

# **V. Rationale for Selecting or Not Selecting**

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## *Record of Decision*

## V) RATIONALE FOR SELECTING OR NOT SELECTING

The Build Alternatives and options studied in detail each addressed the US 301 Purpose and Need in varying degrees, and each would have impacted aspects of the study area in slightly different ways. The FHWA weighed these benefits and impacts and also considered the No-Build Alternative. While all the measures used in the Final EIS to compare alternatives were important, no single measure alone was determinative. Instead, a combination of factors led the FHWA to approve the selection of Green North + Spur over the No-Build and other build alternatives. The advantages and disadvantages of each alternative were presented at the January 2007 public hearing sessions and are listed in *Section II* of the Final EIS. The key factors considered in deciding to approve the Preferred Alternative and those factors considered in not selecting the other alternatives are discussed below.

### A) Summary of Rationale for Selecting the Green North + Spur Road Alternative

The Green North + Spur Road Alternative *is selected* based on a holistic evaluation of all of the impacts of the ARDS on the natural, cultural and socioeconomic environment. Generally, the Selected Alternative's effects on the natural environment (wetlands, streams, habitat areas, etc.) are comparable in number to those of the Green South + Spur Road, Brown, and Purple + Spur Road Alternatives and less than the Yellow Alternative, as noted in *Table 6*. For example, the Selected Alternative's impacts to wetlands and Waters of the US are similar to the Green South + Spur Road, Purple + Spur Road, and Brown North Alternatives and lower than the Yellow Alternative; impacts to tidal wetlands are identical for all retained alternatives; while the Selected Alternative's impacts on upland forest are similar to the Yellow, Purple + Spur Road, Green South + Spur Road, and Brown North Alternatives and lower than the Brown South Alternative.



**Table 6: Natural Resources Impacts Comparison - ARDS**

<u>Natural Resources</u>	<u>Natural Resources Impacts Comparison - ARDS</u>
Tidal Wetlands (acres)	Same
100-year Floodplains (acres)	Similar, except lower for Green and Brown
Wetland Crossings (number)	Similar, except Yellow is lower
Non-tidal Wetlands (acres)	Similar, except Yellow is much higher
High Quality Wetlands (acres)	Similar, except Brown is highest
Waters of the US (linear feet)	Similar, except Yellow is highest
Upland Forest (acres)	Similar, except Brown South is highest
RTE Habitat (acres)	Similar, except Yellow is lower

*Note:* See Table 7 on page 78 for quantitative comparison.

Thus, the decision regarding a Selected Alternative is more dependent upon other impacts of the Build Alternatives, such as impacts to residences, businesses, existing and proposed communities, and noise impacts/mitigation potential. The Selected Alternative’s impacts on existing businesses are for the most part, less than the other Build Alternatives. The Yellow Alternative has the greatest impacts on businesses along existing US 301 and Boyds Corner Road (existing SR 896). The Brown Alternative impacts the Summit Airport. The Purple + Spur Road and Yellow Alternatives impact the Odessa Fire and Rescue Station.

One key factor in the selection of the Green North + Spur Road is the fact that it has less effect on existing and proposed residential communities than the other three Build Alternatives and provides a better opportunity for mitigation measures, such as keeping the roadway profile lower and providing visual screening berms, where practicable. The Purple + Spur Road and Yellow Alternatives are elevated along SR 896 (Boyds Corner Road), resulting in substantially greater noise impacts on existing individual residential properties and existing and proposed communities compared to the Green North + Spur Road Alternative. In addition, the Yellow and Purple + Spur Road Alternatives create a significant barrier (new US 301 + SR 896) to the properties to the north and south.

The Green North is selected over the No-Build Alternative because the No-Build Alternative would not meet the project Purpose and Need. See *Section V.G.1, pages 94 - 96* of this ROD for details why the No-Build was not selected.

The Green North + Spur Road Alternative **is selected** over the Yellow Alternative because the Yellow Alternative would physically impact four historic properties and have unacceptable impacts to the community. The Yellow Alternative had the most impacts to existing communities and to individual residences and businesses (377), and would result in a high number of community impacts (seven existing and four proposed). The location of the alignment adjacent to the existing US 301 and SR 896 corridors would have resulted in a 350 to 400 foot wide highway corridor along most of its length that would impede community cohesion within Middletown and the project area. One-way access roads alongside the roadway corridor would provide circuitous access to local business and residential properties along existing US 301. The Yellow Alternative would have 74 residential noise impacts, and noise barrier mitigations would not be feasible in most locations, including residences in Summit Bridge Farms, Grande View Farms, and along Boyds Corner Road, because of the need to retain local access, additional impacts from adjacent roadways and/or the need for additional right-of-way to construct earth berms without additional property impacts.

The Green North + Spur Road Alternative **is selected** over the Purple + Spur Alternative because of similarly greater impacts to communities and community facilities along the portion of the alignment that follows SR 896 (Boyds Corner Road), including noise and visual impacts that could not be easily mitigated. The Purple + Spur Alternative had the highest number of potential residential noise impacts (108), and many (45) of the potential noise impacts were identified at residences and communities along Boyds Corner Road, where mitigation would not be feasible. There were potential impacts to the New Covenant Presbyterian Church, potential farmland/approved development impacts, and potential noise impacts to the Cedar Lane Educational Campus. The location of the alignment adjacent to Boyds Corner Road (which is programmed for expansion to four lanes) would have created a 350 to 400 foot wide transportation corridor along Boyds Corner Road, disrupting community cohesion in the area. The Purple Alternative would require relocation of the Odessa Fire Department substation. Higher right-of-way costs and complex interchange and access road configurations led to a greater cost than the Green North + Spur Road Alternative.

The Green North + Spur Road Alternative **is selected** over the Brown Alternatives North and South Options primarily because of their impact on Summit Airport. The Brown South option would impact the existing airport runway and support buildings, and the Brown North option would impact the runway clear zone and affect expansion plans approved by the Federal Aviation Administration (FAA). The Brown Alternatives would impact one additional historic resource whose eligibility has not been determined, as this effort would require removal of parts of the building. Community impacts were also deemed high, as the Brown Alternative North Option results in a three-level interchange between the communities of Summit Bridge Farms and Lea Eara Farms. Although the potential for noise impacts was lowest for the Brown Alternatives, some of the impacts would be difficult to minimize for communities adjacent to the Summit Interchange area. The Brown Alternatives also received consistent and considerable opposition from DNREC, because of the impact of the east-west portion to the high quality wetlands and relatively undisturbed natural stream systems and wildlife corridors in the C&D Canal watershed, and at the public workshops and community meetings. The Federal Aviation Administration also voiced serious concern with the Brown Alternative Options.

The Green North + Spur Road Alternative **is selected** over the Green South + Spur Road Alternative mainly because of the greater environmental impacts within the Scott Run Watershed associated with the Green South Alternative. The Selected Alternative's single, less complex, shorter and more perpendicular crossing of the environmentally sensitive Scott Run watershed, compared with a longer and more skewed crossing of Scott Run required by the Green + Spur Road Alternative South Option, plus the South Option's need for an additional crossing of Scott Run, supports the selection of the Green + Spur Road Alternative North Option. DNREC objected to the Green South + Spur Road Alternative because of its greater impacts to sensitive areas in the Scott Run watershed, because of the more skewed crossing of Scott Run, and because of the additional crossing of Scott Run. Although the Green + Spur Road Alternatives North and South both traverse open space and farm fields north of Boyds Corner Road, this area is slated for future development. The Green + Spur Road Alternative Options best meet the project Purpose and Need based on the analysis of future traffic, constructability with the least impact on the traveling public, and are lower cost alternatives. Alignment refinements to the North Option, following the Draft EIS, resulted in avoidance of the Wooleyhan and Emerson

Farms as well as the proposed high school parcel north of Boyds Corner Road and east of Ratledge Road.

