50px; height: 15px;"> </td></tr> <tr><td style="width: 50px; height: 15px;"> </td><td style="width: 50px; height: 15px;"> </td></tr> <tr><td style="width: 50px; height: 15px;"> </td><td style="width: 50px; height: 15px;"> </td></tr> </table>							SCALE 0 30 60 90 FEET	SR1, LITTLE HEAVEN GRADE SEPARATED INTERSECTION	Figure IV-7 Preferred Alternative C in the Vicinity of the Mt. Olive School

E. Avoidance Alternatives

Avoidance alternatives were considered for all historic structures identified in the entire project area. With the exception of the No-Build Alternative, none of the alternatives were able to completely avoid right-of-way impacts to either the Mt. Olive Colored School/Mt. Olive School or the Thomas James House properties. As discussed in the previous headings of this Section 4(f) Evaluation, the strip right-of-way required for transportation improvements upon the Thomas James House is *de minimis* therefore no further avoidance or minimization alternatives need to be developed. An avoidance alternative was not needed for Barratt's Chapel because the Preferred Alternative avoids any need for right-of-way or permanent easements and meets exception for a *de minimis* finding.

However, several avoidance alternatives were tested and determined in order to best avoid encroaching onto the Mt. Olive Colored School/Mt. Olive School property. In sum, all were determined not to be *prudent* or *feasible* in order to satisfy the project purpose and need and because of impacts would result due to the Mt. Olive School's location at the junction of SR 1 and Mulberrie Point Road.

The following Section 4(f) Avoidance Alternatives for the Olive Colored School/Mt. Olive School were considered:

1. No-Build Alternative

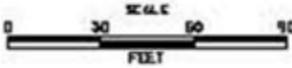
The No-Build Alternative (**Figure IV-8**) is based on a no-construction scenario where roadway improvements would not take place. Future improvements would entail maintenance of the existing roadway surfaces, road paving, road signs, traffic signals and signal timing. This alternative would include the implementation of feasible Intelligent Transportation Management Systems strategies similar to those along Interstate I-95, SR 1, or US 13 and 113. These transportation strategies might include:

- Continuation of traffic signals that are integrated within a regional signal system and coordinated and administered by the DelDOT Transportation Management Center (TMC).
- Surveillance cameras linked to the TMC and the DelDOT web site for live interactive traffic monitoring and emergency response.
- Dynamic message signs.
- Traffic and transit information kiosks.
- Vehicle detection systems used to optimize traffic signals and detect incidents.

Although additional transit, pedestrian, or bicycle facilities could be added and implemented as separate projects, the No-Build Alternative would not be consistent or adhere with the SR 1 Corridor Capacity Program. Moreover, under the No-Build Alternative, the project would not meet the purpose and need and would not address existing or future traffic congestion, accident safety, and local transportation access needs. However, the No Build Alternative would result in no use of a Section 4(f) resource.



 Historic Boundary

DELAWARE DEPARTMENT OF TRANSPORTATION		ADDENDUMS / REVISIONS			SR1, LITTLE HEAVEN GRADE SEPARATED INTERSECTION	Figure IV-8 No-Build Alternative in the Vicinity of the Mt. Olive School

2. Avoidance Alternative for Preferred Alternative C

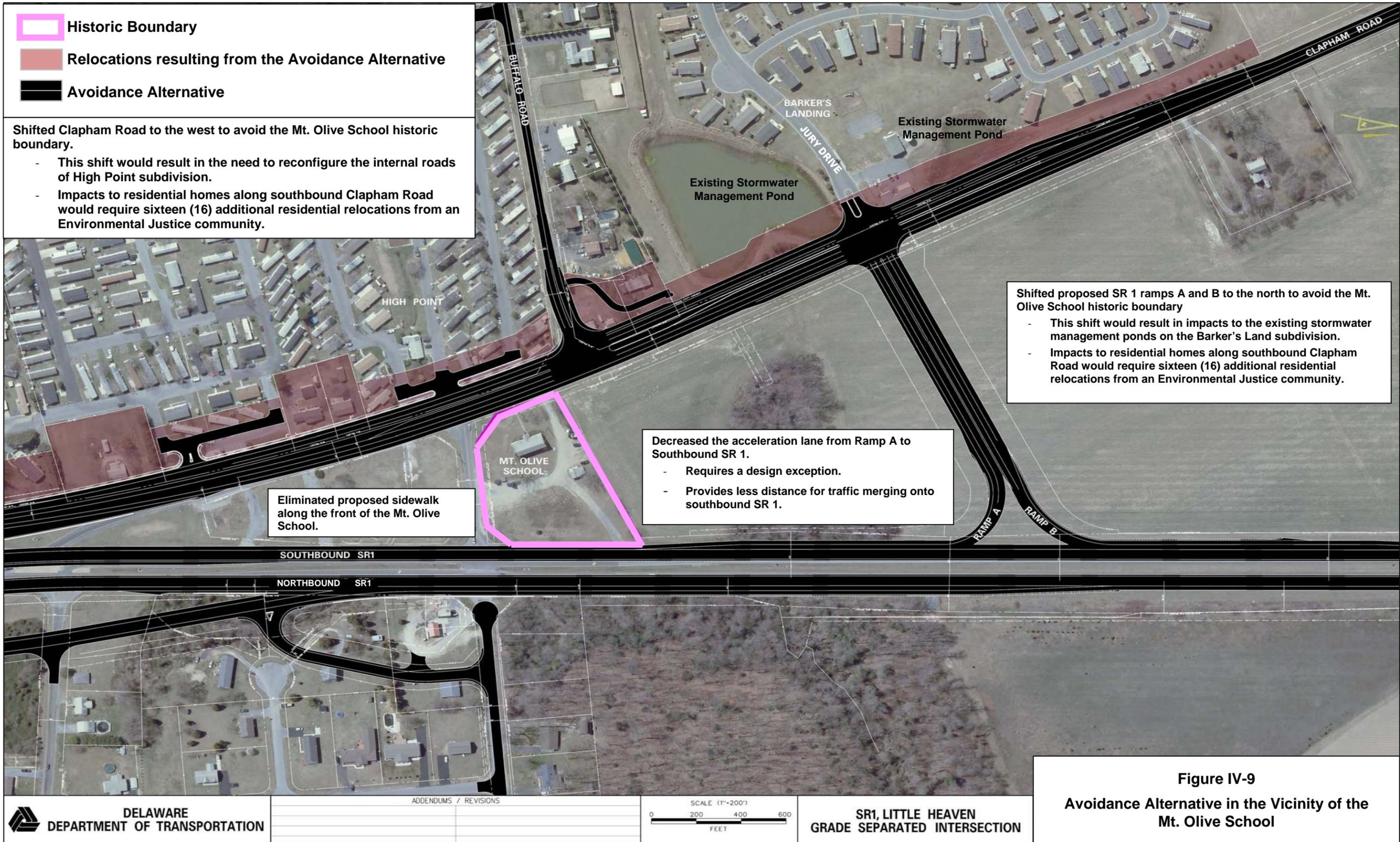
The first total Avoidance Alternative, the No-Build Alternative was not prudent or feasible because it did not address the project's purpose and need. A second Avoidance Alternative for Preferred Alternative C was developed and evaluated to avoid encroaching onto the Mt. Olive Colored School/Mt. Olive School property, while still meeting the project's purpose and need. This Avoidance Alternative (See **Figure IV-9**) eliminates the proposed sidewalk along the front of the school, shifts the Clapham Road alignment to the west, shifts the SR 1 ramps A and B to the north and decreases the length of the acceleration Ramp A to southbound SR 1 to avoid impacting the School property, but actually results in more significant impacts at other locations.

There are several significant secondary and cumulative impacts that result from implementing an Avoidance Alternative at this location. First, the shift of the Clapham Road alignment to the west would result in sixteen (16) residential relocations from High Point subdivision, which would constitute a disproportionately high and adverse impact to this Environmental Justice community. The impact would be even greater if a sidewalk is added on either side of the roadway (i.e., a sidewalk footprint is normally 5' in width).

As a result of the shift of Clapham Road west under this Avoidance Alternative, additional utility pole and sewer line relocations would result, both of which would increase the impacts to the High Point subdivision and would be anticipated to substantially increase the cost and scope of the project. The impacts to High Point would also require additional entrance improvements and reconfiguration of the internal roadway network. The remaining residents of the community with units closest to the road would experience increased noise and visual impacts. These modifications would also result in the need to redesign the alignment of Clapham Road to the south of this location in order to tie-in to the realignment which would in turn result in even more frontage takes along Clapham Road. In addition, excluding any pedestrian amenities, such as a sidewalk in an effort to reduce right-of-way impacts, places hardship on impacts upon Environmental Justice communities by eliminating safe pedestrian facilities. Local transit (DART) does service this area and would need to be relocated.

The Avoidance Alternative would also be designed with a new ramp access to SR 1 and Clapham Road connecting with the Jury Drive intersection to form a four-legged, signalized intersection. This would eliminate right-of-way, construction, or easement acquisitions at the northeast corner of the Mt. Olive School property at the on-ramp to southbound SR1. In order to avoid this acquisition the Avoidance Alternative would shift the SR 1 ramps A and B to the north where they would connect to a new 4-way intersection at Clapham Road at the entrance to the Barker's Landing Subdivision (i.e., Jury Drive). Barker's Landing is a small neighborhood to the north of the High Point community. Although no homes are directly in front, two existing stormwater management ponds for this subdivision are located to the west of existing Clapham Road. Adding a 4-way intersection and shifting Clapham Road to the west would impact both stormwater management ponds. These ponds would have to be rebuilt at another location, which would lead to addition right-of-way acquisition. Due to the tight constraints in this area, this would also result several more residential relocations in the Barker's Landing subdivision.

Although this Avoidance Alternative could be achieved from a design parameter, several traffic operation and safety issues would result from relocating ramps A and B adjacent to the entrance of Barker's Landing. By relocating the proposed ramps excessive queuing would occur along Clapham Road between Buffalo Road and the new intersection of the SR 1 ramps at Clapham Road/Jury Drive. Further measures to split the traffic flow using signalization would cause further operational issues for through and turning movements at both intersections.



The Avoidance Alternative does not fully meet any of the goals of the purpose and need and therefore it is not *prudent* to relocate the intersection of the ramps at any location other than across from Buffalo Road. The avoidance cannot accommodate existing and future traffic volumes and maintain safe and efficient traffic operations. Accommodating existing and future traffic volumes and maintaining safe and efficient traffic operations can only be achieved when the proposed ramps meet with Buffalo Road to form a four-legged intersection, as proposed in the Preferred Alternative C.

In addition to the aforementioned avoidance measures, the Avoidance Alternative would require decreasing the length of the acceleration lane from Ramp A to southbound SR 1 from 1,350' to 710', a difference of 640'. This decrease would result in the need to obtain a design exception because the length does not meet typical standards for a high speed roadway. Reducing the length of the acceleration ramp would create a safety issue as motorists on the ramp would not be able to accelerate to a speed where they could safely merge with the high volume of through traffic on SR 1 which would create high potential for rear-end type crashes and sideswipe accidents due to the high volume of through traffic on SR 1. It is not *prudent* to shorten the acceleration ramp given the traffic volumes for the existing and future conditions along SR 1.

An avoidance of the Mt. Olive School property is feasible, but would not be prudent given the substantial impacts discussed above. In summary, avoiding the Mt. Olive School property result in substantial community disruption (16 displacements of EJ community residents), reduced safety for vehicles accessing SR 1 to/from Ramp A, reduced pedestrian mobility due to removal of sidewalk along Clapham Road. Therefore, attempts to totally avoid the impact on the Mt. Olive School are not *feasible* or *prudent* and therefore consistent with Section 4(f) approval under 23 CFR 774.3(a)(1) which states: "There is no feasible and prudent avoidance alternative, as defined in §774.17, to the use of land from the property". Options to Minimize Harm, Prevent Harm and Provide Mitigation are discussed in the following section and are consistent with Section 4(f) approval under 23 CFR 774.3(c)(2) which states: "The alternative selected must include all possible planning, as defined in §774.17, to minimize harm to Section 4(f) property."

F. Options to Minimize Harm, Prevent Harm and Provide Mitigation

As a result of refinements to initial Alternative C alternatives the overall right-of-way acquisition and permanent easements from the Mt. Olive Colored School/Mt. Olive School was reduced by 0.03 acres for the Preferred Alternative as previously shown in **Table IV-1** and **Figure IV-7**. In addition, the efforts to minimize Section 4(f) impacts also included the following minimization and enhancement and mitigation measures:

Minimization

- SR 1 Southbound on-ramp (Ramp A) reduced design speed from a 30 MPH curve to a 25 MPH curve, which reduces right-of-way and permanent easement takings from the school by 0.03 acres when compared to the original Alternative C. While it is acknowledged that this minimization of RW and PE does not minimize the adverse effect, it does represent, along with the Avoidance Alternative all possible planning, as defined in §774.17, to minimize harm to the property resulting from such use.

Enhancement/Mitigation

- Proposed sidewalk along the front of the school house.
- A new paved driveway will maintain access to this property replaces the dirt driveway that was prone to soil erosion.
- Re-landscaping and plantings along the front of the property.

As a measure to prevent further harm and provide mitigation, re-landscaping activities will be undertaken to mitigate the loss of the few trees that front the property. It would screen the property from traffic along SR 1, thus reducing visual impacts.

Similar to existing conditions, a sidewalk will also be re-installed along the front of the property. This will enable a safer pedestrian environment and re-convey a setting of a school house where students walked. All other paved areas will be restored to grasses and safe vehicular access will be provided for potential adaptive use needs.

If requested and verified by the property owner and the Division of Historic and Cultural Affairs as part of a mitigation package, a historic sign marker can also be added as a means to publicly convey the importance of this former school house historic property. Vibration studies and other protective measures can be implemented to best ensure that damage and repairs (should it be warranted) will not occur during construction and utility phases. There are also provisions for appropriate repairs (if warranted). All mitigation measures to prevent further harm are formalized and included in the project's MOA (see **Appendix A**).

G. Consultation and Coordination

Coordination with the DE SHPO was initiated as part of the alternatives development process and has occurred throughout the NEPA process. Coordination with individual property owners and Kent County government has also been on-going throughout preliminary engineering regarding the Section 4(f) resources. DelDOT's also partook in public outreach efforts with area residents, property owners and or other consulting parties with respect to development of the alternatives and development of the MOA. DE SHPO involvement and consultation has been extensive in term of plan overview, written and verbal coordination/communications, resource identification needs, scope changes, and field assessments.

FHWA and DelDOT have consulted with the DE SHPO and the public on alternatives or measures to avoid and/or help minimize effects on historic properties. The undertaking best minimizes impacts and harm to historic properties (and others) by incorporating various minor shifts in the alignment. The Preferred Alternative C takes into account efforts to avoid/minimize effects to all properties, particularly historic properties (i.e., Barratt's Chapel and Cemetery, Thomas James House, Mt. Olive Colored School/Mt. Olive School, W.C. Fountain Agricultural Complex and the Jehu Reed House). The proposed transportation improvements include shifts in the alignment where impacts to certain historic properties were unavoidable.

Copies of the DE SHPO's correspondence specific to the Section 106 adverse effect (Pages VI-21 to VI-22) and Section 4(f) finding (pages VI-23 to VI-24) are included in **Appendix B**.

Owners of the Mount Olive School (Delaware Department of Education) were contacted regarding impacts and the status of their state owned property. The question was also raised about the condition and status of the building with its lack of use/occupation and upkeep. At this time, the agency did not express specific historic preservation concern. They are aware of the

expected impact upon their property. Changes in vehicular access were not a concern either. The use of the building, now and into the future, has not been determined by this organization.

Trustee's for the Barratt's Chapel and Cemetery were contacted on several occasions. The relocation or removal of the fixtures (bell, sign, and trees) was coordinated as well as improvements in existing roadway shoulder access into their property. Improvement to their entranceways is not a result of the other transportation measures, but as a request to improve safety and ease of accessing the property. This added measure was not unreasonable.

No other property owners or organizations were known to express a historic preservation concern or view upon his/her property, including the Thomas James property.

Public outreach will continue during the project design with the public involvement process as deemed appropriate for purposes of Section 106, Section 4(f) the level of effort and 23 CFR 771.

H. Conclusion

Based upon the above considerations, there is no *feasible* and *prudent* alternative to the use of land from the Mt. Olive Colored School/Mt. Olive School. The Preferred Alternative includes all planning to minimize harm to the Mt. Olive Colored School/Mt. Olive School resulting from such use.

