

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.)								