The Resource Agencies supported DelDOT's selection of the Green North + Spur Road as the Preferred Alternative, provided that the compensatory mitigation package, contained in *Section III* and *Attachment A* of this ROD and *Section III* of the Final EIS, is implemented.

In conclusion, there are significant environmental impacts associated with every Build Alternative and option. The FHWA carefully considered the tradeoffs in environmental impacts of the alternatives and options, as well as the ability of DelDOT to mitigate for the different impacts under each alternative. In several instances, the impacts to natural resources are greater with the Selected Alternative, but have been efficiently minimized and/or mitigated.

### **B) Conformity with Local Land Use Planning Objectives**

Land use planning objectives have played an important role in the development of the project area. Local land use objectives have been developed and refined over a period of several decades, through a process that balances the need for residential development, environmental protection, transportation mobility, and many other factors. In Delaware, these local objectives are reinforced by State legislation that seeks to focus on development in areas that have been planned for growth, by concentrating capital investments, such as transportation infrastructure, in those areas. (Refer to the Final EIS, *Section III.A, page III-10.*)

The US 301 Project Development effort is in conformity with the guidelines for development set forth in *Delaware Strategies for State Policies and Spending 5 Year Update July, 2004*, also known as *Livable Delaware*. In that document, guidelines indicate preferred locations, within designated growth areas, of limited access roadways and bypasses, as well as areas where preservation, rather than growth, is the objective of the planning process. During the alternatives development process, these policies for growth areas were reviewed and considered.

*The New Castle County 2002 Comprehensive Development Plan Update* discusses regional conformity with the Wilmington Area Planning Council's Long Range Transportation Plan, and continued interaction with DelDOT and WILMAPCO to implement *The Greater Route 301 Major Investment Study* and other major roadway projects. The US 301 Project Development effort is consistent with the implementation of that plan. In the *2007 New Castle*

*County Comprehensive Plan Update*, partnered planning for transportation with WILMAPCO and DelDOT is identified for various transportation projects, including the US 301 Project.

The updated *Middletown Comprehensive Plan* (November 2005) discusses various transportation improvements in southern New Castle County, including the Choptank Road improvements, the tri-party agreement between the developers, New Castle County and Middletown for the transportation improvements associated with the Westown development, and the US 301 project. The plan states that the town has adopted a course of action to preserve land along the ridge route for the new limited access roadway and to preserve a corridor for the upgrade of existing US 301 to a four-lane roadway, should either option be selected. The town recognizes the ridge route as the western boundary for development and recommends that New Castle County limit development west of this route. In facilitating the plan, the town has taken an active role in the location of a Middletown interchange with the new roadway as part of US 301 Project Development.

### **C) Ability to Meet Transportation Need Identified for the Project**

One of the FHWA's core responsibilities is to ensure that Federally-funded highways will "adequately serve the existing and planned future traffic of the highway in a manner that is conducive to safety, durability, and economy of maintenance" and "to conform to the particular needs of each locality", 23 U.S.C. § 109(a). Accordingly, another distinguishing factor in the FHWA's decision to approve the Selected Alternative was the relative ability of each alternative to meet the transportation needs that were identified for the project. For the US 301 project, all three elements of the Purpose and Need are related to transportation: (1) reducing congestion, (2) improving safety, and (3) managing traffic (separating through traffic, especially truck traffic, from local traffic). These transportation needs are explained in detail in *Section I* of the Final EIS.

The Green North + Spur (Selected), Green South + Spur, Purple + Spur, and Brown Alternatives, all of which provide a new north-south connection to the west of Middletown and a new east-west roadway connection between existing US 301 and SR 1, are projected to result in similar operational characteristics. Compared to the No-Build Alternative, all three of these Build Alternatives result in substantially improved operational conditions at a number of key locations throughout the project area.

## Quantitative Measures

The Final EIS evaluated the transportation performance of the alternatives by comparing four measures of effectiveness related to the three basic transportation needs identified in the Purpose and Need Statement. The four measures were (1) mobility demonstrated by screenline volumes; (2) mobility demonstrated by total vehicle miles traveled; (3) mobility demonstrated by congestion in the study area expressed as Level of Service (LOS); and (4) safety. See *Section III.G (pages III-189 through III-201)* of the Final EIS. Data collected and projected in these categories demonstrated that all of the Build Alternatives would provide significant improvement over the No-Build Alternative, and showed the Selected Alternative (Green North + Spur Road) provided the greatest benefits in terms of transportation performance than the other Build Alternatives. Each of the four quantitative measures of transportation performance is summarized below:

**Mobility demonstrated by Screenline Volumes:** One of the primary benefits of the US 301 improvements will be to shift traffic away from existing local roads and onto a new roadway of higher functional class. This shift will reduce traffic volumes on roads with lower travel speeds that are often congested in the peak periods. A comparison of projected 2030 Average Annual Daily Traffic (AADT) volumes for a cross section (screenline) of north-south roadways north of Middletown, Delaware showed that the total traffic on five key existing roads (Choptank Road, US 301, Cedar Lane Road, SR 1 and US 13) would be 23,000 to 49,500 vehicles per day lower with the Build Alternatives than the No-Build Alternative. The Selected Alternative (Green North + Spur Road) results in the greatest reduction in travel (49,500 vpd) on existing roads, and therefore, the greatest improvement in north-south mobility for people desiring to travel through the study area. For more detailed discussion see *Section III-K.1, Table III-77 (page III-235)* of the Final EIS.

**Mobility demonstrated by Total Vehicle Miles Traveled:** Similarly, the Vehicle Miles Traveled (VMT) was calculated for 48 miles of existing key roadways throughout the US 301 project area for each of the alternatives. This criterion assessed the total amount of travel throughout the study area on roads of all types and direction. In general the analysis found that as a result of traffic diverting onto new US 301, the VMT would be reduced by 17 percent to 28 percent on existing roads. The Selected Alternative (Green North + Spur Road) results in the

greatest reduction in VMT (28 percent) on existing roads, and therefore, the greatest amount of improved mobility for people moving through the study area. For more detailed discussion see *Section III-K.1, Table III-78 (page III-235)* of the Final EIS.

**Mobility Demonstrated by Congestion in the Study Area in 2030 Expressed by Levels of Service (LOS):** Operational capacity analyses performed at over 50 key locations for the No-Build and Build Alternatives showed that all of the Build Alternatives would result in congestion relief as defined by improvements in LOS. Under the No-Build condition, a quarter (27 percent) of all intersections, roadway segments and interchanges within the study area would fail (LOS F) during at least one of the peak travel periods. Additionally, nearly a quarter of all these locations (22 percent) would approach capacity (LOS E) in the peak period, and approximately one-half of the analysis locations (51 percent) would operate acceptably (LOS A through D). By contrast, three of the four Build Alternatives, including the Selected Alternative (Green North + Spur Road), would result in substantially improved operational conditions with 75 percent or more of the analysis locations operating acceptably (LOS A through D). Improvements associated with the Yellow Alternative are somewhat less substantial, with approximately 74 percent of all analysis locations operating acceptably (LOS A through D) in 2030. All of the build alternatives would also result in a reduction of locations with unacceptable LOS in 2030, with between 8 percent and 12 percent operating at LOS F and between 11 percent and 17 percent operating at LOS E. For a more detailed discussion, please refer to *Section III-G.2.b (pages III-194 through III-199)* of the Final EIS.