V. AGENCY AND PUBLIC COORDINATION

*SR 1, Little Heaven Grade Separated Intersection Project
Environmental Assessment / Section 4(f) Evaluation*



*U.S. Department of Transportation
Federal Highway Administration*



Delaware Department of Transportation

V. AGENCY AND PUBLIC COORDINATION

A. Agency Coordination

Agency coordination for the SR1, Little Heaven Grade Separated Intersection Project was initiated in February 1997 as part of the SR1 CCPP. It was recommended during the initial project scoping that this specific project be evaluated under an Environmental Assessment.

Meetings were held with the environmental resource and regulatory agencies to keep them up to date on the project progress and community involvement efforts throughout the project development process. Attendees included representatives from the following agencies:

1. US Army Corps of Engineers
2. Environmental Protection Agency
3. US Fish and Wildlife Service
4. Federal Highway Administration
5. Delaware Department of Natural Resources and Environmental Control
6. Delaware State Historic Preservation Office
7. Delaware Department of Agriculture
8. Delaware Office of State Planning Coordination

Meetings were generally conducted at three month intervals, piggybacking on DelDOT's Joint Permit Review meetings, and were supplemented with field reviews as needed. As alternatives were developed, they were presented along with their impacts, to the agencies for consideration and comment. The agencies focused their attention on the Preferred Alternative and related options and efforts to minimize overall impacts.

On April 1, 2010 copies of the Environmental Assessment and Draft Section 4(f) Evaluation were forwarded to the Delaware Division of Natural Resources and Environmental Control (DNREC), Wetlands and Subaqueous Lands Section and Coastal Zone Management Office, the U.S. Army Corps of Engineers, the U. S. Environmental Protection Agency, the U. S. Fish and Wildlife Service for a 30 day review period. No comments were received.

On April 19, 2010 copies of the Environmental Assessment and Draft Section 4(f) Evaluation were forwarded to the U. S. Department of Interior (DOI), Office of Environmental Policy and Compliance for a 45 day review period. DOI responded suggesting we include a signed copy of the Memorandum of Agreement developed with the Delaware State Historic Preservation Office (SHPO) and Federal Highway Administration (FHWA) in the final Environmental Assessment. This has been done.

B. Public and Community Involvement

The SR1, Little Heaven Grade Separated Intersection Project was initially identified as part of DelDOT's SR 1 CCPP. The SR1 CCPP program began as DelDOT policy in 1992 and was made into law in 1996 with the intent to preserve the capacity of existing transportation facilities rather than build new facilities on new alignments. In 1998, ten (10) locations were formally identified along the SR1/SR113 corridor that would require improvements to the existing roadway in order to preserve the capacity of the overall facility. The SR1, Little Heaven area was one of the project locations identified and presented in Public Workshops in 1998. More information about the CCPP can be obtained by visiting:

http://www.deldot.gov/information/pubs_forms/brochures/pdf/ccpp_fyi.pdf.

1. Public Workshops

Four (4) Public Workshops were held in the Little Heaven area to provide the greater community with the opportunity to view displays, hear presentations and offer comments regarding the various alternatives. Public Workshops were held on the following dates:

1. February 23, 2004
2. July 20, 2004
3. October 26, 2004
4. July 16, 2008

At the February 23, 2004 Public Workshop DelDOT presented Alternatives A (**Figure II-2**) and B (**Figure II-3**). At the meeting, concerns were identified among residents about the separation of the community and lack of interconnectivity between the eastern and western sides of the community of Little Heaven. The Bower's Beach, Frederica and Magnolia Fire Companies also had concerns about emergency access to the Little Heaven area. In addition, the location of the bridge crossing in the vicinity of Mulberrie Point Road would result in significant wetland impacts. The various input received from this meeting was utilized to develop several new alternatives.

At the July 20, 2004 Public Workshop DelDOT presented Alternatives C (**Figure II-4**), D (**Figure II-5**), E (**Figure II-6**) and F (**Figure II-7**) to address both the public and agency input received from the February 23, 2004 Public Workshop. These alternatives reduced wetland impacts and responded to concerns raised by the residents and local fire companies.

Alternatives C, D, and E involved moving the proposed bridge structure to the existing Bower's Beach Road intersection. The existing intersection at Bower's Beach Road would remain and SR1 will pass over the intersection on an elevated bridge structure. There are variations on local access, notably in the vicinity of the Tara subdivision, which is located off of northbound SR1 at the intersection of Mulberrie Point Road. Alternative F (**Figure II-7**) located the bridge structure and the Bower's Beach Road intersection further south than the other alternatives to reduce the visual impact of the bridge on the historic Jehu Reed House.

Alternatives C, D, E and F all include the extension of the project southward to Barratt's Chapel Road. A new tie-in between Barratt's Chapel Road and the western service road is provided, resulting in the closure of the median crossover located at Barratt's Chapel Road. This avoids an unsafe situation of several conflicting movements in the same location. Based on public input Alternative C was the public's preferred Alternative.

At the October 26, 2004 Public Workshop DelDOT presented several refinements to Alternatives C, D, E and F based on the July 20, 2004 Public Workshop. As result of comments received at the October workshop and compiling all of the previous comments from residents, local fire companies, and state and federal natural and cultural resource agencies, Alternative C, with a slight variation, was selected as the Preferred Alternative and presented at the Final Public Workshop on July 16, 2008.

Throughout the long history of this project, DelDOT has coordinated closely with federal and state environmental and regulatory agencies and the Federal Highway Administration. The various public workshops also provided a forum for interaction with the local residents and business owners, along with emergency service providers and all input was crucial to selection of the Preferred Alternative C with refinements.

2. Project Website

Since the inception of the SR1, Little Heaven Grade Separated Intersection Project, DelDOT has maintained a project website (http://www.deldot.gov/information/projects/little_heaven/index.shtml). The website includes overall project information, project history, environmental documents, public involvement efforts and DelDOT contact information. The available information includes: display boards, workshop handouts, alternatives mapping, comment forms and summary of comments received. Under the link “Project Workshops” there are links to each of the Public Workshops including a meeting synopsis, Powerpoint presentation slides for all of the Workshops are there for viewing along with a copy of the comment sheet that was provided to meeting participants.

3. Other Public Involvement Efforts

A mailing list was developed from sign-in sheets at every meeting and continuously updated. The mailing list was used to distribute meeting announcements and project updates. Announcements were also posted in newspapers.

Public notice of the availability of the Environmental Assessment (EA) and Draft Section 4(f) Evaluation was posted in the News Journal and the Delaware State News (April 20, 2010) providing a 30 day comment period. The 30 day period was up May 21, 2010. No comments were received on the public notice.

4. References

References for this EA may be found in the project files maintained by DelDOT.

VI. APPENDICES

SR 1, Little Heaven Grade Separated Intersection Environmental Assessment / Section 4(f) Evaluation



*U.S. Department of Transportation
Federal Highway Administration*



Delaware Department of Transportation

APPENDIX A: MEMORANDUM OF AGREEMENT

*SR 1, Little Heaven Grade Separated Intersection
Environmental Assessment / Section 4(f) Evaluation*



*U.S. Department of Transportation
Federal Highway Administration*



Delaware Department of Transportation

MEMORANDUM OF AGREEMENT (MOA)

**AMONG THE FEDERAL HIGHWAY ADMINISTRATION, THE DELAWARE STATE
HISTORIC PRESERVATION OFFICE, AND THE DELAWARE DEPARTMENT OF
TRANSPORTATION**

**REGARDING IMPLEMENTATION OF THE LITTLE HEAVEN GRADE SEPARATED
INTERSECTION PROJECT KENT COUNTY, DELAWARE**

**STATE CONTRACT NUMBER: 24-122-02
FEDERAL AID NUMBER: NH-K008(6)**

WHEREAS, the Federal Highway Administration (FHWA) with the Delaware Department of Transportation (DelDOT) propose to construct 2.73 miles of transportation improvements including a grade separated intersection along US 113/SR 1 in Little Heaven, Kent County, DE, hereon referred to as the "Project", and

WHEREAS, the FHWA in consultation with the Delaware State Historic Preservation Office (DE SHPO) and DelDOT has established the Project undertaking's Area of Potential Effect (APE), as defined in 36 CFR 800.16(d), as those areas within the Limit of Construction (LOC), Temporary Construction Easements (TCE), Permanent Easements (PE), Right of Way (ROW), and adjacent or contiguous properties where visual effects may occur (**see Attachment A**); and

WHEREAS, the FHWA has consulted with the DE SHPO in accordance with Section 106 of the National Historic Preservation Act, 16 U.S.C. Part 470, and its implementing regulations (36 CFR Part 800) to resolve any adverse effects that may occur as a result of this Project undertaking; and

WHEREAS, FHWA has afforded the public an opportunity to comment on the effects of the Project undertaking on historic properties through the National Environmental Policy Act (NEPA) of 1969, as amended; and through DelDOT's Public Involvement Procedures; and

WHEREAS, FHWA has elected to phase the identification and evaluation of historic properties as provided in 36 CFR 800.4(b)(2) as stipulated under this agreement; and

WHEREAS, FHWA pursuant to 36 CFR Part 800.4 (a)(2), has determined that within the APE, the following properties are listed in or are eligible for the National Register of Historic Places:

W. C. Fountain Farmstead (Cultural Resource Survey No. K01689);
Barrett's Chapel and Cemetery (K00103);
Jehu Reed House (K00137);
Mt. Olive School (K02685); and
Thomas James House (K02686); and

WHEREAS, FHWA in consultation with the DE SHPO has applied the criteria of adverse effect to known historic properties; and

WHEREAS, FHWA has determined that the Project will have no effect on:

W. C. Fountain Farmstead (K01689); and

WHEREAS, FHWA, through DelDOT has determined that this project will have no adverse effect on:

Thomas James House (K02686);
The Barrett's Chapel and Cemetery (K00103); and

WHEREAS, FHWA, through DelDOT has determined that this project will have an adverse effect on:

Jehu Reed House (K00137);
Mt. Olive School (K02685); and

WHEREAS, FHWA has determined that the Project may also affect as yet unidentified historic properties in areas that have not been subject to prior cultural resource investigations, and/or resources for which eligibility for listing in the National Register of Historic Places has not yet been determined; and

WHEREAS, FHWA and DelDOT have notified the Advisory Council on Historic Preservation (ACHP) of the Project's potential to adversely affect known historic properties and it declined to participate in the consultation on November 12, 2008. However, if through the process outlined in this Memorandum of Agreement (MOA), the signatories find that other historic properties may be adversely affected, coordination with the ACHP may resume; and

WHEREAS, DelDOT participated in the consultation, has responsibilities for implementing stipulations under this MOA, and has been invited to be a signatory to this MOA, pursuant to 36 CFR 800.6(c)(2); and

WHEREAS, FHWA has contacted the Delaware Nation and the Stockbridge-Munsee Tribe concerning the Project. The Delaware Nation indicated its interest in being a consulting party to all projects within the State of Delaware, and therefore has been invited to participate in developing this MOA; and

WHEREAS, FHWA and DelDOT will inform the Delaware Nation and the Stockbridge-Munsee of project activities related to Native American archaeological sites, investigations, and treatments, as provided for under the stipulations of this MOA, and

NOW, THEREFORE, the FHWA, DE SHPO, and DelDOT agree that the Project will be implemented in accordance with the following stipulations, in order to take into account the effect of the undertaking on historic properties.

STIPULATIONS

The FHWA shall ensure that the following stipulations are implemented:

I. Archaeological Resources

A. Identification/Evaluation

Prior to starting construction or other ground-disturbing activities, FHWA and DelDOT in consultation with the DE SHPO shall complete identification (Phase I) archaeological surveys within the APE (**Attachment A**) for the project, and will determine if identified sites will require a Phase II level archaeological survey to evaluate their National Register of Historic Places eligibility. Evaluation Studies (Phase IB and/or Phase II) may require additional background research and/or additional field excavations. All surveys shall conform to the requirements of Stipulation VII of this MOA.

DelDOT shall prepare reports on findings of the archaeological identification/evaluation surveys and shall submit the reports to the DE SHPO for their review and concurrence. Copies will also be provided to any consulting parties for comment. Upon receipt of the document, the review period will be thirty (30) days. FHWA and DelDOT will take into account comments and will recommend any next steps.

During the Evaluation Studies (Phase II), FHWA and DelDOT shall apply the National Register criteria (36 CFR 60.4) in accordance with 36 CFR 800.4 (c), taking into account applicable historic contexts and management plans developed for Delaware's historic and prehistoric archaeological resources.

If FHWA and DelDOT determine that any of the National Register criteria are met, and the DE SHPO agrees, the archaeological site(s) shall be considered eligible for the National Register. If FHWA and DelDOT determine that the National Register criteria are not met, and the DE SHPO agrees, the archaeological site(s) shall be considered not eligible for the National Register.

Based on the Evaluation Studies (Phase II), should a signatory to this agreement not agree on the eligibility determination of an archaeological site(s), the DelDOT and FHWA shall obtain a determination from the Secretary of the Interior, pursuant to 36 CFR 800.4(c)(2), 36 CFR 63.2(c) and 63.3(d).

B. Effect Determination/Mitigation

If eligible archaeological sites are identified and affected within the APE, DelDOT will make a reasonable effort to avoid these sites or to minimize impacts to them. If the eligible sites cannot be avoided, DelDOT will apply the Criteria of Adverse Effect in accordance with 36 CFR Part 800.5.

If the project will have an adverse effect on archaeological sites, DelDOT in consultation with the DE SHPO, shall develop a treatment plan. The treatment plan may include elements of data recovery or an alternative mitigation plan.

DelDOT shall submit the treatment plan to the DE SHPO, the Delaware Nation, and other interested or consulting parties that may be identified later in time for their review and comment. Upon receipt of the document, the review period will be thirty (30) days. Following thirty (30) days, DelDOT will take into account any comments, and will recommend any next steps.

Should data recovery investigations be warranted, DelDOT and FHWA shall ensure that a data recovery plan is developed in consultation with the DE SHPO, or other consulting parties or interested parties identified later in time. The plan shall specify, at a minimum:

- the property, properties, or portions of properties where data recovery is to be carried out, and any property that will or may be destroyed without data recovery;
- research questions to be addressed through data recovery, with an explanation of their relevance and importance;
- the research methods to be used, with an explanation of their relevance to the research questions;
- the methods to be used in analysis, data management, and data dissemination, including a schedule;
- a provision for assessing materials that may be in need of conservation;
- proposed disposition of recovered materials and records;
- proposed methods for involving the interested public in the data recovery, and for disseminating the results of the work to the interested public;
- a proposed schedule for the submission of progress reports to the DE SHPO; and
- provisions to meet on-site in order to evaluate the success of the initial fieldwork phase of any data recovery program, and near the end of the fieldwork efforts to validate substantial completion.

When and/or if an alternative mitigation strategy is chosen and approved by the DE SHPO, FHWA, and DelDOT, it may include but is not limited to: analysis and synthesis of past data accumulated through either DE SHPO, FHWA, and DelDOT projects, updating the relevant DE SHPO and DelDOT archaeological websites and GIS databases, development of historic and prehistoric contexts and preservation priorities, statewide predictive models, development of travel or informational displays with the cultural resource work for this Project, oral histories from the project APE, documentaries about the history of the APE, virtual tour / website about the archaeological sites being mitigated in the APE, and improved archaeological data management and access for both DE SHPO and DelDOT.

DelDOT will complete all necessary data recovery fieldwork prior to commencing construction in the site areas. Alternative mitigation may or may not be completed prior to commencing construction in the site areas.

DelDOT shall provide all draft and final archaeological reports and public information materials to the DE SHPO for review and comment. DelDOT shall also provide all such reports and materials that pertain to Native American archaeological sites to the Delaware Nation for review and comment. DelDOT will take into account any comments received. All final reports shall meet the Secretary of the Interior's standards and Guidelines for Archaeological Documentation (48 FR 44734-37), while also satisfying the DE SHPO's guidelines for archaeological surveys or investigations.

C. Public Involvement:

If mitigation is necessary, DelDOT will prepare a public participation plan and public information materials. Before releasing materials to the public, DelDOT shall submit the proposed action plan(s) with any materials to the FHWA, DE SHPO, the Delaware Nation, and other consulting or interested parties that may be identified for their review and comment. Upon receipt of the materials, the review period will be thirty (30) days. Following thirty (30) days, DelDOT will take into account any comments received, and will recommend any next steps, if necessary, to the FHWA, DE SHPO and the Delaware Nation.

The public participation plan may include, but is not limited to archaeological site tours for the public and educational groups. The specific public outreach materials produced will be determined individually for each site for which mitigation is necessary and may include, but are not limited to pamphlets, videos, historical markers, brochures, websites, exhibits, displays for public buildings booklets on the history or prehistory of the project area, lectures or presentations at academic conferences, and/or public institutions such as schools and historical societies.

DelDOT shall distribute the public information materials to other consulting parties and interested parties, local schools, historical societies, libraries, museums and/or other venues and individuals deemed pertinent in consultation with the DE SHPO, FHWA, and the Delaware Nation.

D. Registration of Site(s):

After the completion of the data recovery effort, DelDOT shall, in consultation with the DE SHPO, and other interested parties, as deemed appropriate by the FHWA, reevaluate the Site(s) to determine if it has yielded and/or may still yield information important in the prehistory or history of Delaware. If DelDOT and the DE SHPO agree that the Site(s) still meets the Criteria for eligibility to the National Register of Historic Places, then DelDOT shall instruct its qualified cultural resource consultant to prepare a Determination of Eligibility form for possible use as a formal nomination to the National Register of Historic Places for the remaining areas of the site(s), and submit it to the DE SHPO for review and further revision, as necessary.

E. Curation

DelDOT shall ensure that all records and materials resulting from the archaeological investigations will be processed, prepared for, and curated in accordance with 36 CFR Part 79 and the Division of Historical and Cultural Affairs' (the Division) "Guidelines for the Curation

of Archaeological Collections” (2001). These records and materials shall be curated at the Division, or its designee, following the policies of the institution, except as may be provided for under the following paragraph.

As part of the Public Involvement efforts outlined in Stipulation I.C. of this Agreement, the FHWA, DelDOT and DE SHPO will consult to determine if any archaeological materials may be loaned to a public museum or other public institution for the purposes of exhibit or research, following the Division’s loan policy and procedures. Such loans and exhibits may occur only after the curatorial procedures, referenced in the first paragraph in this stipulation, have been completed. As deemed appropriate by FHWA, DelDOT, the DE SHPO, the Delaware Nation and other consulting or interested parties identified later in time will be consulted concerning curation and any public exhibition of artifacts.

F. Cemeteries and Human Remains

DelDOT Environmental Studies and/or appropriate DelDOT construction engineering staff shall immediately (within 24 hours) notify the DE SHPO and FHWA of the discovery of any human remains encountered during the archaeological investigations or the project construction. DelDOT shall cease all activities that may disturb or damage the remains, and comply with the Delaware Unmarked Human Remains Act (7DE Code Chapter 54).

If the human remains are of Native American affiliation, then FHWA will immediately notify the Delaware Nation and the Stockbridge-Muncee Tribe (the Tribes). FHWA and DelDOT will forward information regarding Native American discoveries to the DE SHPO and the Tribes for review and comments. This will occur as soon as possible, within a period no longer than two (2) weeks. FHWA will request that the parties comment on the information within two (2) weeks of receipt. FHWA will then consult with the Tribes, the DE SHPO and DelDOT to determine an appropriate course of action in accordance with 36 CFR 800, and taking into account the above cited state law.

The DE SHPO will comply with the Native American Graves Protection and Repatriation Act of 1990 (PL 101-601) with regard to disposition of the remains and/or associated funerary objects, as applicable.

G. Residual Right of Way

The Project will require property acquisition that may or may not involve impacts to archaeological sites. Should existing right of way or lands acquired (for purposes of the Project) be later subdivided and/or declared excess right of way (to be leased, transferred, or sold), preservation covenants for that subject parcel will first be considered by DelDOT, FHWA, and DE SHPO before DelDOT takes any action to divest itself from such lands. The parties will determine if the subject parcel(s) contain, or has the potential to contain, any historic properties, and if so, determine the need for any legal instruments that would ensure long-term preservation of such properties. This will adequately address any reasonably foreseeable adverse effects that could occur due to transfer, lease, or sale of property out of Federal ownership or control without

adequate and legally enforceable restrictions to ensure long-term preservation (or mitigation) of historic properties (36 CFR part 800.5(a)(2)(vii)).

II. Historic Buildings

A. Landscaping and Other Amenities

DelDOT in consultation with the property owner will consider including landscaping in its design plans for the Mount Olive School, Thomas James House, and Barratt's Chapel and Cemetery, to replace trees will be removed as part of the construction at each location. The replanting will reduce some of the adverse visual effect at Mount Olive School, and will ensure that the project will not alter conditions at the Thomas James House or the Barratt's Chapel and Cemetery in a manner that could result in an adverse effect. DelDOT shall submit a proposed landscaping concept to the property owners and the DE SHPO for review and comment. The review period will be (thirty) 30 days. DelDOT will take into account any comments received, and incorporate the final concept into the project plans and specifications.

DelDOT will reconstruct the existing sidewalk along Clapman Road that fronts the Mount Olive School property.

According to past coordination with the DE SHPO and the Barratt's Chapel Board of Trustees, the commemorative bell, the current historical marker, and the entrance sign for Barratt's Chapel and Cemetery will be offset and relocated from their current location. Before relocating the historical marker, DelDOT shall first obtain the approval of the Delaware Public Archives. Should this plan be modified such that fixtures would be located elsewhere on the property, DelDOT and FHWA will notify the DE SHPO to determine if adverse effects apply and further consultation is necessary.

B. Alternative Mitigation

In consideration of the fact that some adverse effects to the Mount Olive School and Jehu Reed House are not directly mitigatable, DelDOT, in consultation with the DE SHPO and the property owners, will consider alternative forms of mitigation. Mitigation would focus on ways to ensure that the history of the Little Heaven area is not forgotten over time and on delineating the importance of the Mount Olive School and Jehu Reed House. Such measures may include, but are not necessarily limited to, a historical marker or other signage, or other options similar to those outlined in Stipulation I.B. of this MOA.

After consulting with the property owners, DelDOT shall submit a proposed concept to the property owners and the DE SHPO for review and comment. The review period will be (thirty) 30 days. DelDOT will take into account any comments received.

If the final concept includes a sign, DelDOT shall incorporate the final concept into the project plans and specifications. Once the sign is erected, it will not be FHWA or DelDOT's responsibility to maintain it, if it is installed outside of DelDOT's right-of-way or easements. If the parties prefer a formal historical marker through the Delaware Public Archives' Historical

Marker Program, DelDOT's participation will be limited to assisting in preparing the application, following the requirements of the program.

C. Vibration Monitoring

DelDOT, in consultation with the DE SHPO and FHWA has the option to develop and implement a vibration monitoring plan to monitor the effects (or prevent an adverse effects) of Project construction on both the Mt. Olive School and the Jehu Reed House. Should an agreement be reached to monitor either building, DelDOT shall acquire the services of a professional engineer or other qualified expert, as appropriate, that is knowledgeable about the effects of construction vibration on historic buildings, to develop this plan. The plan will include a schedule for documenting the baseline conditions of the historic properties that will be monitored.

During construction, if the monitoring indicates that damage is occurring to historic properties subject to the monitoring plan, DelDOT shall instruct its contractor to cease construction in the immediate area. DelDOT shall then, in consultation with the DE SHPO, FHWA, and the property owners, acquire the services of a professional engineer and/or architect that is knowledgeable about the effects of construction vibration on historic buildings, to:

1. determine the nature and extent of the damage caused by the construction; and
2. alter any construction methods that may have caused the damage; and
3. develop and implement methods to stabilize and/or repair the damage, in accordance with the recommended approaches in the *Secretary of the Interior's Standards and Guidelines* or other agreed upon method.

III. Unexpected Discoveries

In the event that previously unidentified cultural resources are discovered or unanticipated effects to historic properties occur during construction, DelDOT shall instruct the contractor to cease construction in the immediate area, and immediately notify FHWA. FHWA shall comply with 36 CFR Part 800.13 by consulting with the DE SHPO. If said discovery or unanticipated effects pertain to resources of Native American affiliation, FHWA and DelDOT shall include the Delaware Nation in the consultation. The FHWA will notify the DE SHPO and the Delaware Nation within one (1) working day of the discovery. The FHWA, DelDOT, and the DE SHPO will meet at the location of the discovery within forty-eight (48) hours of the initial notification to determine appropriate treatment of the discovery prior to resumption of construction activities within the area of discovery. If the affected resource is of Native American affiliation, FHWA shall first consult with the Delaware Nation before implementing any such treatment option.

IV. Disposal of Project Related Materials

DelDOT shall consult with the DE SHPO concerning the location of the disposal of materials produced by any and all demolition, construction, excavation, and/or dredging associated with the Project. Upon receipt of adequate information, the DE SHPO will have thirty (30) days to review any and all such locations to ensure the disposal will not adversely affect historic

properties. DelDOT shall notify the contractor, if the DE SHPO objects to the proposed disposal sites, and request alternative disposal site(s). In turn, this site(s) will be subject to DE SHPO review. DelDOT shall ensure that its contractors do not use any such site(s) if the activity may adversely affect historic properties.

V. Review of Project Plans

DelDOT shall provide copies of the semi-final and final design plans of the Project to the DE SHPO. FHWA will also notify the Delaware Nation of the availability of the plans, and if so requested, provide copies for their review and comment. The DE SHPO and the Delaware Nation as consulting parties will have thirty (30) days from the receipt of all materials to provide comments on the plans. DelDOT shall take into account any comments provided.

VI. Subsequent Changes to the Project

If DelDOT proposes any changes to the Project affecting location, design, methods of construction, materials, or footprint of the Project, DelDOT shall provide the DE SHPO, the Delaware Nation, and other consulting parties identified later in time with information concerning the proposed changes. The DE SHPO and consulting parties will have thirty (30) days from the receipt of this information to comment on the proposed changes. DelDOT shall take into account any consulting party comments, prior to implementing such changes. Should changes occur, DelDOT, in consultation with the DE SHPO, may need to redefine the APE beyond the areas depicted in **Attachment A**. DelDOT shall consult with the DE SHPO to identify and evaluate historic buildings, structures, and/or districts in any newly affected areas, and assess the effects of the project thereon, following the process outlined for Archaeological Resources in Stipulations I.A. and I.B of this agreement, or as applicable under 36 CFR 800.13.

VII. Administrative Stipulations

A. Personnel Qualifications

All cultural resource work carried out pursuant to this agreement will be performed by or under the direct supervision of a person or persons meeting at a minimum the "*Secretary of the Interior's Standards and Guidelines*" (http://www.cr.nps.gov/local-law/Arch_Standards.htm), formerly 61 CFR Appendix A. DelDOT's Environmental Studies personnel will have direct authority to select and authorize any and all qualified cultural resource management firms or subconsultants to carry out this work on an as-needed basis throughout the duration of the Project.

B. Survey and Data Recovery Standards

DelDOT shall ensure that any and all cultural resource surveys and/or data recovery plans conducted pursuant to this MOA are done in accordance with the *Secretary of the Interior's Standards and Guidelines for Identification and Evaluation*, and for *Archaeological Documentation*, as applicable, and in accordance with the DE SHPO's *Guidelines for Architectural and Archaeological Surveys in Delaware* (1993).

Survey proposals and data recovery plans shall include a research design that stipulates: objectives, methods, and expected results; production of draft and final reports; and preparation of materials for curation in accordance with Stipulation I.E., including budgeting for initial conservation assessments and treatment. Additional requirements for data recovery plans are found in Stipulation I.B. of this Agreement.

All data recovery plans shall also take into account the Advisory Council on Historic Preservation's guidance for *Recommended Approach for Consultation on Recovery of Significant Information from Archaeological Sites*. Reports will meet professional standards set forth by the Department of the Interior's "*Format Standards for Final Reports of Data Recovery Program*" (42 FR 5377-79).

All data recovery plans, public outreach, or future consultation shall also follow and/or consider any supplemental guidance and provisions provided by, but not limited to, the American Association of State Highway Transportation Officials, FHWA, Transportation Research Boards, National Park Service, Advisory Council on Historic Preservation or recognized academic journals or professional organizations as identified by DelDOT and/or the DE SHPO.

DelDOT shall ensure that all draft and final cultural resource reports are provided to the FHWA and DE SHPO within four (4) years of the completion of any fieldwork. Relevant draft and final cultural resource reports will also be provided to the Delaware Nation.

VIII. Dispute Resolution

Should any signatory to this Agreement object in writing to any plans, specifications or actions proposed or carried out pursuant to this agreement, FHWA shall consult with the objecting party to resolve the objection. If FHWA determines that the objection cannot be resolved, FHWA shall forward all documentation relevant to the dispute to the ACHP. Within thirty (30) days after receipt of all pertinent documentation, the ACHP will either:

- A. Advise FHWA that the ACHP concurs in FHWA's proposed response to the objection, whereupon FHWA shall respond to the objection accordingly;
- B. Provide FHWA with recommendations, which FHWA will take into account in reaching final decision regarding the dispute; or
- C. Notify FHWA that it will comment pursuant to 36 CFR 800.7(a) and proceed to comment. Any ACHP comment provided in response to such a request will be taken into account by FHWA in accordance with 36 CFR 800.7(c)(4) with reference to the subject of the dispute.

Should the ACHP not exercise one of the above options within thirty (30) days after receipt of all pertinent documentation, FHWA may assume the ACHP's concurrence in its proposed response to the objection.

Any recommendation or comment provided by the ACHP will be understood to pertain only to the subject of the dispute; FHWA's responsibility to carry out all actions under this MOA that are not the subject of the objection will remain unchanged.

IX. Duration

This MOA shall remain in force until its Stipulations have been fulfilled. This time period shall not exceed five (5) years from the date of the final signature. If within six (6) months of the end of this five year period, stipulations remain unfulfilled, the parties to this Agreement will consult to determine if extension or other amendment of the Agreement is needed. No extension or amendment will be considered in effect unless all the signatories to the MOA have agreed to it in writing.

X. Review of Implementation

FHWA, DelDOT, and the DE SHPO shall review the project annually, to monitor progress of the implementation of the terms of this MOA. This review should occur in January of each year following execution of the MOA.

XI. Amendments

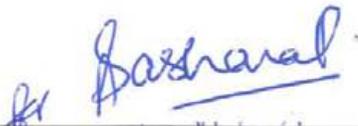
Any party to this Agreement may propose to FHWA that the Agreement be amended, whereupon FHWA shall consult with the other parties to consider such an amendment, in accordance with 36 CFR Part 800.6(c)(7).

XII. Termination

- A. If the FHWA or DelDOT determines that it cannot implement the terms of this MOA, or the DE SHPO determines that the MOA is not being properly implemented, FHWA, DelDOT, or the SHPO may propose to the other parties to this MOA that it be terminated.
- B. The party proposing to terminate this MOA shall notify all parties to this MOA, explaining the reasons for termination and affording them at least thirty (30) days to consult and seek alternatives to termination. The parties shall then consult.
- C. Should all consultation fail, FHWA or the DE SHPO may terminate the MOA by so notifying all parties in writing.
- D. Should this MOA be terminated, FHWA shall either:
 - 1. Consult in accordance with 36 CFR 800.6(a)(1) to develop a new MOA or;
 - 2. Request the comments of the ACHP pursuant to 36 CFR 800.7(a)

Execution of this MOA by the FHWA, DE SHPO and DelDOT and implementation of its terms is evidence that the FHWA has afforded the ACHP an opportunity to comment on the Little Heaven Grade Separated Intersection Project and that the FHWA has taken into account the effects of the undertaking on historic properties.