**Safety:** The safety analyses calculated the relative crash rate for five of the major roads in the study area (US 301, SR 896, SR 299 SR 15 and MD 213). These analyses showed an average existing (2003) crash rate of 131 crashes per 100 MVMT. As a result of its controlled access design, the new US 301 + Spur Road is expected to experience a crash rate of approximately 113 crashes per 100 MVMT in 2030, which is significantly lower than the crash rate on existing roads in the project area. In 2030, the overall average crash rate on the five key roads in the study area and new US 301 + Spur Road will also be substantially lower under all of the Build Alternatives than the No-Build Alternatives. The Build Alternatives are each expected to have crash rates between 112 and 118 crashes per 100 MVMT, while the No-Build Alternative would be expected to have more than 130 crashes per 100 MVMT. The Selected Alternative Green North + Spur Road (and the Green South + Spur Road Alternative) is projected to result in

a crash rate of 113 crashes per 100 MVMT, representing a total reduction in the accident rate of approximately 14 percent versus the No-Build Alternative. For a more detailed discussion, please refer to *Section III-G.3 (pages III-199 through III-201)* of the Final EIS.

#### **D) Environmental and Natural Resources Impacts**

The environmental consequences of each alternative and option were carefully studied, and are described in detail in *Chapter III* of the Final EIS. The impacts of the ARDS are based on Draft EIS impacts noted in *Table 7*.

As noted in *Section IV.E, pages 66-67*, of this ROD, the design and impacts of the Preferred Alternative were refined and developed with more accurate photogrammetry and in greater detail than the other alternatives, resulting in an increase in some impacts. Additional refinements included stormwater management facilities design, enhanced delineation of forest lands, and improved wetlands delineation. It is estimated that these factors would result in similar increases in levels of impact for each of the Build Alternatives, had they been subjected to similar design refinements.

All of the Selected Alternative's impacts have been quantified, including those changes that resulted from the inclusion of Ratledge Road Area Option 4B Modified and Strawberry Lane Option 1 Modified. *Table 7* presents the compared impacts of the ARDS, as presented in the Draft EIS. *Table 8* presents the impacts of the refined Preferred Alternative, as presented in the Final EIS, and the impacts associated with the Selected Alternative with post-Final EIS refinements in the Ratledge Road Area and to the Strawberry Lane connector.

During final design, efforts will be undertaken to avoid or minimize impacts adversely affecting social, economic, cultural and natural resources.

**Table 7: Summary of Impacts of the ARDS (Draft EIS)<sup>1</sup>**

Alternative	No-Build	Yellow	Purple	Brown		Green
				North Option	South Option	
Resource	Existing roadways	On US 301 and SR 896 alignment	New alignment (ridge route); on SR 896 alignment (with spur)	New alignment (ridge route); new alignment from Summit Bridge to SR 1	New alignment (ridge route); new alignment from Armstrong Corner Road to SR 1 (with spur)	
Alignment Length (mi.)	0	19.4	16.9	17.5	15.9	17.3
Total Area (acres)	0	870	902	896	894	876
Res. Displacements (No.)	0	128	7	2	2	4
Bus. Displacements (No.)	0	58	5	4	4	7
Affected Properties (No.)	0	377	154	100	100	130
Wetlands (acres) <sup>2</sup>	0	50.5	24.9	23.9	18.5	28.3
Wetlands (No.)	0	33	45	39	35	40
Tidal Wetlands (acres) <sup>3</sup>	0	0.4	0.4	0.4	0.4	0.4
Waters of the US (linear feet)	0	20,708 <sup>4</sup>	16,257 <sup>4</sup>	15,158 <sup>4</sup>	14,278 <sup>4</sup>	16,326 <sup>4</sup>
100-Year Floodplain (acres)	0	1.5	1.5	1.0	1.0	1.0
Agricultural Districts (No./acres)	0	1/14.1	1/32.6	1/32.6	1/32.6	1/32.6
Agricultural Easements (No./acres)	0	0	1/6.0	1/9.4	1/12.4	1/6.0
Prime Farmland Soils (acres)	0	203	415	412	424	398
Hydric Soils (acres)	0	158	147	119	115	145
Upland Forested Land (acres)	0	36.9 <sup>5</sup>	39.9 <sup>5</sup>	37.4 <sup>5</sup>	51.0 <sup>5</sup>	36.8 <sup>5</sup>
Residential Noise Impacts (No.)	0	74	104	67	64	63
Residential Noise Impacts after Proposed Visual Berms (No.)	0	74	77	14	27	32
National Register Historic Properties: Physical (No.)	0	4	0 <sup>6</sup>	0 <sup>6</sup>	0 <sup>6</sup>	0 <sup>6</sup>
National Register Historic Properties: Visual or Noise (No.) <sup>8</sup>	0	19	22	17 <sup>7</sup>	16 <sup>7</sup>	21
Capital Cost (\$M) (2006 dollars)	0	\$686-\$758	\$616-\$680	\$550-\$608	\$499-\$551	\$534-\$590

**NOTES:**

1. Based on recommended preferred options for Armstrong Corner Road Area, Boyds Corner Road Area, and Summit Interchange Area. Impacts based on Limit of Disturbance as defined and reported in the Draft EIS.
2. Total area of potential ACOE wetlands impacted.
3. DNREC tidal wetlands acres included in total wetlands.
4. Does not include waters within wetlands.
5. Does not include forests in wetlands.
6. One historic archaeological site for which National Register eligibility has not been determined will be directly impacted by the Purple, Brown and Green Alternatives.
7. One additional property for which National Register eligibility has not been determined would be affected (visual and/or noise) by the Brown Alternatives. Refer to Chapter III, Section B., pages III-51 to III-52 of the Final EIS.
8. Corrected from Draft EIS

**Table 8: Summary of Impacts of the Preferred (Final EIS) and Selected Alternative (ROD)**

Alternative	Preferred	Selected
Resource	Green North + Spur Road (Final EIS <sup>1,2</sup> )	Green North + Spur Road (ROD <sup>3</sup> )
Alignment Length (mi.)	17.5	17.5
Total Area (acres)	941	941
Total Relocations (No.)	21	21
Affected Properties (No.)	143	143
Wetlands (acres) <sup>4</sup>	35.0	35.4
Wetlands (No.)	63	63
Tidal Wetlands (acres) <sup>5</sup>	0	0
Waters of the US (linear feet)	17,883	17,883
100-Year Floodplain (acres)	0.7	0.7
Agricultural Districts (No./acres)	1/32.6	1/32.6
Agricultural Easements (No./acres)	2/10.9	1/1.8
Prime Farmland Soils (acres)	616	616
Hydric Soils (acres)	166	166
Upland Forested Land (acres)	63.7	61
Residential Noise Impacts (No.)	133	133
Residential Noise Impacts after Proposed Visual Berms (No.)	46	46
National Register Historic Properties: Physical (No.)	0 <sup>6</sup>	0 <sup>6</sup>
National Register Historic Properties: Visual or Noise (No.)	15	15
Capital Cost (\$M) (2006 dollars)	\$534-\$590	\$595 <sup>7</sup>

**NOTES:**

1. Includes Option 2A for the Armstrong Corner Road Area, Option 3B for the Summit Interchange Area, and Option 3 for Local Access to Strawberry Lane. Impacts based on Limit of Disturbance as defined and reported in the Final EIS.
2. Preferred Alternative impacts based on refined engineering and additional environmental resource refinements as described in the Final EIS, Chapter II and III.
3. Selected Alternative impacts are based on the modifications of the Green North + Spur Road Alternative following the publication of the Final EIS and detailed in this ROD. Includes Option 4B Modified in the Railledge Road Area and Option 1 Modified for Local Access to Strawberry Lane.
4. Total area of potential ACOE wetlands impacted.
5. DNREC tidal wetlands acres included in total wetlands.
6. One historic archaeological site for which National Register eligibility has not been determined will be directly impacted by the Green North Alternative + Spur Roads.
7. As a result of a joint FHWA/DeLDOT review of the Preferred Green North + Spur Road Alternative, including post Final EIS refinements, the cost is estimated at \$595M (in 2007 \$) and \$704M (year of expenditure \$ including inflation).

### 1) Impacts to Natural Resources

The project Build Alternatives, including the Selected Alternative, would affect project area topography, soils, groundwater, streams, wetlands, floodplains, forests, terrestrial and aquatic habitat, and wildlife. The following is a summary of the natural environmental effects of the project, which are discussed in detail in *Chapter III, Section F* of the Final EIS.

The roadway grades of the Selected Alternative generally follow existing landscape grades. In some locations, the roadway is slightly depressed below grade to minimize visual impacts or is elevated above existing grade to assure proper drainage. Most local roads are designed to overpass the US 301 mainline and Spur Road. Only minor excavation is expected from the project, resulting in minor localized changes in topography. Aquifers that are located

within geologic formations that underlie the US 301 project area will not be directly affected by any of the project alternatives.

The Selected Alternative will impact 616 acres of prime farmland soils and 166 acres of hydric soils within the project area. As reported in the Draft EIS, the retained alternatives would impact between 203 and 437 acres of prime farmland soils and between 115 and 158 acres of hydric soils. A proportional increase in the acreages of soils impacted is likely with the other alternatives, were they subjected to a similar level of design refinement. Over 50 percent of the area of prime farmland soils and soils of statewide importance impacted by the Selected Alternative is slated for development.

Bridge and/or culvert construction at stream crossings, sedimentation, removal of riparian vegetation and surface water diversions will result in impacts to water quality within the project area watersheds. The Selected Alternative will impact a total of 46 surface waters (**Section III.F.5, pages III-133 to III-137** of the Final EIS).

Impacts to stream and wetland surface water quality would result from the Selected Alternatives as well as each of the build alternatives. Direct impacts that result from bridge or roadway construction or those involving the disturbance of stream banks or channels will have an adverse impact on water quality by affecting stream flow rates, temperature and nutrient levels. The clearing and excavation of previously forested or agricultural lands may cause an increase in soil erosion and lead to further sedimentation of surface water features. Similarly, reductions in riparian forest may lead to elevated water temperatures which is directly limiting to cold-water fishes and decreases dissolved oxygen limiting to all aquatic life. Properly designed and constructed stormwater management facilities will control runoff entering surface water features from newly created highways and drainage ways and reduce the potential for sedimentation impact to receiving waters. During construction, the implementation of BMPs will reduce potential negative effects. Proper erosion and sediment control measures will be employed to limit the amount of erosion and the influx of sediment loads into adjacent surface waters.

The Selected Alternative, as well as each of the Build Alternatives, would adversely affect Waters of the US, including wetlands, by displacing or filling these systems. Impacts also include interruption to wetland or stream hydrology. The Selected Alternative will impact 35.4

acres of wetlands and 17,883 linear feet of Waters of the US. These impacts are based upon (1) post-Draft EIS surveys of the Selected Alternative wetlands and Waters of the US and (2) separate delineation of streams and ditches previously included within wetlands systems (see *Section III.F.6.a* of the Final EIS).

In accordance with federal and state regulations, avoidance and minimization measures to reduce impacts to wetlands and waters have been and will continue to be implemented. At a minimum, the Selected Alternative will include 58 acres of wetland replacement, including forested and emergent areas. Two sites are identified for this, one to the west of Levels Road and one in the Pleasanton area. An additional seven acres of wetland creation and 20 acres of wetland conservation will be included in the Scott Run watershed. The project will also mitigate impacts to streams through restoration of approximately 55 linear feet of stream restoration and the creation of approximately 116 acres of new riparian buffer. Ditch impacts will be mitigated in-kind by the creation of new ditches along the roadway. Refer to *Section III.B* of this document for details of the mitigation package. Evaluation of the potential sites and design of the mitigation is still under development and will be completed during final design.

Impacts to floodplains have not been fully evaluated because of the lack of available floodplain data. The Selected Alternative will impact 0.7 acres of Federal Emergency Management Agency (FEMA) 100-year floodplains. A detailed survey of floodplain limits will be conducted during the design phase of the project, and a floodplain permit will be obtained from New Castle County. Each of the Build Alternatives described in the Draft EIS would require some encroachment into FEMA floodplains.

The Selected Alternative will impact 61 acres of forest. Mitigation for forest impacts will include approximately 67 acres on six selected sites. Refer to *Section III.F.8.b. (2)* of the Final EIS and *Section III.B* of this document. The Build Alternatives as described in the Draft EIS would impact similar amounts of forest land.

Historic records of the federally-threatened bog turtle (*Clemmys muhlenbergii*) exist within the project area (see *Section III Section F.9* of the Final EIS). Phase I surveys were completed to determine potential bog turtle habitat. Phase II (visual and physical search) and Phase III (trapping) surveys for bog turtles were completed in compliance with the requirements specified by USFWS and DNREC. No bog turtles were found in any surveyed area. The

location of the 1972 bog turtle sighting is identified as potentially occupied. The Selected Alternative, as well as the other build alternatives, will impact the potentially occupied watershed which could result in direct bog turtle impacts and in indirect and direct bog turtle habitat impacts. However, the potential for impacts is minimal because no bog turtles have been found in the watershed since 1972 and detailed Phase II/III surveys conducted in 2006 revealed no bog turtles present. A biological assessment of the affected area was conducted and is summarized in *Section III.F.9* of the Final EIS. The result, which is concurred in by the USFWS (see *Attachment F*), indicated that the project's Selected Alternative (and other build alternatives) "May Affect but is Unlikely to Adversely Affect" the bog turtle.

There is a potential for the Selected Alternative to impact the state-listed queen snake, a wetland-habitat species. Minimization of wetland impacts and wetlands mitigation will limit impact to the queen snake. No other rare, threatened or endangered species are anticipated to be impacted by the Selected Alternative or any other build alternative. The bald eagle, no longer federally listed as endangered, is still protected by buffer restrictions and time-of-year restrictions on construction activities. No known nest sites are within the federal protective 750-foot buffer or within the one-quarter mile time-of-year restriction buffer of the Selected Alternative.

## **2) Impacts to Socioeconomic Resources**

Subject to final design, the Selected Alternative will impact a total of 143 properties, of which 26 will be full acquisitions and 117 will be partial acquisitions. DeIDOT will obtain a permanent easement on one additional property. Occupants of approximately 21 residential or business properties will require relocation assistance, including 17 total acquisitions and four partial acquisitions.

Relocation assistance will be provided to all residents and businesses as well as owners of properties as necessary in accordance with the *Uniform Relocation Assistance and Real Property Acquisition Act (1970) and Amendments (1987)*; see *Appendix F* of the Final EIS. A relocation plan for the project is also included in *Appendix F*.

The Selected Alternative affects more properties than the Green South and Brown Alternatives but less properties than the Purple + Spur Road and Yellow Alternatives. The

Selected Alternative will require more relocations than the Brown and Purple + Spur Road Alternatives, but less than the Yellow Alternative.