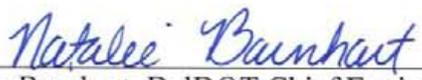
FOR THE FEDERAL HIGHWAY ADMINISTRATION

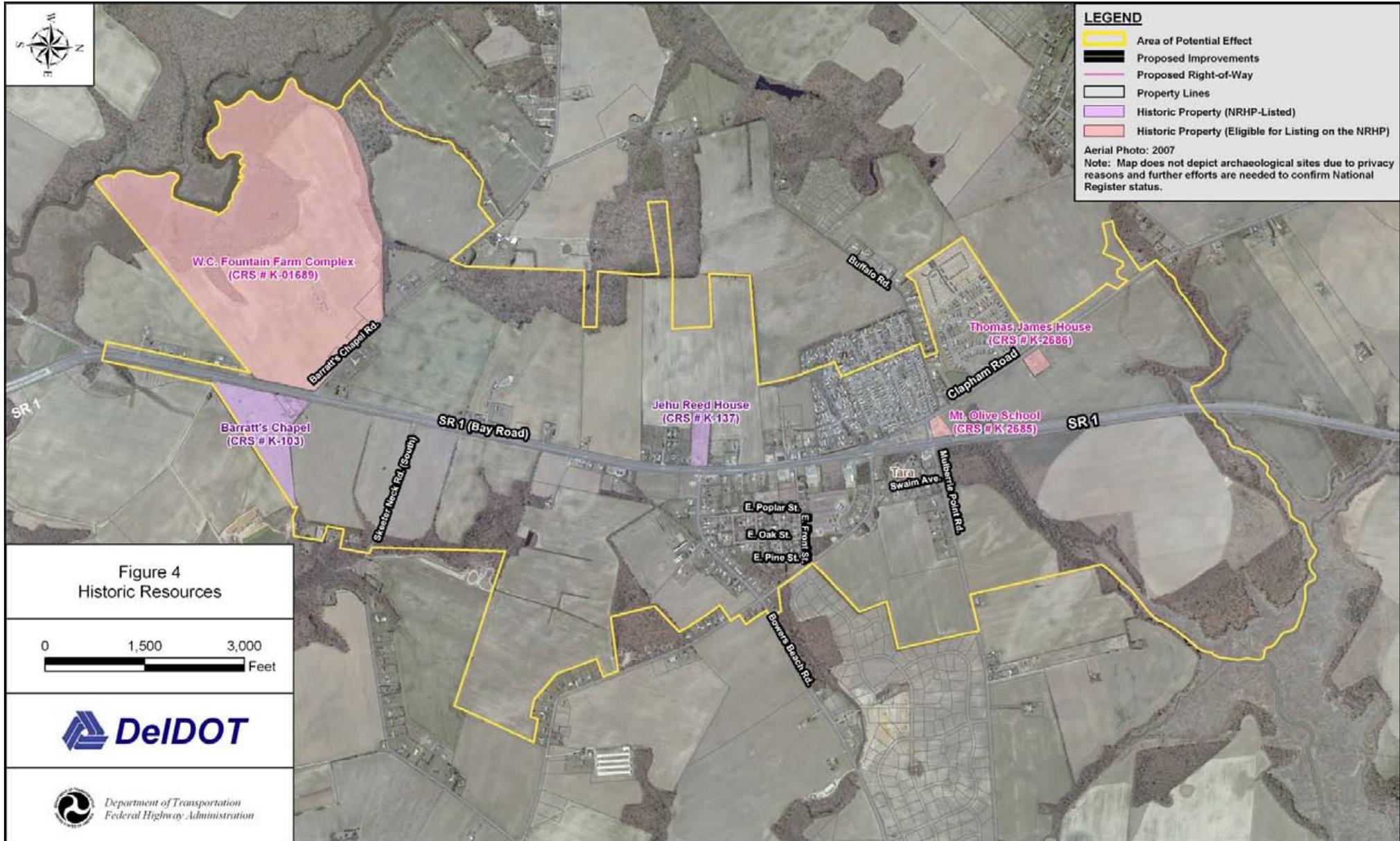
By:  Date: 6/3/2010
Hassan Raza, FHWA Division Administrator

FOR THE DELAWARE STATE HISTORIC PRESERVATION OFFICER

By:  Date: 6/3/10
Timothy Slavin, DHCA Director and State Historic Preservation Officer

DELAWARE DEPARTMENT OF TRANSPORTATION

By:  Date: 5/27/10
Natalie Barnhart, DelDOT Chief Engineer



APPENDIX B: AGENCY CORRESPONDENCE

*SR 1, Little Heaven Grade Separated Intersection
Environmental Assessment / Section 4(f) Evaluation*



*U.S. Department of Transportation
Federal Highway Administration*



Delaware Department of Transportation



STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. Box 778
DOVER, DELAWARE 19903

CAROLANN WICKS, P.E.
SECRETARY

October 28, 2009

Mr. Timothy Slavin, Director
Division of Historic and Cultural Affairs
21 The Green, Suite A
Dover, Delaware 19901

Dear Mr. Slavin:

The Delaware Department of Transportation (DelDOT) Environmental Studies Section is pleased to submit the Documentation in Support of for a Determination of Effect with attached Memorandum of Agreement for the SR 1, Little Heaven Grade Separated Intersection Project. The project is funded under state contract # 24-122-02 and federal aid number NH-K008(6). The report document reflects all our multi stage coordination efforts as far as incorporation and Section 106 consultation of adverse effect. The Memorandum of Agreement (MOA) memorializes Section 106 consultation, effect determinations, mitigation measures, and future archaeological needs.

We hope that you will also provide an accompanied letter acknowledging to DelDOT and FHWA that Section 106 consultation has been effectively implemented and your agency's opinion on the direct impacts to historic properties. The MOA and Effect document with relevant agency opinions will be included in the Final Environmental Assessment and Section 4(f) Evaluation prepared for the Little Heaven Project.

Please coordinate your review directly with Michael Hahn at 302-760-2131 of my section. As always, thank you for your continued cooperation.

Sincerely,

Therese M. Fulmer, Manager
Environmental Studies

TF/mh
Enclosure

Nick Blendy, FHWA (with copy)
Dan Montag, FHWA
Gwen Davis, DE SHPO
Robert McCleary, Assistant Director, Engineering Support
Brian McIlvaine, Project Engineer
Michael Hahn, Environmental Studies
David Clarke, Environmental Studies
Kevin Cunningham, Environmental Studies
William Conway, Century Engineering, Inc.
File



State of Delaware
Historical and Cultural Affairs

*M. Hahn
DelDOT*

21 The Green
Dover, DE 19901-3611

Phone: (302) 736.7400

Fax: (302) 739.5660

November 24, 2009

Mr. Nicholas Blendy
Environmental Specialist
Federal Highway Administration
J. Allen Frear Federal Building
300 South New Street
Dover, DE 19904-6726



RE: SR 1/Little Heaven Grade Separated Intersection Project (Clapham Road to Barratt's Chapel Road), Kent County, DE; State Contract No. 24-122-02; Federal Aid Project No. NH-K008(6); Finding of Adverse Effect and draft MOA

Dear Mr. Blendy:

The DE SHPO has reviewed the documentation supporting the finding of Adverse Effect and draft Memorandum of Agreement (MOA) for the above-referenced undertaking, prepared by the Delaware Department of Transportation (DelDOT) on your agency's behalf. Additionally, this office has been considering DelDOT's proposed approach for evaluating archaeological sites within the project's Area of Potential Effect (APE). The DE SHPO would like to offer its formal comments on these aspects of the consultation under Section 106 of the National Historic Preservation Act, and its implementing regulations (36 CFR Part 800).

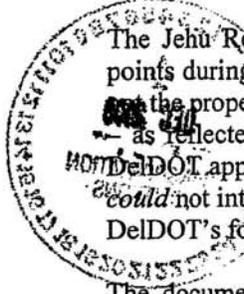
The Adverse Effect documentation indicates that DelDOT staff have applied the Criteria of Adverse Effect (36 CFR Part 800.5) to those properties within the undertaking's APE that are known to be listed in, or are eligible for listing in the National Register of Historic Places. These properties include: the Jehu Reed House (Cultural Resource Survey # K00137, listed); Barratt's Chapel (K00103, listed); the Mt. Olive Colored School (K02685, eligible); the Thomas James House (K02686, eligible); and the W.C. Fountain Agricultural Complex (K01689, eligible).

In keeping with previous consultation with this office, DelDOT has, on behalf of your agency, determined that the project: will not affect the W.C. Fountain Agricultural Complex; will not adversely affect Barratt's Chapel or the Thomas James House; but will adversely affect the Mt. Olive School. The DE SHPO concurs with these findings.

However, different from the understanding reached earlier, DelDOT presently proposes that the project will not adversely affect the National Register-listed Jehu Reed House. The DE SHPO does not agree with this finding. DelDOT's decision in this regard confuses the property's integrity with the potential for the property to be adversely affected by the undertaking.



Letter to N. Blendy
November 24, 2009
Page 2



The Jehu Reed House's physical integrity has certainly suffered in recent years. At several points during the six-year consultation for this project, our agencies have considered whether or not the property retains sufficient integrity to sustain its National Register status. The conclusion as reflected in DelDOT's documentation – has been that the property is still eligible. Yet DelDOT appears to be stating that because the property's integrity is diminished, that the project *could* not introduce adverse effects of its own. The DE SHPO disagrees with this interpretation. DelDOT's focus on the property's integrity really amounts to questioning its eligibility.

The documentation also applies an exceptionally narrow reading of the Criteria of Adverse Effect, examples 36 CFR Part 800.5(a)(2)(iv) and (v) to the Jehu Reed House. The approach is inconsistent with DelDOT's assessments for other projects, found to adversely affect similar historic properties. This office also finds that, contrary to statements in the documentation, the current viewshed of the property is not significantly different than it was at the time of its listing in the National Register. The project's construction of a 22-foot tall, grade-separated intersection directly in front of the house will, however, introduce a significant change. In assessing whether this change constitutes an adverse effect, DelDOT fails to consider the cumulative effects of the undertaking on the Jehu Reed House.

Therefore, the DE SHPO recommends that FHWA and DelDOT either reconsider their assessment of the project's adverse effects on the Jehu Reed House, or formally re-address the question of resource's eligibility by seeking the opinion of the Keeper of the National Register, an avenue provided for under the Section 106 process (36 CFR Part 800.4(c)(2)).

That said, the DE SHPO agrees that adverse effects to the Jehu Reed House cannot be avoided or directly mitigated. Based on earlier consultation, DelDOT has already undertaken alternatives analysis and supported its reasons for the current project design. The property has already been sufficiently recorded. Other typical mitigative treatments – landscaping and altering project design materials – would not be effective in this circumstance. Alternative forms of mitigation should be sought. DelDOT's documentation and draft MOA includes some suggestions that could be explored further.

In addition to concerns with the proposed finding for the Jehu Reed House, the sections of the draft MOA pertaining to architectural properties requires both substantive and technical revisions before the DE SHPO can agree to sign the document. This office is committed to working expeditiously with FHWA and DelDOT to resolve these issues.

With respect to potential archaeological properties, the documentation accurately states that efforts to identify and evaluate sites that may be eligible for listing in the National Register of Historic Places have not yet been completed. DelDOT has elected to phase these efforts, as permitted under the Section 106 regulations. The draft MOA outlines the process for: further efforts to identify and evaluate archaeological sites; assessing the effects of the project on eligible archaeological sites; consulting on ways to avoid, minimize and/or mitigate for adverse effects; and involving other consulting parties, including Native Americans, and the public. This

November 24, 2009
Letter to N. Blendy
Page 3

office agrees that the measures outlined in the draft MOA for archaeological resources are appropriate. Only a few minor technical changes are suggested for this section of the MOA.

Consultation concerning the results of the archaeological survey to date is ongoing. Artifacts have been found on nearly all of the tested parcels within the APE. DE SHPO and DeIDOT archaeologists have been working with the consultant to determine which areas constitute archaeological sites (15 at last count), and of those sites, which would require further evaluation to determine their National Register eligibility (9 at last count, cited in the documentation).

DeIDOT has suggested that for some of these sites, alternatives measures be considered in lieu of evaluating eligibility. After considerable discussion among our staff, the DE SHPO cannot support this proposal as is. Such alternatives are best considered at the mitigation stage, when there is better understanding of what may be lost and how that loss can be appropriately compensated.

However, in discussing these issues with DeIDOT staff, it is clear that our agencies' share the basic goal that inspired their proposal. That is, to ensure that the "reasonable and good faith effort" to identify historic properties achieves both the intent of Section 106 and adds to our understanding of Delaware's past. Such efforts should include: applying well-defined sampling strategies; applying clearly stated (and perhaps more stringent) criteria for eligibility of sites, which may allow for making better decisions at the identification phase; and considering the most judicious use of available funds.

This office is committed to working with FHWA and DeIDOT on these issues, for the SR 1/ Little Heaven project and others. The DE SHPO is also open to seeking further guidance on these issues, from the Advisory Council on Historic Preservation, the Federal Highway Administration, and other states.

In sum, as a result of our review of DeIDOT's adverse effect documentation and draft MOA, and consultation on archaeological properties, the DE SHPO recommends that:

1. FHWA and DeIDOT consider the project's effects on the Jehu Reed House to be Adverse, and consult with the DE SHPO to identify and implement an alternative form of mitigation, or seek the opinion of the Keeper of the National Register; and
2. FHWA, DeIDOT and DE SHPO consult further to craft a mutually acceptable Memorandum of Agreement to resolve the project's adverse effects; and
3. Under the auspices of the MOA, DeIDOT and DE SHPO staff continue to work together to clearly define a defensible sampling strategy and evaluation process for archaeological sites that may be affected by the project, and thereby reduce the overall level of effort.

Thank you for your consideration of these comments. As noted above, this office is committed to resolving differences of opinion among our agencies, and successfully concluding the Section 106 consultation for the SR 1/Little Heaven Intersection project. DE SHPO staff will be

November 24, 2009
Letter to N. Blendy
Page 4

available to work on these issues with FHWA and DelDOT at the next coordination meeting, scheduled for December 9, 2009. In the interim, if you have any questions, please do not hesitate to contact me (at stephen.marz@state.de.us or 302-736-7400) and/or Gwen Davis, who is reviewing this project (at gwen.davis@state.de.us or 302-736-7410).

As requested, the DE SHPO will also provide comments on the project's direct effects on historic properties. To this end, please provide a copy of the draft Section 4(f) Evaluation for our review.

Sincerely,



Stephen Marz, Deputy Director
and Deputy State Historic Preservation Officer

cc: Dan Montag, Federal Highway Administration
Rob McCleary, Asst. Director, Engineering Support, DelDOT
Therese M. Fulmer, Manager, Environmental Studies, DelDOT
Brian McIlvaine, Project Engineer, DelDOT
Michael C. Hahn, Senior Highway Planner, DelDOT
Kevin Cunningham, Archaeologist, DelDOT
David Clarke, Archaeologist, DelDOT
Gwenyth A. Davis, Archaeologist, SHPO, Division of Historical & Cultural Affairs
Joan Larrivee, Architectural Historian, SHPO, Division of Historical & Cultural Affairs



24-122-02

STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. Box 778
DOVER, DELAWARE 19903

CAROLANN WICKS, P.E.
SECRETARY

January 11, 2010

Mr. Timothy Slavin, Director
Division of Historic and Cultural Affairs
The Green Suite 21A
Dover, Delaware 19901

Dear Mr. Slavin:

On behalf of the Federal Highway Administration (FHWA), the Delaware Department of Transportation (DeIDOT) Environment Studies Section has recently received comments regarding the Documentation Support for the Determination of Effect (dated October 2009) for the SR 1/Little Heaven Grade Separated Intersection Project. We are specifically focused on your 11/24/09 letter to FHWA and in subsequent agency discussions on 12/18/09.

For records and on-going coordination, DeIDOT acknowledges that the undertaking's effects upon the Jehu Reed House (Delaware CRS No. K-137) are adverse for Section 106 consultation. After direct access onto the property, our agency does not dispute the fact that visual aesthetic effects will likely occur. As the property's relevant defining characteristics are sparsely seen from the road or involved with the project, the question remained is whether the proposed undertaking is really negatively impacting the property and deemed as adverse?

Although the defining characteristics of the Jehu Reed House were never specifically defined and those remaining defining characteristics have been compromised to some degree, it is safe to say that the integrity of location and/or design might be adversely affected (visually) by the undertaking.

After discussion with your office and FHWA and rather than choosing an alternative path for the Keeper of the National Register's opinion of its listing, we deem the visual effect to this listed property as adverse under 36 CFR 800.5(a)(2)(v). As such, we have revised our final Section 106 Finding of Adverse Effect with an accompanied Memorandum of Agreement to reflect this change. In addition, since the effect is considered adverse we have proposed mitigation measures for the historic Jehu Reed property. Proposed measures were already discussed with your office on the property and are simply recognized as un-mitigated.

Conversely it was not our understanding that the project's effects to the Jehu Reed property (and others) were not fully conceived and agreed upon in earlier consultation. We apologize for this misconfusion. However, as part of this, our agency still declares under 36 CFR 800.5(a)(2)(iv), that the change in character of the property's use or of physical features within the property's setting that contribute to its historic significance is not adverse. This is explained in the documentation. The Jehu Reed property will remain as residential and the change of physical features within the setting of the property that contribute to its historic significance is really not applicable. Within the undertaking area, all adjacent land uses, setting, and feeling surrounding the Jehu Reed House (property) does not contribute, nor indemnify, to the property's historic significance. In sum, nothing within the surrounding area that is identified as physical feature contributes to this property's local



Letter to T. Salvin
January 11, 2010
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significance. Thus, transportation changes within the surrounding area would not be considered adverse. Your 11/24/09 comments did not dispute or support this with reasoning.

Lastly, our staff had modified language in the current adverse effects document to reflect the future and on-going archaeology studies. It is apparent that "alternative" field measures or methodologies may be employed in the field, but not as a specific parameter to identify and then discard any number of archaeological sites identified under the Phase I effort. Our staff will elaborate and discuss the details with your office and FHWA as we progress.