There are many communities located within 600 feet of one or more of the proposed alternatives alignments. Most of the communities consist of neighborhoods of between 20 and 200 single-family homes within individual developments. The community of Middletown Village is the largest group of homeowners in the project area, with approximately 290 single-family residences and almost 500 town homes (see *Section III.A.6* of the Final EIS). The Town of Middletown will be impacted by the Yellow Alternative as it bisects the town, affecting local access and cross-town connectivity and impacting many existing businesses and residences that front existing US 301 and SR 896 (Boyds Corner Road). The Selected Alternative, and the Green South, Brown, and Purple Alternatives, would have less impact on existing communities; however, these alternatives will create individual property impacts within communities.

There are potential aesthetic and visual impacts to communities and individual properties within the view shed of the Selected Alternative, as well as the other build alternatives (see *Section III.A.8* of the Final EIS). The proposed new roadway will be visible from numerous homes in the project area whose existing views are of farm fields and a rural landscape. In some areas, proposed visual screening earth berms will minimize the effects of this change. The Selected Alternative will provide visual screening berms for the communities of Southridge, Middletown Village, Springmill, Chesapeake Meadow and Airmont.

On September 27, 2006, a Memorandum of Agreement was entered into by DelDOT; the Office of State Planning Coordination; the Delaware Department of Agriculture; New Castle County; three school districts (Appoquinimink, Colonial and Smyrna); the Towns of Middletown, Odessa and Townsend; and WILMAPCO for collaborative and cooperative comprehensive planning of land development, infrastructure and services for southern New Castle County. The Selected Alternative (and the Brown, Green South + Spur, and Purple + Spur Alternatives) would require acquisition of property from the Appoquinimink High School (under construction; scheduled to open in the fall of 2008). The property needed for the construction of US 301 was set aside by the School Board, except for a small strip along the southeastern edge of the property. Cooperative efforts with the Appoquinimink School District

will continue during the design and implementation of US 301 and the new school(s) to assure the continued compatibility of the two projects.

The Selected Alternative will impact 941 acres of existing land use (see *Section III.A, pages III-11 and III-12* in the Final EIS), converting the acreage to transportation use. As recorded in the Draft EIS, a comparison of land use changes for the retained alternatives indicated that each build alternative would convert land from existing uses to transportation use. The greatest land use change is for agricultural lands; the Selected Alternative would convert 752 acres. Approximately 50% of this land is already proposed for urban development.

The Selected Alternative and the other build alternatives will affect planned development. The Selected Alternative will affect areas of Westown, Pleasanton, Churchtown Manor, Scott Run Business Park, the Village of Scott Run, Windsor at Hyetts Corner and the Whitehall Properties. The Westown development area would be impacted by construction of the all of the build alternatives.

The Selected Alternative will impact 616 acres of farmland soils and 26 active farm parcels (not planned for development). The Selected Alternative will impact one agricultural preservation easement (1.8 acres) and one preservation district (32.6 acres).

### **3) Impacts to Cultural Resources**

The evaluation of cultural resources within the Area of Potential Effect (APE) for the project alternatives for both standing structures and potential archaeological sites is detailed in *Section III.B* of the Final EIS.

Consultation was completed to apply the Criteria of Adverse Effect to 22 National Register listed or eligible properties affected by the Selected Alternative. This resulted in the determination that the Selected Alternative will have an adverse effect on 12 properties, will have no adverse effect on three properties, and will have no effect on seven properties. The Selected Alternative will have an adverse effect on one identified archaeological resource (N05151) for which National Register eligibility has not been determined. Measures to avoid, minimize, and/or mitigate for adverse effects will be determined through continued consultation with the SHPO. The results of the assessment of adverse effects and stipulations for completing

the treatment of affected properties are detailed in *Section III.B.2* of the Final EIS and in a signed Memorandum of Agreement (MOA), included as *Attachment D* of this ROD.

One identified archaeological resource (N05151) for which National Register eligibility has not been determined will be directly affected by the Selected Alternative, as well as the Green South, Purple + Spur, and Brown Alternatives. A predictive model identified areas of high, medium, low and nil sensitivity to contain prehistoric and historic archaeological sites. The model was partially tested and refined to further define those areas. Further investigation for archaeological resources will be undertaken and completed, as detailed in the MOA, prior to commencement of any construction activities. The MOA also details the disposition of any identified archaeological remains that may be found within the area of disturbance of the Selected Alternative as well as procedures to be followed for unexpected discoveries.

#### **E) Economic Impacts and Benefits**

The Selected Alternative would cost slightly more than the Brown North option and the Green South + Spur option, but less than the Brown South option, the Purple + Spur, and Yellow Alternatives. The difference in project costs between the Build Alternatives is mainly due to differences in design elements, including the number of interchanges provided and bridge structures required. The overall difference in cost between the Selected Alternative and the other build alternatives (approximately \$15-\$90 million in 2006 dollars) represents about 2.8 to 15.0 percent of the total project cost. Although this difference is significant in isolation, the projected cost disparity between the build alternatives was not a major determinative factor for the FHWA because DelDOT did not consider the cost difference to be determinative when it selected the Preferred Alternative. The Federal-aid Highway Program administered by the FHWA is primarily a State-program: a State is free to use its discretionary portion of the Highway Trust Fund on the most expensive project alternative, if it believes that alternative better meets its purpose and transportation needs.

Completion of the Selected Alternative as well as the other build alternatives would lower traffic congestion on local roadways, providing residents better accessibility to businesses located in the project area. Any of the build alternatives would allow easy access to businesses in the project area, which would attract more businesses to the project area. Smaller, local businesses could suffer if larger chain stores move into the area. However, this may also

generate a larger employment base. The build alternatives may also decrease drive-by traffic for businesses along the local roadway network resulting in negative effects to existing businesses.

The Selected Alternative and each of the build alternatives would impact a number of existing businesses (see *Table 7 and 8* of this ROD and *Section III.A.5.b, Tables III-13 and III-14* of the Final EIS) along the alignment, requiring them to relocate. This may result in loss of income to the owners and loss of employment for workers in these locations. Relocation assistance will be provided to all businesses affected by Selected Alternative. The Selected Alternative would also impact planned businesses (commercial, retail, industrial) in the project area, thus altering the projected number of jobs available in the future or altering the locations of these proposed future employment opportunities. The construction of US 301 will provide additional jobs in the area for the duration of construction, likely to begin in 2011 and last between four and 10 years.

#### **F) Summary of Rationale for Selecting Interchange and Alignment Options for the Selected Alternative**

Numerous design options were considered for each of the Alternatives Retained for Detailed Study. These options are presented in detail in *Section II* of the Final EIS. These options were an attempt to improve each of the ARDS by further minimizing impacts to the natural environment and community. Options associated with the Selected Alternative are presented in this ROD. Additional evaluation of options associated with other alternatives is located in the Draft EIS and Final EIS.

##### **1) Armstrong Corner Road (ACR) Area Interchange Options**

Four interchange options were considered for the Green North + Spur Road Alternative in the Armstrong Corner Road (ACR) area. In this location, the new US 301 mainline leaves the ridge route and travels northeast towards existing US 301 and the Norfolk Southern rail line. The Spur Road extends from the new US 301 mainline, in the ACR area, north along the Ridge Route towards the Summit Bridge.

An interchange is provided in the Armstrong Corner Road area on the new US 301 mainline for local access to Middletown and the areas north of Middletown. The options were developed in an attempt to minimize or balance impacts to community facilities and other properties located in this area.

The potential impacts associated with each option, as of the completion of the Draft EIS, are compared in *Table 9*. The ACR Area Options were shown in detail in the Draft EIS in *Appendix C, Figures 1-4*.