In this regard, we have revised and are resubmitting the Documentation Support for the Determination of Effect with MOA. We also specifically request your agency comments and opinions with respect to historic properties, their effects, and formalized mitigation measures under the MOA.

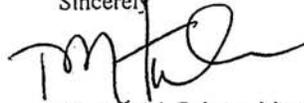
In addition to the "Finding", as the agency with jurisdiction, we will request your opinion in writing on the effects to properties applicable to Section 4(f) of the U.S. Department of Transportation Act and those under the new *de minimus* Section 4(f) application. As a point of reference, please refer to the informational draft provided directly to Ms. Gwen Davis.

Under the Section 4(f) Evaluation, the only property involved is the Mount Olive School. This former schoolhouse would be impacted by takes and uses in of the property. Your concurrence is also needed (in writing) under 23 CFR 774.13 that minor takes or temporary occupancy and use of the property upon the Barratt's Chapel and Cemetery and the Thomas James House meets exception or are qualified and not considered adverse under the Section 4(f) *de minimus* finding. This is a necessary step for FHWA and as part of the final NEPA compliance.

For these reasons, we request your 30-day concurrence in writing. Should you have a question or further comment regarding the above direction, please immediately contact Michael C. Hahn directly at (302) 760 2131 (MichaelC.Hahn@state.de.us).

Thank you for your continuing efforts.

Sincerely



Therese M. Fulmer, Manager
Environmental Studies

TMF/mh (attachment)

cc: Dan Montag, FHWA
Nicholas Blendy, FHWA
Steven Marz, SHPO
Gwen Davis, SHPO
Joan Larrivee, SHPO
Robert B. McCleary, Assistant Director, Engineering Support
Brian McIlvaine, Project Engineer
Kevin Cunningham, Environmental Studies
David Clarke, Environmental Studies
Michael C. Hahn, Environmental Studies
Jon Schmidt, Environmental Studies
File

State of Delaware
Historical and Cultural Affairs

Mike

21 The Green
Dover, DE 19901-3611

Phone: (302) 736.7400

Fax: (302) 739.5660

February 17, 2010

Mr. Nicholas Blendy
Environmental Specialist
Federal Highway Administration
J. Allen Frear Federal Building
300 South New Street
Dover, DE 19904-6726

RE: SR 1/Little Heaven Grade Separated Intersection Project (Clapham Road to Barratt's Chapel Road), Kent County, DE; State Contract No. 24-122-02; Federal Aid Project No. NH-K008(6); *Revised* Finding of Adverse Effect and draft MOA

Dear Mr. Blendy:

As noted in an email dated February 9, 2010, the DE SHPO has reviewed DelDOT's revised documentation supporting the finding of Adverse Effect for the above-referenced undertaking. Although this office does not agree with some of the content of the documentation, the revised version signifies that the FHWA, DelDOT and DE SHPO concur on the basic findings. That is, the project, as currently designed, will:

- not affect the W.C. Fountain Agricultural Complex (K01689);
- not adversely affect Barratt's Chapel (K00103) or the Thomas James House (K02686);
- adversely affect the Mt. Olive School (K02685) *and* the Jehu Reed House (K00137);
- likely adversely any archaeological sites that are found eligible for listing in the National Register of Historic Places.

The DE SHPO appreciates that FHWA and DelDOT took into account the DE SHPO's earlier comments (letter dated November 24, 2009) on the undertaking's effects on historic properties.

This office is currently reviewing the revised draft Memorandum of Agreement (MOA) and the draft Section 4(f) Evaluation, and will provide comments on those documents under separate cover. Our staff is also continuing to work with DelDOT's archaeologists toward resolving questions on the archaeological survey to date and next steps; the goal is to outline a scope of work for the evaluation (Phase II) level survey within the next month.



Letter to N. Blendy
February 17, 2010
Page 2

As our agencies continue efforts to conclude the formal Section 106 consultation, if you have any questions, please do not hesitate to contact Gwen Davis, who is reviewing this project (at gwen.davis@state.de.us or 302-736-7410). Thank you.

Sincerely,



Stephen Marz, Deputy Director
and Deputy State Historic Preservation Officer

cc: Dan Montag, Federal Highway Administration
Rob McCleary, Asst. Director, Engineering Support, DelDOT
Therese M. Fulmer, Manager, Environmental Studies, DelDOT
Brian McIlvaine, Project Engineer, DelDOT
Michael C. Hahn, Senior Highway Planner, DelDOT
Kevin Cunningham, Archaeologist, DelDOT
David Clarke, Archaeologist, DelDOT
Gwenyth A. Davis, Archaeologist, SHPO, Division of Historical & Cultural Affairs
Joan Larrivee, Architectural Historian, SHPO, Division of Historical & Cultural Affairs

State of Delaware
Historical and Cultural Affairs

Mike

21 The Green
Dover, DE 19901-3611

Phone: (302) 736.7400

Fax: (302) 739.5660

February 17, 2010

Ms. Therese M. Fulmer, Manager
Environmental Studies
Delaware Department of Transportation
800 Bay Road, P.O. Box 778
Dover, DE 19904

RE: SR 1/Little Heaven Grade Separated Intersection Project (Clapham Road to Barratt's Chapel Road), Kent County, DE; State Contract No. 24-122-02; Federal Aid Project No. NH-K008(6); DE SHPO case no. 2003.06.02.02; "Section 4(f)" Evaluation

Dear Ms. Fulmer:

Thank you for providing the DE SHPO with an opportunity to comment on DelDOT's draft Section 4(f) Evaluation, prepared for compliance with U.S. Department of Transportation regulations 23 CFR Part 774, for the SR 1/Little Heaven project. According to the documentation, DelDOT's position is that the project's effects on the Thomas James House and Barratt's Chapel and Cemetery meet the US DOT's criteria for *de minimus* impacts, but that the effects on Mt. Olive School will constitute a use of the historic property that requires full 4(f) evaluation.

While confirmation of DelDOT's interpretation of 4(f) rules lies with FHWA, the DE SHPO will state that DelDOT's findings are consistent with those made under the Section 106 review process. That is, FHWA and DelDOT proposed, and the DE SHPO concurred that the project would not adversely affect the Thomas James House and Barratt's Chapel, but would adversely affect Mt. Olive School (see letters dated November 24, 2009, and February 17, 2010).

Several sections of the draft Evaluation would benefit from clarification, particularly with respect to analysis of the effects on the Mt. Olive School. On the attached pages, the DE SHPO offers several suggestions for revisions.

The 4(f) Evaluation makes several references to the Environmental Assessment that DelDOT has prepared for compliance with the National Environmental Policy Act. Please note that the DE SHPO does not have a copy of this document, and therefore cannot speak to its accuracy with regard to historic properties.



Letter to T. Fulmer
February 17, 2010
Page 2

If you have any further questions concerning this matter, please do not hesitate to contact Gwen Davis (at gwen.davis@state.de.us or 302-736-7410), who is reviewing this project. Thank you.

Sincerely,



Stephen Marz, Deputy Director
and Deputy State Historic Preservation Officer

Enclosure

cc: Nicholas Blendy, Environmental Specialist, Federal Highway Administration (w/enclosure)
Michael C. Hahn, Senior Highway Planner, DelDOT
David Clarke, Archaeologist, DelDOT

JOINT PROCESSING COMMENT FORM

U.S. ARMY ENGINEER DISTRICT, PHILADELPHIA

APPLICATION: NAPOF-R/ DEL DOT, SP 1 - Little Heaven

PUBLIC NOTICE DATE: 1/14 INTERCHANGE NUMBER: _____

COUNTY: KENT WATERWAY: _____

DNREC STATUS: _____

COMMENTING AGENCY:

- ENVIRONMENTAL PROTECTION AGENCY
- U.S. FISH AND WILDLIFE SERVICE FOR THE DEPARTMENT OF THE INTERIOR
- NATIONAL MARINE FISHERIES SERVICE, NOAA, DEPARTMENT OF COMMERCE
- DELAWARE DNREC, WETLANDS SECTION
- OTHER _____

COMMENT:

- NO COMMENT
- NO OBJECTION
- CONCUR WITH _____ RECOMMENDATIONS
- WILL SEND LETTER INDICATING COMMENTS
- STANDARD MARINA CONDITIONS (EPA)
- STANDARD FILL CONDITIONS (EPA)
- WATER QUALITY CERTIFICATION APPROVED WITH FOLLOWING CONDITIONS:

WETLANDS LICENSE/PERMIT:

- HAS BEEN ISSUED
- WILL PROBABLY BE ISSUED WITH THESE SPECIAL CONDITIONS:

OTHER COMMENTS: No T & E spp w/in the purview of NMFS are found in the project area

(CONTINUE ON REVERSE IF NECESSARY)

SIGNATURE: Tim Dodger DATE: 21 Jan '04



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401

February 9, 2004

Ms. Dorothy Daly
A.D. Marble & Company
375 East Elm Street
Suite 200
Conshohocken, PA 19428

RE: SR 1, Little Heaven Interchange, Kent County, DE

Dear Ms. Daly:

This responds to your letter, received November 10, 2003, requesting information on the presence of species which are federally listed or proposed for listing as endangered or threatened within the above reference project area. We have reviewed the information you enclosed and are providing comments in accordance with Section 7 of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.).

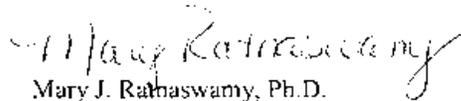
Except for occasional transient individuals, no proposed or federally listed endangered or threatened species are known to exist within the project impact area. Therefore, no Biological Assessment or further Section 7 Consultation with the U.S. Fish and Wildlife Service is required. Should project plans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

This response relates only to federally protected threatened or endangered species under our jurisdiction. For further information on other rare species, you should contact Karen Bennett of the Delaware Natural Heritage Program at (302) 653-2880.

An additional concern of the Service is wetlands protection. The Service's wetlands policy has the interim goal of no overall net loss of Delaware Bay's remaining wetlands, and the long term goal of increasing the quality and quantity of the Basin's wetlands resource base. Because of this policy and the functions and values wetlands perform, the Service recommends avoiding wetland impacts. All wetlands within the project area should be identified, and if construction in wetlands is proposed, the U.S. Army Corps of Engineers, Philadelphia District should be contacted for permit requirements. They can be reached at (215) 656-6728.

We appreciate the opportunity to provide information relative to fish and wildlife issues, and thank you for your interest in these resources. If you have any questions or need further assistance, please contact Maricela Constantino at (410) 573-4542.

Sincerely,



Mary J. Rathaswamy, Ph.D.
Program Supervisor, Threatened and Endangered Species

cc: COE, Dover, DE



STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES & ENVIRONMENTAL CONTROL
DIVISION OF FISH & WILDLIFE
NATURAL HERITAGE & ENDANGERED SPECIES
4876 HAY POINT LANDING ROAD
SMYRNA, DELAWARE 19977



TELEPHONE: (302) 653-2880
FAX: (302) 653-3431

December 4, 2009

Ms. Therese Fulmer
800 Bay Road
PO Box 778
Dover, DE 19903

Re: Sr 1 Little Heaven Interchange

Dear Ms. Fulmer:

Thank you for contacting the Delaware Natural Heritage and Endangered Species Program (NHESP) about information on rare, threatened and endangered species, unique natural communities, and other significant natural resources as they relate to the SR 1 Little Heaven Interchange.

A review of our database indicates that there are currently no records of state-rare or federally listed plants, animals or natural communities at this project site. As a result, at present, this project does not lie within a State Natural Heritage Site, nor does it lie within a Delaware National Estuarine Research Reserve which are two criteria used to identify "Designated Critical Resource Waters" in the Army Corps of Engineers (ACOE) Nationwide Permit General Condition No. 19. A copy of this letter shall be included in any permit application or pre-construction notification submitted to the Army Corps of Engineers for activities on this property.

Natural Area

The northwest section of the proposed project impacts a state designated Natural Area. The Natural Area is on an unnamed tributary of Trunk Ditch. As discussed during the agency site visit on August 24, 2009, efforts should be made to minimize disturbance to the forest, wetlands and streams in this area.

If you require further information about this area for your planning project, please contact Eileen Butler, Natural Areas Program Manager, at (302) 739-9235.

We are continually updating our records on Delaware's rare, threatened and endangered species, unique natural communities and other significant natural resources. If the start of the project is delayed more than a year past the date of this letter, please contact us again for the latest information. Feel free to get in touch with me if you have any questions or require additional information.

Sincerely,
Matthew Bailey
Matthew Bailey
DelDOT Environmental Review Coordinator
(302) 653-2882 ext. 127
(302) 382-4151 cell
matthew.bailey@state.de.us

DelDOT 2008 SR 1 Little Heaven Interchange flup

Delaware's Good Nature Depends on You!



STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL
DIVISION OF SOIL AND WATER CONSERVATION
21309 BERLIN RD, UNIT #6
GEORGETOWN, DELAWARE 19947

DRAINAGE PROGRAM

TELEPHONE: (302) 855-1930

November 15, 2007

Laura C. Miller
Century Engineering Inc
4134 N Dupont Hwy
Dover, DE 19901

RE: **Little Heaven Grade Separated Intersection**

Dear Ms. Miller:

There are no Tax Ditches in the project area. Please feel free to contact our office with any questions or concerns.

Sincerely,

A handwritten signature in black ink, appearing to read "Brooks P. Cahall".

Brooks P. Cahall
Environmental Program Manager

Delaware's good nature depends on you!



LETTER OF TRANSMITTAL

FROM: A. D. MARBLE & COMPANY
 375 East Elm Street
 Suite 200
 Conshohocken, PA 19428
 Telephone: (484) 533-2548
 Fax: (484) 533-2550
 E-mail: syates@admarble.com

TO: Century Engineering DATE: November 24, 2008
 ADDRESS: 4134 N. Dupont Highway JOB NO.: P-731B
 CITY: Dover, DE 19901 RE: SR 1, Little Heaven Grade Separated Inter.
 ATTENTION: Laura Miller

PLEASE BE ADVISED:

WE ARE SENDING YOU: ATTACHED UNDER SEPARATE COVER VIA: _____

THE FOLLOWING:

- PRINTS PLANS REPORTS SPECIFICATIONS SAMPLES
 ARTWORK PROOFS PHOTOGRAPHS COPY OF LETTER CHANGE ORDER

COPIES

DESCRIPTION

COPIES	DESCRIPTION
1	USACE JD Little Heaven Grade Separated Interchange

THESE ARE BEING TRANSMITTED AS INDICATED BELOW:

- AS REQUESTED APPROVED AS IS RESUBMIT _____ COPIES FOR APPROVAL
 FOR APPROVAL APPROVED WITH CORRECTIONS SUBMIT _____ COPIES FOR DISTRIBUTION
 FOR YOUR USE RETURNED WITH CORRECTIONS RETURN _____ CORRECTED _____
 FOR YOUR COMMENTS RETURNED AFTER LOAN TO US _____
 FOR BID (S) DUE _____

COMMENTS:

SIGNED: Sharon Yates



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY

PHILADELPHIA DISTRICT CORPS OF ENGINEERS
WANAMAKER BUILDING, 100 PENN SQUARE EAST
PHILADELPHIA, PENNSYLVANIA 19107-3390

NOV 19 2008

Regulatory Branch
Applications Section I

SUBJECT: CENAP-OP-R-2008-916-23 (JD)
Project Name: DELDOT - Little Heaven Grade Separated Intersection

Dorothy Daly
AD Marble and Company
375 Elm Street, Suite 200
Conshohocken, Pennsylvania 19428

Dear Ms. Daly:

The plans identified on the following page depict the extent of Federal jurisdiction on the subject property. The basis of our determination of jurisdiction is also provided (Enclosure 1).

Pursuant to Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act, a Department of the Army permit is required for work or structures in navigable waters of the United States and the discharge of dredged or fill material into waters of the United States including adjacent and isolated wetlands. Any proposal to perform the above activities within the area of Federal jurisdiction requires the prior approval of this office.

This delineation/determination has been conducted to identify the limits of the Corps Clean Water Act jurisdiction for the particular site identified in this request. This delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985, as amended. If you or your tenant are U.S. Department of Agriculture (USDA) program participants, or anticipate participating in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service prior to starting work.

This letter is valid for a period of five (5) years. However, this jurisdictional determination is issued in accordance with current Federal regulations and is based upon the existing site conditions and information provided by you in your application. This office reserves the right to reevaluate and modify the jurisdictional determination at any time should the existing site conditions or Federal regulations change, or should the information provided by you prove to be false, incomplete or inaccurate.