All of the ACR Area options would impact forests, Waters of the US including wetlands, prime farmland soils and one agricultural preservation district. All of the options will impact the Midland Farms community ( directly - individual properties and indirectly - visual and noise impacts), and some of the options would cause the location of the roadway to be closer to/farther from the Springmill community, the Middletown Baptist Church and the historic Armstrong-Walker House.

**Table 9: Green Alternative Draft EIS Impacts Comparison – Interchange Options Considered - Armstrong Corner Road Area**

Option	Option 1	Option 2	Option 2A	Option 3
Total Length of Option (miles)	4.0	3.9	3.9	3.9
Total area of Limit of Construction (acres)	218	301	226	200
Wetlands (acres) <sup>1</sup>	7.6	9.2	10.0	11.7
High quality (acres)	0.8	2.3	0.8	1.4
Medium quality (acres)	5.3	6.3	8.7	9.7
Low quality (acres)	1.6	0.6	0.6	0.6
Waters of the US (lf) <sup>2</sup>	2,867	3,020	2,955	1,816
Hydric Soils (acres) <sup>3</sup>	39	53	52	47
DNREC Sub-Aqueous Lands (linear feet)	853	1,676	1,630	853
Habitat Areas (Wildlife & Plant) (acres)	26.9	23.8	24.3	23.2
Prime Farmland Soils (acres)	134	153	136	120
Agricultural Preservation Districts (#)	1 (10.0 ac.)	1 (10.3 ac.)	1 (9.9 ac.)	1 (10.0 ac.)
Agricultural Preservation Easements (#)	0	0	0	0
Forested Land (acres) <sup>4</sup>	15.7	12.0	9.9	10.6
Historic Properties <sup>5</sup> Potential Adverse Effects				
Physical (#)	0	0	0	0
Audible (A), Visual (V), Atmospheric (M) (#)	1 (V,A)	2 (V,A)	2 (V,A)	2 (V,A)

1. Total area of USACE wetlands impacted.
2. Does not include waters within wetlands. lf = linear feet
3. Includes hydric soils not in wetlands.
4. Includes deciduous, evergreen and mixed forest types not included in wetlands. Based on DE Department of Land Use & Planning 2002 Land Use data.
5. Historic Properties are defined in Chapter III.B of the Final EIS as “resources listed in or determined eligible for listing in the National Register of Historic Places”

**a) ACR Area Option 2A (Selected)**

ACR Area Option 2A would provide right-on/right-off interchange ramps between new and existing US 301. The northbound entrance and exit ramps would be located on existing US 301 approximately 1,000 feet north of Armstrong Corner Road. The southbound entrance and exit ramps would be located on existing US 301, approximately 3,500 feet north of Armstrong

Corner Road. Two new signalized intersections on existing US 301 would control exit and entry traffic.

ACR Area Option 2A *was selected*, because it locates the interchange on an arterial road (existing US 301) rather than a local road (Armstrong Corner Road), does not require relocation of existing US 301, has significantly less right-of-way and relocation impacts and a lower cost than Option 2, and does not require the relocation of Middletown Baptist Church (avoids direct impacts to the building and parking area). The Option provides an acceptable level of impacts to wetlands (the majority of impacts are to medium quality wetlands (8.7 of 10.0 acres of impact)) and the least (9.9 acres) impacts to forests in the area.



#### b) ACR Area Option 1 (Not Selected)

ACR Area Option 1 would provide a diamond interchange between the new US 301 and Armstrong Corner Road east of Choptank Road. Interchange ramps would provide local access on Armstrong Corner Road, west of existing US 301. A programmed traffic signal would be provided at the intersection of existing US 301 and Armstrong Corner Road. Armstrong Corner Road would overpass both the new US 301 mainline and spur road.



ACR Area Option 1 was **not selected** because it requires the relocation of Middletown Baptist Church (impacting both building and parking lot), only meets minimum design standards for spacing between the Spur Road/US 301 interchange and the US 301/Armstrong Corner Road interchange, does not provide a direct connection between Armstrong Corner Road and Bohemia Mill Road, locates the interchange on a local road (Armstrong Corner Road) rather than an arterial road (existing US 301), and has the highest impacts to forested land and habitat areas of all of the options.

### c) ACR Area Option 2 (Not Selected)

ACR Area Option 2 would provide a diamond interchange between new US 301 and a relocated existing US 301. Existing US 301 would be relocated to the west, beginning at Armstrong Corner Road and extending to just south of Post and Rail Farms to rejoin the existing US 301 alignment. Armstrong Corner Road would be realigned to overpass the Spur Road. New US 301 would overpass Armstrong Corner Road south of a diamond interchange between new and existing US 301. Signalized intersections with the realigned existing US 301 would provide ramp access.



ACR Area Option 2 was **not selected** because it requires the relocation of existing US 301 in order to accommodate the north-serving ramps. The relocation of existing US 301 results in greater right-of-way and relocation impacts with increased right-of-way, structure and roadway costs, and could affect traffic operations on existing US 301 with two closely spaced additional traffic signals. Option 2 has the highest impacts to Waters of the US.

### d) ACR Area Option 3 (Not Selected)

ACR Area Option 3 would provide a diamond interchange between the new US 301 and Armstrong Corner Road similar to Option 1; however, the mainline would leave the Ridge Alignment and travel in a northeasterly direction approximately 2,200 feet south of the directional change for Option 1. Interchange ramps would provide local access on Armstrong Corner Road, west of existing US 301, and a signal would be provided on existing US 301 at Armstrong Corner Road. Armstrong Corner Road would overpass both the mainline and Spur Road.



ACR Area Option 3 was **not selected** because it has greater wetland impacts than the other options (1, 2, and 2A) and impacts a previously undisturbed wetland in the area, it locates the interchange on a local road (Armstrong Corner Road) rather than an arterial road (existing US 301), and is closer to the Armstrong-Walker House (a historic resource) and the Springmill

community than the other options. Option 3 has the lowest impacts on sub aqueous lands but the highest impacts on wetlands.

## 2) Summit Area Interchange Options

Five (5) interchange options were considered to address safety and traffic operations at the SR15/SR896 intersection at the base of Summit Bridge. In this location, the Spur Road would provide the fourth leg of the existing signalized intersection of SR 15 and SR 896/US 301. The Summit Interchange (SI) Options would replace the intersection with an interchange that would improve safety and provide free-flowing traffic movements in this location. The potential impacts associated with each option, as of the completion of the Draft EIS, are compared in *Table 10* and in *Appendix C, Figures 11-15* of the Draft EIS.

All of the SI Options would impact Waters of the US (wetlands, streams and ditches), hydric and prime farmland soils, and forests. All of the options would impact the adjacent communities of Summit Bridge Farms and Lea Eara Farms.