This letter contains an approved jurisdictional determination for your subject site. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR 331. Enclosed you will find a combined Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form (Enclosure 2). If you request to appeal this

determination, you must submit a completed RFA form to the North Atlantic Division Office at the following address:

Michael G. Vissichelli
Regulatory Appeals Review Officer
North Atlantic Division, U.S. Army Corps of Engineers
Fort Hamilton Military Community
General Lee Avenue, Building 301
Brooklyn, NY 11252-6700
EMAIL: Michael.G.Vissichelli@usace.army.mil

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR Part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by 19 January 2009.

It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this letter.

If you should have any questions regarding this matter, please contact me at 302-736-9763 between the hours of 1:00 and 3:30 p.m. or write to the above address.

Sincerely,



John Brundage
Biologist, Regulatory Branch

SUBJECT PROPERTY: The DELDOT Little Heaven Grade Separated Intersection Project Site, Kent County, Delaware.

SURVEY DESCRIPTION: Plans dated August 2008, revised per USACE on July 31, 2008, entitled: *SRI/Little Heaven Grade Separated Interchange, Kent County, Delaware*, 10 sheets.

COMMENTS: The above referenced site was inspected by a Corps of Engineers representative on July 31, 2008.

Enclosures

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): November 19, 2008

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: CENAP-OP-R-2008-916 (Waters 1 Kiunk Ditch)

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: Delaware County/parish/borough: Kent City: Little Heaven
Center coordinates of site (lat/long in degree decimal format): Lat. 39.04583° ~~Picklist~~, Long. -75.46305° ~~Picklist~~
Universal Transverse Mercator:

Name of nearest waterbody: Kiunk Ditch

Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: St Jones River

Name of watershed or Hydrologic Unit Code (HUC): 02040207

Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.

Check if other sites (e.g., offsite mitigation sites, disposal sites, etc...) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

Office (Desk) Determination. Date:

Field Determination. Date(s): July 31, 2008

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There ~~Picklist~~ "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [Required]

Waters subject to the ebb and flow of the tide.

Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.

Explain:

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There ~~are~~ "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [Required]

1. Waters of the U.S.

a. Indicate presence of waters of U.S. in review area (check all that apply):¹

TNWs, including territorial seas

Wetlands adjacent to TNWs

Relatively permanent waters² (RPWs) that flow directly or indirectly into TNWs

Non-RPWs that flow directly or indirectly into TNWs

Wetlands directly abutting RPWs that flow directly or indirectly into TNWs

Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs

Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs

Impoundments of jurisdictional waters

Isolated (interstate or intrastate) waters, including isolated wetlands

b. Identify (estimate) size of waters of the U.S. in the review area:

Non-wetland waters: 2000 linear feet: 6 feet ave. width (ft) and/or acres.

Wetlands: 10 acres.

c. Limits (boundaries) of jurisdiction based on: ~~1987 Delineation Manual~~

Elevation of established OHWM (if known):

2. Non-regulated waters/wetlands (check if applicable):³

Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.

Explain: A ditch and small pond within the High Point residential development are artificial in nature, being entirely supplied with water by a man-made well and pump. These features are not waters of the US.

¹ Boxes checked below shall be supported by completing the appropriate sections in Section III below.

² For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

³ Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW

Identify TNW:

Summarize rationale supporting determination:

2. Wetland adjacent to TNW

Summarize rationale supporting conclusion that wetland is "adjacent":

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody⁴ is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:

Watershed size:

Drainage area:

Average annual rainfall: inches

Average annual snowfall: inches

(ii) Physical Characteristics:

(a) Relationship with TNW:

Tributary flows directly into TNW.

Tributary flows through tributaries before entering TNW.

Project waters are river miles from TNW.

Project waters are river miles from RPW.

Project waters are aerial (straight) miles from TNW.

Project waters are aerial (straight) miles from RPW.

Project waters cross or serve as state boundaries. Explain:

Identify flow route to TNW⁵: Klunk Ditch (RPW) to the St Jones River (TNW) to Delaware Bay (TNW).

Tributary stream order, if known:

⁴ Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

⁵ Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

(b) General Tributary Characteristics (check all that apply):

Tributary is: Natural
 Artificial (man-made). Explain:
 Manipulated (man-altered). Explain: Kiunk Ditch is partially channelized for drainage purposes.

Tributary properties with respect to top of bank (estimate):

Average width: 10 feet
Average depth: 1 feet
Average side slopes: 3:1.

Primary tributary substrate composition (check all that apply):

Silts Sands Concrete
 Cobbles Gravel Muck
 Bedrock Vegetation. Type/% cover:
 Other. Explain:

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: stable.

Presence of run/riffle/pool complexes. Explain:

Tributary geometry: Relatively straight

Tributary gradient (approximate average slope): 2 %

(c) Flow:

Tributary provides for: Seasonal flow

Estimate average number of flow events in review area/year: 20 (or greater)

Describe flow regime: permanent.

Other information on duration and volume: stream appears to flow year-round.

Surface flow is: Discrete. Characteristics:

Subsurface flow: Dick List. Explain findings:

Dye (or other) test performed:

Tributary has (check all that apply):

Bed and banks
 OHWM⁶ (check all indicators that apply):
 clear, natural line impressed on the bank the presence of litter and debris
 changes in the character of soil destruction of terrestrial vegetation
 shelving the presence of wrack line
 vegetation matted down, bent, or absent sediment sorting
 leaf litter disturbed or washed away scour
 sediment deposition multiple observed or predicted flow events
 water staining abrupt change in plant community
 other (list):

Discontinuous OHWM.⁷ Explain:

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

High Tide Line indicated by: Mean High Water Mark indicated by:
 oil or scum line along shore objects survey to available datum;
 fine shell or debris deposits (foreshore) physical markings;
 physical markings/characteristics vegetation lines/changes in vegetation types.
 tidal gauges
 other (list):

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Explain:

Identify specific pollutants, if known:

⁶A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.

⁷ibid.

(iv) **Biological Characteristics. Channel supports (check all that apply):**

- Riparian corridor. Characteristics (type, average width):
- Wetland fringe. Characteristics:
- Habitat for:
 - Federally Listed species. Explain findings:
 - Fish/spawn areas. Explain findings:
 - Other environmentally-sensitive species. Explain findings:
 - Aquatic/wildlife diversity. Explain findings:

2. **Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW**

(i) **Physical Characteristics:**

(a) General Wetland Characteristics:

Properties:
Wetland size: 10 acres
Wetland type. Explain: mostly PFO1.
Wetland quality. Explain: relatively high in places but generally low in project area.
Project wetlands cross or serve as state boundaries. Explain:

(b) General Flow Relationship with Non-TNW:

Flow is: ick List. Explain:

Surface flow is: ick List
Characteristics:

Subsurface flow: ick List. Explain findings:
 Dye (or other) test performed:

(c) Wetland Adjacency Determination with Non-TNW:

- Directly abutting
- Not directly abutting
 - Discrete wetland hydrologic connection. Explain:
 - Ecological connection. Explain:
 - Separated by berm/barrier. Explain:

(d) Proximity (Relationship) to TNW

Project wetlands are 1.2 river miles from TNW.
Project waters are 1.2 aerial (straight) miles from TNW.
Flow is from: Wetland to navigable waters.
Estimate approximate location of wetland as within the 100-500 year floodplain.

(ii) **Chemical Characteristics:**

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: clear.
Identify specific pollutants, if known:

(iii) **Biological Characteristics. Wetland supports (check all that apply):**

- Riparian buffer. Characteristics (type, average width):
- Vegetation type/percent cover. Explain:
- Habitat for:
 - Federally Listed species. Explain findings:
 - Fish/spawn areas. Explain findings:
 - Other environmentally-sensitive species. Explain findings:
 - Aquatic/wildlife diversity. Explain findings:

3. **Characteristics of all wetlands adjacent to the tributary (if any)**

All wetland(s) being considered in the cumulative analysis: ick List
Approximately () acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N) Size (in acres) Directly abuts? (Y/N) Size (in acres)

Summarize overall biological, chemical and physical functions being performed:

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:
2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:
3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
 TNWs: linear feet width (ft), Or, acres.
 Wetlands adjacent to TNWs: acres.
2. **RPWs that flow directly or indirectly into TNWs.**
 Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: environmental scientist's report and personal observation of flow in July when stream flows are normally at their annual low.
 Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally:

Provide estimates for jurisdictional waters in the review area (check all that apply):

Tributary waters: 2000 linear feet width (ft).

Other non-wetland waters: acres.

Identify type(s) of waters:

3. **Non-RPWs⁸ that flow directly or indirectly into TNWs.**

- Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):

Tributary waters: linear feet width (ft).

Other non-wetland waters: acres.

Identify type(s) of waters:

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**

- Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
- Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: **Personal observation that the wetland and stream (RPW) share a continuous connection.**
- Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:

Provide acreage estimates for jurisdictional wetlands in the review area: 10 acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**

- Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**

- Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.⁹**

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.

- Demonstrate that impoundment was created from "waters of the U.S.," or
- Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
- Demonstrate that water is isolated with a nexus to commerce (see E below).

E. **ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):¹⁰**

- which are or could be used by interstate or foreign travelers for recreational or other purposes.
- from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
- which are or could be used for industrial purposes by industries in interstate commerce.
- Interstate isolated waters. Explain:
- Other factors. Explain:

⁸See Footnote # 3.

⁹To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

¹⁰Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.

Identify water body and summarize rationale supporting determination:

Provide estimates for jurisdictional waters in the review area (check all that apply):

Tributary waters: linear feet width (ft).

Other non-wetland waters: acres.

Identify type(s) of waters:

Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.

Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.

Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).

Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain:

Other: (explain, if not covered above): **Artificial pond and ditch at High Point residential development (see above).**

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

Non-wetland waters (i.e., rivers, streams): linear feet width (ft).

Lakes/ponds: acres.

Other non-wetland waters: acres. List type of aquatic resource:

Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).

Lakes/ponds: acres.

Other non-wetland waters: acres. List type of aquatic resource:

Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant:

Data sheets prepared/submitted by or on behalf of the applicant/consultant.

Office concurs with data sheets/delineation report.

Office does not concur with data sheets/delineation report.

Data sheets prepared by the Corps:

Corps navigable waters' study:

U.S. Geological Survey Hydrologic Atlas:

USGS NHD data.

USGS 8 and 12 digit HUC maps.

U.S. Geological Survey map(s). Cite scale & quad name:

USDA Natural Resources Conservation Service Soil Survey. Citation:

National wetlands inventory map(s). Cite name:

State/Local wetland inventory map(s):

FEMA/FIRM maps:

100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)

Photographs: Aerial (Name & Date):

or Other (Name & Date):

Previous determination(s). File no. and date of response letter:

Applicable/supporting case law: Rapanos ET UX., ET AL. v. United States, 547 U.S. 04-1034 and 04-1384 (2006)(Rapanos); National Association of Homebuilders v. US Army Corps of Engineers, et. al., D.C. District Court Case No. 1:06-cv-00502 (July 26, 2006)

Applicable/supporting scientific literature:

Other information (please specify): Regulatory Guidance Letters 07-01 (Documentation of JD's - JDIS Guidebook); 05-05 (OHWM); 05-02 (Geographic Extent of JD); 06-01(Timelines for Appeals).

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): November 19, 2008

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: CENAP-OP-R-2008-916 (Waters2 UNT)

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: Delaware County/parish/borough: Kent City: Little Heaven
Center coordinates of site (lat/long in degree decimal format): Lat. 39.04583° ~~Picklist~~, Long. -75.46305° ~~Picklist~~
Universal Transverse Mercator:

Name of nearest waterbody: Unnamed tributary to the Murderkill River

Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Murderkill River

Name of watershed or Hydrologic Unit Code (HUC): 02040207

Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.

Check if other sites (e.g., offsite mitigation sites, disposal sites, etc...) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

Office (Desk) Determination. Date:

Field Determination. Date(s): July 31, 2008

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There ~~is~~ ~~are~~ "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [Required]

Waters subject to the ebb and flow of the tide.

Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.

Explain:

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There ~~is~~ ~~are~~ "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [Required]

1. Waters of the U.S.

a. Indicate presence of waters of U.S. in review area (check all that apply):¹

TNWs, including territorial seas

Wetlands adjacent to TNWs

Relatively permanent waters² (RPWs) that flow directly or indirectly into TNWs

Non-RPWs that flow directly or indirectly into TNWs

Wetlands directly abutting RPWs that flow directly or indirectly into TNWs

Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs

Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs

Impoundments of jurisdictional waters

Isolated (interstate or intrastate) waters, including isolated wetlands

b. Identify (estimate) size of waters of the U.S. in the review area:

Non-wetland waters: 100 linear feet; 6 feet ave. width (ft) and/or acres.

Wetlands: acres.

c. Limits (boundaries) of jurisdiction based on: 1987 Delineation Manual

Elevation of established OHWM (if known):

2. Non-regulated waters/wetlands (check if applicable):³

Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.

Explain:

¹ Boxes checked below shall be supported by completing the appropriate sections in Section III below.

² For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

³ Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW

Identify TNW:

Summarize rationale supporting determination:

2. Wetland adjacent to TNW

Summarize rationale supporting conclusion that wetland is "adjacent":

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody⁴ is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:

Watershed size: Pick List

Drainage area: Pick List

Average annual rainfall: inches

Average annual snowfall: inches

(ii) Physical Characteristics:

(a) Relationship with TNW:

Tributary flows directly into TNW.

Tributary flows through Pick List tributaries before entering TNW.

Project waters are Pick List river miles from TNW.

Project waters are Pick List river miles from RPW.

Project waters are Pick List aerial (straight) miles from TNW.

Project waters are Pick List aerial (straight) miles from RPW.

Project waters cross or serve as state boundaries. Explain:

Identify flow route to TNW⁵: Unnamed Tributary (RPW) to the Murderkill River (TNW) to Delaware Bay (TNW).

Tributary stream order, if known:

⁴ Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

⁵ Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

(b) General Tributary Characteristics (check all that apply):

Tributary is: Natural
 Artificial (man-made). Explain:
 Manipulated (man-altered). Explain: The UNT has been channelized for drainage purposes.

Tributary properties with respect to top of bank (estimate):

Average width: 10 feet
Average depth: 1 feet
Average side slopes: 2:1

Primary tributary substrate composition (check all that apply):

Silts Sands Concrete
 Cobbles Gravel Muck
 Bedrock Vegetation. Type/% cover:
 Other. Explain:

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: stable.

Presence of run/riffle/pool complexes. Explain: none.

Tributary geometry: Relatively straight

Tributary gradient (approximate average slope): 2 %

(c) Flow:

Tributary provides for: Seasonal flow

Estimate average number of flow events in review area/year: 20 (or greater)

Describe flow regime: seasonal.

Other information on duration and volume:

Surface flow is: Discrete and confined. Characteristics:

Subsurface flow: Not list. Explain findings:

Dye (or other) test performed:

Tributary has (check all that apply):

Bed and banks
 OHWM⁶ (check all indicators that apply):
 clear, natural line impressed on the bank the presence of litter and debris
 changes in the character of soil destruction of terrestrial vegetation
 shelving the presence of wrack line
 vegetation matted down, bent, or absent sediment sorting
 leaf litter disturbed or washed away scour
 sediment deposition multiple observed or predicted flow events
 water staining abrupt change in plant community
 other (list):

Discontinuous OHWM.⁷ Explain:

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

High Tide Line indicated by: Mean High Water Mark indicated by:
 oil or scum line along shore objects survey to available datum;
 fine shell or debris deposits (foreshore) physical markings;
 physical markings/characteristics vegetation lines/changes in vegetation types.
 tidal gauges
 other (list):

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Explain:

Identify specific pollutants, if known:

⁶A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.

⁷Ibid.

For each wetland, specify the following:

Directly abuts? (Y/N) Size (in acres) Directly abuts? (Y/N) Size (in acres)

Summarize overall biological, chemical and physical functions being performed:

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs. Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:
2. Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs. Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:
3. Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW. Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
 TNWs: linear feet width (ft), Or, acres.
 Wetlands adjacent to TNWs: acres.
2. **RPWs that flow directly or indirectly into TNWs.**
 Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial:
 Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: Environmental Scientist's report.

Provide estimates for jurisdictional waters in the review area (check all that apply):

Tributary waters: 100 linear feet width (ft).

Other non-wetland waters: acres.

Identify type(s) of waters:

3. **Non-RPWs⁸ that flow directly or indirectly into TNWs.**

Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):

Tributary waters: linear feet width (ft).

Other non-wetland waters: acres.

Identify type(s) of waters:

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**

Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.

Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:

Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:

Provide acreage estimates for jurisdictional wetlands in the review area: 10 acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**

Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**

Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.⁹**

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.

Demonstrate that impoundment was created from "waters of the U.S.," or

Demonstrate that water meets the criteria for one of the categories presented above (1-6), or

Demonstrate that water is isolated with a nexus to commerce (see E below).

E. **ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY);¹⁰**

which are or could be used by interstate or foreign travelers for recreational or other purposes.

from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.

which are or could be used for industrial purposes by industries in interstate commerce.

Interstate isolated waters. Explain:

Other factors. Explain:

Identify water body and summarize rationale supporting determination:

⁸See Footnote # 3.

⁹To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

¹⁰Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.

Provide estimates for jurisdictional waters in the review area (check all that apply):

- Tributary waters: linear feet width (ft).
- Other non-wetland waters: acres.
- Identify type(s) of waters:
- Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

- If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
- Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
 - Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
- Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain:
- Other: (explain, if not covered above):

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

- Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
- Lakes/ponds: acres.
- Other non-wetland waters: acres. List type of aquatic resource:
- Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

- Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
- Lakes/ponds: acres.
- Other non-wetland waters: acres. List type of aquatic resource:
- Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

- Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant:
- Data sheets prepared/submitted by or on behalf of the applicant/consultant.
 - Office concurs with data sheets/delineation report.
 - Office does not concur with data sheets/delineation report.
- Data sheets prepared by the Corps:
- Corps navigable waters' study:
- U.S. Geological Survey Hydrologic Atlas:
 - USGS NHD data.
 - USGS 8 and 12 digit HUC maps.
- U.S. Geological Survey map(s). Cite scale & quad name:
- USDA Natural Resources Conservation Service Soil Survey. Citation:
- National wetlands inventory map(s). Cite name:
- State/Local wetland inventory map(s):
- FEMA/FIRM maps:
- 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)
- Photographs: Aerial (Name & Date):
or Other (Name & Date):
- Previous determination(s). File no. and date of response letter:
- Applicable/supporting case law: Rapanos ET UX., ET AL. v. United States, 547 U.S. 04-1034 and 04-1384 (2006)(Rapanos)
- Applicable/supporting scientific literature:
- Other information (please specify): Regulatory Guidance Letters 07-01 (Documentation of JD's - JDIS Guidebook); 05-05 (OHWM); 05-02 (Geographic Extent of JD); 06-01(Timelines for Appeals).

B. ADDITIONAL COMMENTS TO SUPPORT JD:

**NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND
REQUEST FOR APPEAL**

Applicant: Delaware Dept of Transportation	File: CENAP-OP-R-2008-916	Date: Nov 19, 2008
Attached is:		See Section below
<input type="checkbox"/>	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
<input type="checkbox"/>	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
<input type="checkbox"/>	PERMIT DENIAL	C
<input checked="" type="checkbox"/>	APPROVED JURISDICTIONAL DETERMINATION	D
<input type="checkbox"/>	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I: The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at <http://usace.army.mil/inet/functions/cw/ccow/reg.or> Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the Philadelphia District Engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations (JD) associated with the permit.
- OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the Philadelphia District Engineer. Your objections must be received by the Philadelphia District Engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the Philadelphia District Engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the Philadelphia District Engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the Philadelphia District Engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the North Atlantic Division Engineer, ATTN: CENAD-ET-O, Fort Hamilton Military Community, Building 301, General Lee Avenue, Brooklyn, NY 11252-6700. This form must be received by the North Atlantic Division Engineer within 60 days of the date of this notice with a copy furnished to the Philadelphia District Engineer.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the North Atlantic Division Engineer, ATTN: CENAD-ET-O, Fort Hamilton Military Community, Building 301, General Lee Avenue, Brooklyn, NY 11252-6700. This form must be received by the North Atlantic Division Engineer within 60 days of the date of this notice with a copy furnished to the Philadelphia District Engineer.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the North Atlantic Division Engineer, ATTN: CENAD-ET-O, Fort Hamilton Military Community, Building 301, General Lee Avenue, Brooklyn, NY 11252-6700. This form must be received by the North Atlantic Division Engineer within 60 days of the date of this notice with a copy furnished to the Philadelphia District Engineer.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II: REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION

If you have questions regarding this decision and/or the appeal process you may contact:

John Brundage
U.S. Army Corps of Engineers, Philadelphia District
ATTN: CENAP-OP-R
Wanamaker Building, 100 Penn Square East
Philadelphia, PA 19107-3390
Telephone: 302-736-9763

If you only have questions regarding the appeal process you may also contact:

Michael G. Vissichelli
Regulatory Appeals Review Officer
North Atlantic Division, U.S. Army Corps of Engineers
Fort Hamilton Military Community
General Lee Avenue, Building 301
Brooklyn, NY 11252-6700
Telephone: (718) 765-7150
E-mail: Michael.G.Vissichelli@usace.army.mil

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

_____	Date:	Telephone number:
Signature of appellant or agent.		



U.S. Department
of Transportation
**Federal Highway
Administration**

DELMAR Division - Delaware

300 South New St., Suite 2101
Dover Delaware 19904

April 3, 2009

In Reply Refer To: HDA-DE

Kerry Holton, Tribal President
Delaware Nation
PO Box 825
Anadarko, OK 73005

Dear Mr. Holton,

The purpose of this letter is to initiate consultation between the Delaware Nation and the Federal Highway Administration (FHWA) regarding the following federally funded project: **Little Heaven Grade Separated Interchange Project, Kent County, State Contract No. 24-122-02, Federal Aid Number NH-K008 (6).**

The Little Heaven Project southern limit is located just north of the SR1 North Frederica Grade Separated Intersection Project that the Delaware Nation is a consulting party including signature to the Memorandum of Agreement (MOA). Mapping is attached locating both projects.

The Little Heaven Project is currently being processed an Environmental Assessment (EA) and Phase I a & b archaeological surveys have been underway for the past few years and continues to date. No known Native American sites have been discovered so far. When and if any Native American archaeological sites are found, FHWA and the Delaware Department of Transportation (DelDOT) will continue coordination with you. Attached is a preliminary Draft MOA outlining the commitments that DelDOT will fulfill regarding the unfinished archaeological work and any future work if any site is found eligible to the National Register of Historic Places. You may contact David Clarke, DelDOT Project Archaeologist at (302) 760-2271 to discuss any questions that you or other Delaware Nation members may have regarding the surveys and Draft MOA.

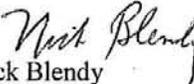
After review, please let us know of the Delaware Nation interests in the Little Heaven Project and participation as a consulting party in the continued development of the Draft MOA. This is consistent with Delaware Nation comments made in a September 8, 2009 email regarding the North Frederica Project and responded to our October 3, 2009 exchange of emails (attached).

Thank you for your input in reviewing the above cited project. If interested in the project, FHWA and DelDOT look forward to working with you and members of the Delaware Nation. If you have any questions or would like further information please contact me at (302) 734-2966.

**MOVING THE
AMERICAN
ECONOMY**



Sincerely,


Nick Blendy
Environmental Specialist

cc: Tamara Francis, Cultural Preservation Director
Gwen Davis, DE SHPO
David Clarke, DelDOT
Kevin Cunningham, DelDOT
Terry Fulmer, DelDOT
Mike Simmons, DelDOT
Dan Johnson, FHWA



U.S. Department
of Transportation
**Federal Highway
Administration**

DELMAR Division - Delaware

**300 South New St., Suite 2101
Dover Delaware 19904**

April 3, 2009

In Reply Refer To: HDA-DE

Robert Chicks, President
Stockbridge Munsee Community Band of Mohican Indians
PO Box 70
Bowler, WI 54416

Dear Mr. Chicks,

The purpose of this letter is to initiate consultation between Stockbridge Munsee and the Federal Highway Administration (FHWA) regarding the following federally funded project: **Little Heaven Grade Separated Interchange Project, Kent County, State Contract No. 24-122-02, Federal Aid Number NH-K008 (6)**. Project mapping is enclosed.

The Little Heaven Project is currently being processed an Environmental Assessment (EA) and Phase I a & b archaeological surveys have been underway for the past few years and continues to date. No known Native American sites have been discovered so far. When and if any Native American archaeological sites are found, FHWA and the Delaware Department of Transportation (DelDOT) will continue coordination with you. Attached is a preliminary Draft MOA outlining the commitments that DelDOT will fulfill regarding the unfinished archaeological work and any future work if any site is found eligible to the National Register of Historic Places. You may contact David Clarke, DelDOT Project Archaeologist at (302) 760-2271 to discuss any questions that you or other Stockbridge Munsee members may have regarding the surveys and Draft MOA.

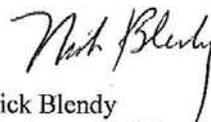
After review, please let us know of Stockbridge Munsee interests in the Little Heaven Project including participation as a consulting party in the continued development of the Draft MOA.

Thank you for your input in reviewing the above cited project. If you are interested, FHWA and DelDOT look forward to working with you and the Stockbridge Munsee Community Band of Mohican Indians. If you have any questions or would like further information please contact me at (302) 734-2966.

**MOVING THE
AMERICAN
ECONOMY**



Sincerely



Nick Blendy
Environmental Specialist

cc: Terry White, Tribal Historic Preservation Officer
Gwen Davis, DE SHPO
David Clarke, DelDOT
Kevin Cunningham, DelDOT
Terry Fulmer, DelDOT
Mike Simmons, DelDOT
Dan Johnson, FHWA

Stockbridge-Munsee Tribal Historic Preservation Office

Sherry White - Tribal Historic Preservation Officer

W13447 Camp 14 Road

P.O. Box 70

Bowler, WI 54416

APR 17 2009

April 14, 2009

Nick Blendy
Environmental Specialist
Federal Highway Administration
300 South New St., Suite 2101
Dover, DE 19904

RE: Little Heaven Grade Separated Interchange Project
Kent County, State Contract No. 24-122-02
Federal Aid Number NH-K008 (6)

Dear Mr. Blendy:

Thank you for contacting the Stockbridge-Munsee Tribe regarding the above referenced project. The Tribe is committed to protecting archaeological sites that are important to tribal heritage, culture and religion. Furthermore, the Tribe is particularly concerned with archaeological sites that may contain human burial remains and associated funerary objects.

As described in your correspondence, the proposed ground disturbing activity of this project does not appear to be in a region of archaeological interest to the Stockbridge-Munsee Tribe.

We appreciate your cooperation in notifying the Historic Preservation Office. Should you have any questions, feel free to contact me.

Sincerely,

Sherry White/gj

Sherry White,
Tribal Historic Preservation Officer

(715) 793-3970

Email: sherry.white@mohican-nsn.gov



Preserving America's Heritage

November 12, 2008

Therese M. Fulmer
Manager, Environmental Studies
Department of Transportation
800 Bay Road
P.O. Box 778
Dover, Delaware 19903

Ref: *Proposed SRI, Little Heaven Grade Separated Intersection Project
Kent County, Delaware*

Dear Ms. Fulmer:

On October 27, 2008, the Advisory Council on Historic Preservation (ACHP) received your notification and supporting documentation regarding the adverse effects of the referenced undertaking on a property or properties listed or eligible for listing in the National Register of Historic Places. Based upon the information you provided, we have concluded that Appendix A, *Criteria for Council Involvement in Reviewing Individual Section 106 Cases*, of our regulations, "Protection of Historic Properties" (36 CFR Part 800), does not apply to this undertaking. Accordingly, we do not believe that our participation in the consultation to resolve adverse effects is needed. However, if we receive a request for participation from the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer, affected Indian tribe, a consulting party, or other party, we may reconsider this decision. Additionally, should circumstances change, and you determine that our participation is needed to conclude the consultation process, please notify us.

Pursuant to 36 CFR §800.6(b)(1)(iv), you will need to file the final Memorandum of Agreement (MOA), developed in consultation with the Delaware State Historic Preservation Office (SHPO) and any other consulting parties, and related documentation with the ACHP at the conclusion of the consultation process. The filing of the MOA and supporting documentation with the ACHP is required in order to complete the requirements of Section 106 of the National Historic Preservation Act.

Thank you for providing us with your notification of adverse effect. If you have any questions or require our further assistance, please contact Kelly Fanizzo at 202 606-8583 or via e-mail at kfanizzo@achp.gov.

Sincerely,

LaShavio Johnson
Historic Preservation Technician
Federal Permitting, Licensing and Assistance Section
Office of Federal Agency Programs

ADVISORY COUNCIL ON HISTORIC PRESERVATION

1100 Pennsylvania Avenue NW, Suite 803 • Washington, DC 20004
Phone: 202-606-8503 • Fax: 202-606-8647 • achp@achp.gov • www.achp.gov



Delaware Department of Transportation
Carolann Wicks, P.E.
Secretary

SR 1, Little Heaven Grade Separated Intersection Project

30-Day Comment Period for Environmental Assessment and Draft Section 4(f) Evaluation

Kent County, Delaware

The Delaware Department of Transportation (DelDOT) and the Federal Highway Administration (FHWA) are undertaking a project that involves the proposed construction of a SR 1 grade separated intersection at Little Heaven in Kent County, Delaware. The purpose of the project is to improve traffic operations, safety and roadway conditions within the project area.

The project area extends 2.73 miles along SR 1 from south of Barratts Chapel Road (K371) to north of Mulberrie Point Road (K373). The project includes the construction of new SR 1 northbound lanes and a service road east of SR 1 from Barratts Chapel Road to Mulberrie Point Road in Little Heaven. The existing SR 1 northbound lanes will be converted to SR 1 southbound lanes, and the existing SR 1 southbound lanes will be converted to a service road. Both directions of SR 1 will be elevated at the intersection at Bowers Beach Road (K18) by the construction of a grade separation, which will provide access to and from the service roads on either side of SR 1.

DelDOT and the FHWA, in accordance with the Federal requirements of 23 CFR 771.119 and 23 CFR 774, are hereby notifying the public of the availability of the Environmental Assessment and Draft Section 4(f) Evaluation. Copies of the document are available at the DelDOT Administrative Building at 800 Bay Road, Dover, Delaware. Interested parties may also obtain a copy of the document by contacting DelDOT Public Relations at 302-760-2080.

All interested parties are invited to comment upon the project. Comments must be submitted in writing within 30 days of the publication of this notice or by May 21, 2010. Written comments may be sent to the following address:

Office of Public Relations
Delaware Department of Transportation
P.O. Box 778
Dover, Delaware 19904

PUBLIC NOTICE



STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. BOX 778
DOVER, DELAWARE 19903

CAROLANN WICKS, P.E.
SECRETARY

April 5, 2010

Kevin Magerr
Environmental Protection Agency
1650 Arch Street (3EP30)
Philadelphia, PA 19103

Dear Mr. Magerr:

The Delaware Department of Transportation is pleased to submit the Environmental Assessment for the SR 1, Little Heaven Grade Separated Intersection Project in Kent County. The DelDOT Contract Number is 24-122-02 and the Federal Highway Administration Contract Number is NH-K008(6). The purpose of the project is to improve traffic operations, safety and roadway conditions within the project area.

The project area extends 2.73 miles along SR 1 from south of Barratts Chapel Road (K371) to north of Mulberrie Point Road (K373). The project includes the construction of new SR 1 northbound lanes and a service road east of SR 1 from Barratts Chapel Road to Mulberrie Point Road in Little Heaven. The existing SR 1 northbound lanes will be converted to SR 1 southbound lanes, and the existing SR 1 southbound lanes will be converted to a service road. Both directions of SR 1 will be elevated at the intersection at Bowers Beach Road (K18) by the construction of a grade separation, which will provide access to and from the service roads on either side of SR 1.

Please provide any comments you may have within thirty (30) days of receiving the Environmental Assessment.

We look forward to continuing our coordination with you on this project.

Sincerely,

Therese M. Fulmer
Manager, Environmental Studies

TF:tfb
Enclosure

cc: Hassan Raza, FHWA
Natalie Barnhart, Chief Engineer, DelDOT
Michael Simmons, Assistant Director, South Project Development, DelDOT
Thad McIlvaine, Project Manager, South Project Development, DelDOT
Michael Hahn, Environmental Studies

File





STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. BOX 778
DOVER, DELAWARE 19903

CAROLANN WICKS, P.E.
SECRETARY

April 5, 2010

Bob Zepp
U.S. Fish & Wildlife Service
177 Admiral Cochrane Drive
Annapolis, MD 21401

Dear Mr. Zepp:

The Delaware Department of Transportation is pleased to submit the Environmental Assessment for the SR 1, Little Heaven Grade Separated Intersection Project in Kent County. The DelDOT Contract Number is 24-122-02 and the Federal Highway Administration Contract Number is NH-K008(6). The purpose of the project is to improve traffic operations, safety and roadway conditions within the project area.