**Table 10: Green North + Spur Road Alternative Draft EIS  
Impacts Comparison – Interchange Options Considered - Summit Interchange Area**

Option	Option 1	Option 2	Option 3	Option 3B	Option 4
Total Length of Option (miles)	2.0	2.9	2.9	2.9	2.9
Total area of Limit of Construction (acres)	142	145	143	145	117
Wetlands (acres) <sup>1</sup>	5.0	7.0	7.0	7.0	6.3
Waters of the US (lf) <sup>2</sup>	4,396	4,374	4,106	4,130	2,511
Streams (lf)	260	260	260	260	0
Ditches (lf)	4,136	4,114	3,846	3,870	2,511
Hydric Soils (acres) <sup>3</sup>	30	31	32	32	25
DNREC Sub-Aqueous Lands (linear feet)	1,509	1,490	1,621	1,643	777
Habitat Areas (Wildlife & Plant) (acres)	11.1	12.9	12.8	12.8	12.3
Prime Farmland Soils (acres)	71	70	74	79	63
Ten-year Agricultural Preservation Easements (#)	0	0	0	0	0
Permanent Agricultural Preservation Easements (#)	1 (6.1 ac.)				
Forested Land (acres) <sup>4</sup>	6.1	6.0	5.9	5.9	5.0
Historic Properties <sup>5</sup> Potential Adverse Effects					
Physical (#)	0	0	0	0	0
Audible (A), Visual (V), Atmospheric (M) (#)	0	0	0	0	0

1. Total area of USACE wetlands impacted.

2. Does not include waters within wetlands. lf = linear feet

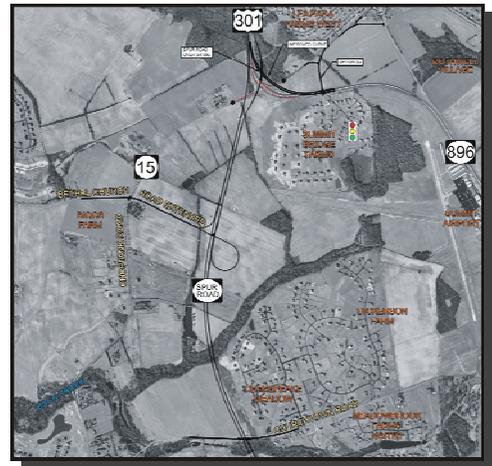
3. Includes hydric soils not in wetlands.

4. Includes deciduous, evergreen and mixed forest types not included in wetlands. Based on DE Department of Land Use & Planning 2002 Land Use data.

5. Historic Properties are defined in Chapter III.B of the Final EIS as “resources listed in or determined eligible for listing in the National Register of Historic Places”

**a) SI Area Option 3B (Selected)**

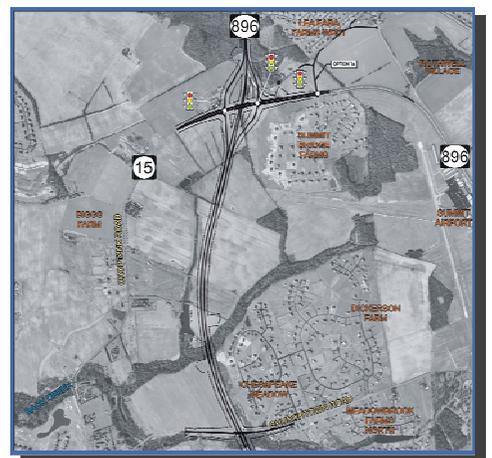
SI Area Option 3B would provide a directional “Y” interchange between SR 896 and the US 301 Spur Road. Option 3B would improve the sharp curve (the direct movement) on SR 896 to the desired design speed and provide continuous traffic flow for the major movements on SR 896. Option 3B would include a cul-de-sac on Bethel Church Road both east and west of the interchange. Access from Choptank Road and Bethel Church Road to the Spur Road would be provided via a trumpet interchange between an extended Bethel Church Road and the Spur Road. The interchange would provide access to and from the north only. A sub-option, Option 2A, would relocate the existing traffic signal at Old Summit Bridge Road to the entrance to Summit Bridge Farms, and Old Summit Bridge Road would be extended to this location. This would provide a two-directional signalized entrance for Summit Bridge Farms (existing entrance is right-in/right-out only)



SI Area Option 3B *was selected* because it provides free flowing traffic on the Spur Road, does not include any signals/intersections on the Spur Road (thus reducing noise associated with stopping/starting), and it provides an unbroken median along the entire Spur Road length, resulting in improved safety. The “A” Option *was not selected* for the reasons previously noted.

**b) SI Area Option 1 (Not Selected)**

SI Area Option 1 would provide a full diamond interchange at the intersection of SR 15, SR 896, and the Spur Road, with free traffic flow between the Spur Road and the Summit Bridge. The ramp termini would be signalized.



SI Area Option 1 was *not selected* because the heaviest local traffic movements (southbound and northbound on SR 896) must pass through signalized intersections, with the southbound movement requiring double left turning movements through a

traffic signal during the PM peak period. Other options provide better traffic operations. The option keeps SR 896 adjacent to the Summit Bridge Farms community.

**c) SI Area Option 2 (Not Selected)**

SI Area Option 2 would provide a directional “Y” interchange between SR 896 and the US 301 Spur Road. Option 2 would improve the sharp curve (the direct movement) on SR 896 to the desired design speed and provide continuous traffic flow for the major movements on SR 896. The northbound Spur Road would pass over SR 896. SR 15 would pass over both SR 896 and the Spur Road to intersect with Old Summit Bridge Road, east of the interchange. Access to SR 896 would be provided at the existing signalized intersection of Old Summit Bridge Road and SR 896. SI Area Option 2A, similar to Option 3BA, would relocate the existing traffic signal at Old Summit Bridge Road to the entrance to Summit Bridge Farms.



SI Area Options 2 and 2A were *not selected* due to the circuitous access for SR 15 traffic west of SR 896 wishing to access SR 896, results in a greater number of vehicles on Bethel Church Road (6,200 vpd) and Old Summit Bridge Road (6,900 vpd), increased construction cost due to increased number of structures, and would be elevated adjacent to Lea Eara Farms and Summit Bridge Farms (additional visual impact). The “A” Option is not preferred because of operational issues along SR 896 associated with the proposed signalized intersection at Old Summit Bridge Road/Summit Bridge Farms and because of the proximity of the intersections of SR 896 with Summit Bridge Road and Old Summit Bridge Road/Bethel Church Road.

**d) SI Area Option 3 (Not Selected)**

SI Area Option 3 would provide a directional “Y” interchange between SR 896 and the US 301 Spur Road, similar to SI Area Option 3B. However, Option 3 would include a cul-de-sac on Bethel Church Road both east and west of the interchange. Access from Choptank Road and Bethel Church Road to the Spur Road would be provided via a new signalized intersection between an extended Bethel Church Road and the Spur Road. As with SI Area Option 2 and 3B, access to SR 896 from the communities to the north (Lea Eara Farms and Summit Bridge) would

be provided at the existing signalized intersection of Old Summit Bridge Road and SR 896. SI Area Option 3A, similar to Option 2A and 3BA, would relocate the existing traffic signal at Old Summit Bridge Road to the entrance to Summit Bridge Farms.

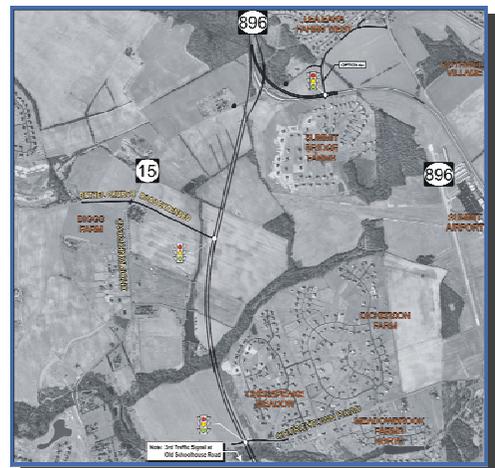
SI Area Options 3 and 3A were *not selected* because they provide a signalized intersection on the Spur Road, thus not providing free-flowing traffic, resulting in potential noise increases at the signal (braking, stopping and starting) and could result in a higher number of accidents than the preferred Option 3B.



#### e) SI Area Option 4 (Not Selected)

SI Area Option 4 would provide the same interchange as Option 3; however, access to the Spur Road at Churchtown Road and Old Schoolhouse Road would be included. Traffic signals would be provided at the three intersections on the Spur Road. SI Area Sub-Option 4A, similar to Option 2A and 3A, would relocate the existing traffic signal at Old Summit Bridge Road to the entrance to Summit Bridge Farms.