The project area extends 2.73 miles along SR 1 from south of Barratts Chapel Road (K371) to north of Mulberrie Point Road (K373). The project includes the construction of new SR 1 northbound lanes and a service road east of SR 1 from Barratts Chapel Road to Mulberrie Point Road in Little Heaven. The existing SR 1 northbound lanes will be converted to SR 1 southbound lanes, and the existing SR 1 southbound lanes will be converted to a service road. Both directions of SR 1 will be elevated at the intersection at Bowers Beach Road (K18) by the construction of a grade separation, which will provide access to and from the service roads on either side of SR 1.

Please provide any comments you may have within thirty (30) days of receiving the Environmental Assessment.

We look forward to continuing our coordination with you on this project.

Sincerely,

Therese M. Fulmer
Manager, Environmental Studies

TF:tfb
Enclosure

cc: Hassan Raza, FHWA
Natalie Barnhart, Chief Engineer, DelDOT
Michael Simmons, Assistant Director, South Project Development, DelDOT
Thad McIlvaine, Project Manager, South Project Development, DelDOT
Michael Hahn, Environmental Studies





STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. BOX 778
DOVER, DELAWARE 19903

April 5, 2010

CAROLANN WICKS, P.E.

SECRETARY

Laura Herr
DNREC
Division of Water Resources
Wetlands & Subaqueous Lands Section
89 Kings Highway
Dover, DE 19901

Dear Ms. Herr:

The Delaware Department of Transportation is pleased to submit the Environmental Assessment for the SR 1, Little Heaven Grade Separated Intersection Project in Kent County. The DelDOT Contract Number is 24-122-02 and the Federal Highway Administration Contract Number is NH-K008(6). The purpose of the project is to improve traffic operations, safety and roadway conditions within the project area.

The project area extends 2.73 miles along SR 1 from south of Barratts Chapel Road (K371) to north of Mulberrie Point Road (K373). The project includes the construction of new SR 1 northbound lanes and a service road east of SR 1 from Barratts Chapel Road to Mulberrie Point Road in Little Heaven. The existing SR 1 northbound lanes will be converted to SR 1 southbound lanes, and the existing SR 1 southbound lanes will be converted to a service road. Both directions of SR 1 will be elevated at the intersection at Bowers Beach Road (K18) by the construction of a grade separation, which will provide access to and from the service roads on either side of SR 1.

Please provide any comments you may have within thirty (30) days of receiving the Environmental Assessment.

We look forward to continuing our coordination with you on this project.

Sincerely,

Therese M. Fulmer
Manager, Environmental Studies

TF:tfb
Enclosure

cc: Hassan Raza, FHWA
Natalie Barnhart, Chief Engineer, DelDOT
Michael Simmons, Assistant Director, South Project Development, DelDOT
Thad McIlvaine, Project Manager, South Project Development, DelDOT
Michael Hahn, Environmental Studies





STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. Box 778
DOVER, DELAWARE 19903

April 5, 2010

CAROLANN WICKS, P.E.
SECRETARY

Sara Cooksey
DNREC
Division of Soil & Water Conservation
89 Kings Highway
Dover, DE 19901

Dear Ms. Cooksey:

The Delaware Department of Transportation is pleased to submit the Environmental Assessment for the SR 1, Little Heaven Grade Separated Intersection Project in Kent County. The DelDOT Contract Number is 24-122-02 and the Federal Highway Administration Contract Number is NH-K008(6). The purpose of the project is to improve traffic operations, safety and roadway conditions within the project area.

The project area extends 2.73 miles along SR 1 from south of Barratts Chapel Road (K371) to north of Mulberrie Point Road (K373). The project includes the construction of new SR 1 northbound lanes and a service road east of SR 1 from Barratts Chapel Road to Mulberrie Point Road in Little Heaven. The existing SR 1 northbound lanes will be converted to SR 1 southbound lanes, and the existing SR 1 southbound lanes will be converted to a service road. Both directions of SR 1 will be elevated at the intersection at Bowers Beach Road (K18) by the construction of a grade separation, which will provide access to and from the service roads on either side of SR 1.

Please provide any comments you may have within thirty (30) days of receiving the Environmental Assessment.

We look forward to continuing our coordination with you on this project.

Sincerely,

Therese M. Fulmer
Manager, Environmental Studies

TF:tfb
Enclosure

cc: Hassan Raza, FHWA
Natalie Barnhart, Chief Engineer, DelDOT
Michael Simmons, Assistant Director, South Project Development, DelDOT
Thad McIlvaine, Project Manager, South Project Development, DelDOT
Michael Hahn, Environmental Studies





STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. Box 778
DOVER, DELAWARE 19903

CAROLANN WICKS, P.E.
SECRETARY

April 19, 2010

Mr. Willie Taylor
Director Office of Environmental Policy and Compliance
U.S. Department of the Interior
1849 C Street, NW MS 2462
Washington, DC 20240

Dear Mr. Taylor:

The Delaware Department of Transportation is pleased to submit the Environmental Assessment/Draft Section 4(f) Evaluation for the SR 1, Little Heaven Grade Separated Intersection Project in Kent County (one hard copy and eight CD's enclosed). The DelDOT Contract Number is 24-122-02 and the Federal Highway Administration (FHWA) Contract Number is NH-K008(6), the FHWA contact is Nick Blendy, 302.734.2966, nick.blendy@dot.gov. The purpose of the project is to improve traffic operations, safety and roadway conditions within the project area.

The project area extends 2.73 miles along SR 1 from south of Barratts Chapel Road (K371) to north of Mulberrie Point Road (K373). The project includes the construction of new SR 1 northbound lanes and a service road east of SR 1 from Barratts Chapel Road to Mulberrie Point Road in Little Heaven. The existing SR 1 northbound lanes will be converted to SR 1 southbound lanes, and the existing SR 1 southbound lanes will be converted to a service road. Both directions of SR 1 will be elevated at the intersection at Bowers Beach Road (K18) by the construction of a grade separation, which will provide access to and from the service roads on either side of SR 1.

Please provide any comments you may have within forty-five (45) days of receiving the Environmental Assessment/Draft Section 4(f) Evaluation. Should you have any questions please feel free to contact me at 302.760.2095 or terry.fulmer@state.de.us.

Sincerely,

Therese M. Fulmer
Manager, Environmental Studies

TF:tfb

Enclosure

cc: Hassan Raza, FHWA
Natalie Barnhart, Chief Engineer, DelDOT
Michael Simmons, Assistant Director, South Project Development, DelDOT
Thad McIlvaine, Project Manager, South Project Development, DelDOT
Nick Blendy, FHWA
Dan Montage, FHWA
Michael Hahn, Environmental Studies
File



State of Delaware
Historical and Cultural Affairs

21 The Green
Dover, DE 19901-3611

Phone: (302) 736.7400

Fax: (302) 739.5660

June 3, 2010

Ms. Therese M. Fulmer, Manager
Environmental Studies
Delaware Department of Transportation
800 Bay Road, P.O. Box 778
Dover, DE 19904

RE: SR 1/Little Heaven Grade Separated Intersection Project (Clapham Road to Barratt's Chapel Road), Kent County, DE; State Contract No. 24-122-02; Federal Aid Project No. NH-K008(6); Memorandum of Agreement

Dear Ms. Fulmer:

This office had reviewed the final, revised Memorandum of Agreement (MOA), as received on May 27, 2010, for the SR 1/Little Heaven project, and agrees with the terms stated therein. It is understood that several minor typographical errors in the document will be corrected.

The State Historic Preservation Officer has signed the MOA, and per your request, is returning the document to DelDOT (enclosed). After the Federal Highway Administration (FHWA) has signed the MOA, please provide us with a copy of the executed agreement. Copies should also be sent to the Advisory Council on Historic Preservation and the Delaware Nation.

The DE SHPO looks forward to working with you to implement the terms of the MOA. Should you have any questions at this time, please do not hesitate to contact us. Thank you.

Sincerely,



Gwentyth A. Davis
Archaeologist

Enclosure

cc: Nicholas Blendy, Environmental Specialist, Federal Highway Administration
Stephen Marz, Deputy Director and Deputy SHPO, Division of Historical & Cultural Affairs





U.S. Department
of Transportation
**Federal Highway
Administration**

DELMAR Division – Delaware

**300 South New St., Suite 2101
Dover, Delaware 19904**

June 9, 2010

President Kerry Holton
The Delaware Nation
31064 State Highway 281
Anadarko, OK 73005

Dear Mr. Holton,

The Federal Highway Administration (FHWA) is providing the Delaware Nation a copy of the executed Memorandum of Agreement (MOA) for the federally funded project: **Little Heaven Grade Separated Project, Kent County, State Contract No. 24-122-02, Federal Aid Number NH-K008(6)**. The draft MOA was appended to the April 2010 Environmental Assessment (EA)/Draft Section 4(f) Evaluation mailed to the Delaware Nation on April 21, 2010. The only public or agency comments received on the EA/Draft Section 4(f) Evaluation is the attached June 9, 2010 letter from the US Department of Interior recommending that a copy of the signed MOA be included in the final documentation for the Little Heaven EA/Section 4(f) Evaluation project. This will occur. Please advise if the Delaware Nation requests a copy of the final report for files.

Thank you again for the assistance the Delaware Nation has provided for the State of Delaware. If you have any questions or would like to further discuss, please contact me at (302) 734-2966 or by email at nick.blendy@dot.gov.

Sincerely,

Nick Blendy
Environmental Specialist





STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. BOX 778
DOVER, DELAWARE 19903

CAROLANN WICKS, P.E.
SECRETARY

June 10, 2010

Mr. Reid Nelson
Advisory Council on Historic Preservation
The Old Post Office Building
1100 Pennsylvania Avenue, NW, #809
Washington, D.C. 20004

Dear Mr. Nelson:

The Delaware Department of Transportation is pleased to submit the signed Memorandum of Agreement for the SR 1, Little Heaven Grade Separated Intersection Project in Kent County, DE. The DelDOT Contract Number is 24-122-02 and the Federal Highway Administration (FHWA) Contract Number is NH-K008(6). The FHWA contact is Nick Blendy, 302-734-2966, nick.blendy@dot.gov. The purpose of the project is to improve traffic operations, safety and roadway conditions within the project area.

Pursuant to 36 CFR §800.6(b)(1)(iv), we are filing the final Memorandum of Agreement (MOA), developed in consultation with the Delaware State Historic Preservation Office (SHPO) and the Federal Highway Administration (FHWA), with the Advisory Council on Historic Preservation (ACHP) at the conclusion of the consultation process. The filing of the MOA and supporting documentation with the ACHP is required in order to complete the requirements of Section 106 of the National Historic Preservation Act.

Should you have any questions please feel free to contact me at 302-760-2095 or terry.fulmer@state.de.us.

Sincerely,

Therese M. Fulmer
Manager, Environmental Studies

(Attachments)

cc: Hassan Raza, FHWA





United States Department of the Interior
OFFICE OF THE SECRETARY
Washington, DC 20240



JUN 9 2010

9043.1
PEP/NRM

ER 10/373

Ms. Therese M. Fulmer
Manager, Environmental Studies
Delaware Department of Transportation
800 Bay Road
Post Office Box 778
Dover, Delaware 19903

Dear Ms. Fulmer:

This is in response to a request for the Department of the Interior's (Department) review and comment on the Draft Environmental Assessment and Section 4(f) Evaluation for **SR-1, Little Heaven Grade Separated Intersection in Kent County, Delaware**. We offer the following comments on this project for your consideration.

Section 4(f) Comments

The Department concurs that there is no prudent and feasible alternative to the proposed use of Section 4(f) land, which consists of Barratt's Chapel and Cemetery, Thomas James House and the Mt. Olive Colored School/Mt. Olive School. The measures to minimize harm to historic resources listed on the National Register of Historic Places or determined eligible for listing, must, however, be explicitly consistent with the Memorandum of Agreement developed in consultation with the Delaware State Historic Preservation Office (SHPO) and concurred with by the Advisory Council on Historic Preservation. We recommend that a signed copy of the agreement documenting compliance with Section 106 of the National Historic Preservation Act be included in the final documentation to reflect the procedures for protecting cultural resources determined in consultation with the SHPO.

We appreciate the opportunity to provide these comments.

Sincerely,

Willie R. Taylor
Director, Office of Environmental
Policy and Compliance



STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. BOX 778
DOVER, DELAWARE 19903

CAROLANN WICKS, P.E.
SECRETARY

June 17, 2010

Hassan Raza, Division Administrator
Federal Highway Administration, Delmar Division
J. Allen Frear Federal Building
300 S. New Street, Room 2101
Dover, DE 19904-6726

Dear Mr. Raza:

The Delaware Department of Transportation (DelDOT) is requesting a Finding of No Significant Impact (FONSI) for the **SR 1/Little Heaven Grade Separated Intersection Project (Clapham Road to Barratt's Chapel Road), Kent County, Delaware State Contract No. 24-122-02, Federal Aid Project No. NH-K008(6).**

Public notice of the availability of the Environmental Assessment (EA) and Draft Section 4(f) Evaluation dated April 2010 was posted in the News Journal and the Delaware State News on April 20, 2010 providing a 30-day comment period. The 30-day period expired on May 21, 2010. No comments were received from the public notice.

On April 1, 2010, copies of the Environmental Assessment and Draft Section 4(f) Evaluation were forwarded to the Delaware Division of Natural Resources and Environmental Control (DNREC), Wetlands and Subaqueous Lands Section and Coastal Zone Management Office, the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, the U.S. Fish and Wildlife Service for a 30-day review period. No comments were received.

On April 19, 2010, copies of the Environmental Assessment and Draft Section 4(f) Evaluation were forwarded to the U.S. Department of Interior (DOI), Office of Environmental Policy and Compliance for a 45-day review period per 23 CFR 774 requirements. DOI responded suggesting we include a signed copy of the Memorandum of Agreement (MOA) developed with the Delaware State Historic Preservation Office (DE SHPO) and Federal Highway Administration (FHWA) in the final Environmental Assessment. The DOI letter dated June 9, 2010 and the signed MOA have been incorporated in the enclosed EA dated June 2010. Chapter V. Agency and Public Coordination has been updated to include the above information.



Hassan Raza Letter
June 17, 2010
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Based on the above, we request your concurrence in a FONSI determination for the SR 1/Little Heaven Grade Separated Intersection Project and approval of the Section 4(f) Evaluation.

Following your approval, we will notify the State Clearinghouse of the availability of the FONSI, issue a public notice on the FONSI determination, (draft notice attached for your review), as well as any other notifications you feel are appropriate.

As always, thank you for your continued cooperation.

Sincerely,



Natalie Barnhart
Director

TF:tfb

Enclosures

cc: Robert McCleary, Assistant Director, Engineering Support, DelDOT
Michael Simmons, Assistant Director, South Project Development, DelDOT
Basharat Siddiqi, FHWA
Dan Montag, FHWA
Nick Blendy, FHWA
Thad MacIlvaine, Project Manager, South Project Development, DelDOT
Therese Fulmer, Manager, Environmental Studies, DelDOT
Mike Hahn, Environmental Studies, DelDOT
File



Delaware Department of Transportation
Carolann Wicks, P.E.
Secretary

SR 1, Little Heaven Grade Separated Intersection Project

Approval of Location and Finding of No Significant Impact

Kent County, Delaware

The Delaware Department of Transportation (DelDOT) and the Federal Highway Administration (FHWA) are undertaking a project that involves the construction of a grade separated intersection at SR 1 and Little Heaven in Kent County, Delaware. The purpose of the project is to improve traffic operations, safety and roadway conditions within the project area.

The project area extends 2.73 miles along SR 1 from south of Barratts Chapel Road (K371) to north of Mulberrie Point Road (K373). The project includes the construction of new SR 1 northbound lanes and a service road east of SR 1 from Barratts Chapel Road to Mulberrie Point Road in Little Heaven. The existing SR 1 northbound lanes will be converted to SR 1 southbound lanes, and the existing SR 1 southbound lanes will be converted to a service road. Both directions of SR 1 will be elevated at the intersection at Bowers Beach Road (K18) by the construction of a grade separation, which will provide access to and from the service roads on either side of SR 1.

DelDOT and the FHWA, in accordance with the Federal requirements of the 23 CFR 771.121(b), are hereby notifying the public of the issuance of a Finding of No Significant Impact (FONSI) for the project. The FONSI has been prepared in accordance with the National Environmental Policy Act to document and support FHWA's determination that the Selected Alternate would not have a significant effect on the human and natural environment. Copies of the FONSI documentation are available at the DelDOT Administrative Building at 800 Bay Road, Dover, DE. Interested parties may also obtain a copy of the document by contacting DelDOT Public Relations at 1-800-652-5600 (in DE) or 302-760-2080. (in DE).

Office of Public Relations
Delaware Department of Transportation
P.O. Box 778
Dover, Delaware 19903

PUBLIC NOTICE