SI Area Options 4 and 4A were *not selected* due to the introduction of additional access on the Spur Road, which would increase traffic on Choptank Road south of Old Schoolhouse Road, on Old Schoolhouse Road, and on Churchtown Road as a result of providing local access, and would prevent the free flow of traffic on the Spur Road due to the introduction of signalized intersections and result in increased potential for accidents. Option 4 was opposed by the public and New Castle County due to the potential to encourage growth in areas west of the Spur Road not currently proposed for development. The “A” Option *was not selected* for reasons previously noted.



## **G) Summary of Rationale for Not Selecting**

### **1) No-Build**

The No-Build Alternative was *not selected* because it failed to meet the project Purpose and Need.

The FHWA identified the No-Build Alternative as the environmentally preferable alternative, pursuant to 40 C.F.R. 1505.2(b). However, the Final EIS concluded that this alternative does not satisfy the identified Purpose and Need for the project, explaining that the transportation analyses show that the No-Build Alternative would result in a substantial loss in mobility, increased congestion, and an increase in the number of crashes on local roadways. In addition, the No-Build Alternative would not meet the Purpose and Need element of managing traffic by separating through traffic, especially heavy truck traffic, from local traffic.

Although the ARDS Determination concluded that the No-Build Alternative would not satisfy US 301 Purpose and Need, it was nonetheless fully developed as an EIS alternative in order to meet NEPA's requirement for a baseline scenario from which to compare the effectiveness and environmental impacts of the Build Alternatives. For example, the inclusion of the No-Build Alternative in the EIS enabled DeIDOT to forecast the likely future transportation conditions in the study area if US 301 was not built and provided a benchmark for analysis of potential secondary or indirect effects in and around the study area.

The No-Build Alternative for the US 301 Project Development was not preferred because it does not address the three key components of the project's Purpose and Need: (1) congestion, (2) safety, and (3) the management of heavy truck traffic.

The No-Build Alternative would not relieve the severe congestion projected for the existing roadways in the study area. Under the No-Build Alternative, traffic volumes along existing US 301 north of Middletown are projected to more than double by 2030 to approximately 38,000 vehicles per day. Similar significant increases in traffic volumes are projected for the other local roads in the study area, including SR 896 (Boyd's Corner Road), SR 299, Choptank Road, and Cedar Lane Road. Additionally, the results of capacity analyses conducted for the peak travel periods for over 50 key intersections, roadway segments, and interchanges showed that in 2030 approximately 49 percent of these locations would operate at

unacceptable LOS (E-F). For comparison, under the selected Green North + Spur Road Alternative, only approximately 19 percent of these key locations would operate at an unacceptable LOS (E-F) in 2030.

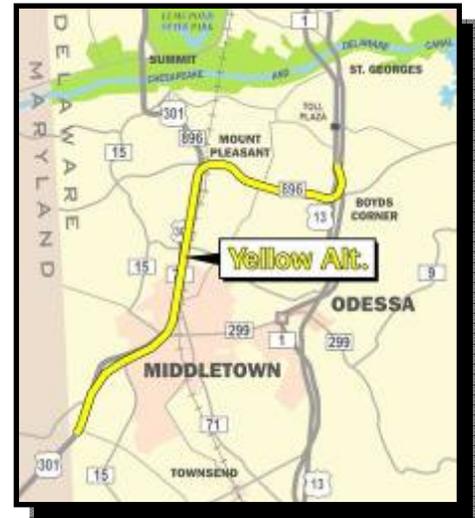
The No-Build Alternative also does not address the significant safety issues within the project area. Under this alternative, traffic in the US 301 corridor would remain on a network of undivided two-lane roadways with numerous signalized and unsignalized access points. Undivided roadways which lack access control are often associated with higher crash rates than access-controlled, divided roadways, such as the selected new US 301 facility. The roadways within the project area, particularly existing US 301, have a history of serious, often fatal, crashes. Since 2000, 18 traffic fatalities have occurred on existing US 301, south of the C&D Canal. Under the No-Build Alternative, significant planned new development will generate an increase in vehicle-miles travelled on these local roads. A safety analysis conducted for this study indicated that the overall accident rate within the study area would be approximately 16 percent higher under the No-Build Alternative compared to the selected Green North + Spur Road Alternative.

Additionally, the No-Build Alternative does not address the need to better manage heavy through truck traffic in the project area. The congestion and safety issues detailed above are compounded by the presence of a significant volume of heavy through truck traffic utilizing the existing US 301 and SR 896 (Boyd's Corner Road) corridors. Trucks currently comprise approximately 27 percent of the traffic on existing US 301 at the Maryland/Delaware state line. This truck traffic, which is primarily long-haul trips destined for the I-95 corridor and points northeast, contributes to congestion in the project area by mixing with local traffic circulating within the Middletown area and commuter traffic destined for major jobs centers in Wilmington and Philadelphia. The size disparity and weights of these trucks increases the potential for severe crashes involving collisions between passenger vehicles and trucks. The No-Build Alternative would not alter this mixture of long-haul truck traffic and local automobile traffic along the existing US 301 corridor. In the future, as passenger car traffic increases significantly in this area due to rapid development, the number of potential conflicts between local traffic and heavy long-distance truck traffic will increase along existing US 301. The selected Green North + Spur Road Alternative would shift a large proportion of this truck traffic away from the

existing roadway network, reducing the number of potential conflicts with passenger traffic, and freeing capacity on the existing road system for use by local, rather than through traffic.

## 2) Yellow Alternative

The Yellow Alternative was *not selected* because of having the highest impacts to communities (seven existing and four proposed), individual properties, and businesses. An estimated 377 properties would be impacted, the highest of all the ARDS, including 128 residential relocations and 58 business relocations. The Yellow Alternative would require relocation of the Odessa Fire Department substation and property acquisitions would result in the highest real estate costs and total project costs of all of the ARDS. Although the Yellow Alternative would have a mid-level number of residential noise impacts (74 residences), noise barrier mitigations would not be feasible in most locations, including residences in Summit Bridge Farms, Grande View Farms, and along Boyds Corner Road, because of the need to retain local access, additional impacts



from adjacent roadways and/or the need for additional right-of-way to construct earth berms without additional property impacts. The location of the alignment adjacent to the existing US 301 and SR 896 corridors would result in a 350 to 400 foot wide highway corridor along most of its length that would impede community cohesion within Middletown and the project area. One-way access roads alongside the roadway corridor would provide circuitous access to local business and residential properties along existing US 301.

The Yellow Alternative had among the lowest impacts to streams (215 linear feet), farmland, forest (36.9 acres) and other habitat. Although, the Yellow Alternative closely followed the existing US 301 and SR 896 corridors, it had the highest amount of impacts to wetlands of any of the ARDS (50.5 acres). Only the Yellow Alternative would physically impact four known historic properties, requiring property acquisition from two and causing the destruction of two others. The Yellow Alternative would be the most difficult to construct and would have the greatest impact on the traveling public during construction. The Yellow Alternative would carry less traffic than the other build alternatives, thus would be less effective

in fulfilling the project's Purpose and Need. The Yellow Alternative had less public support than the other alternatives. Details of the Yellow Alternative impacts are located throughout *Section III* of the Final EIS. A summary of impacts and the rationale for not selecting it are located in the Final EIS, *Section II.B.2.b*.

In conclusion, the Yellow Alternative was not selected because it had a high level of impacts to communities, community facilities, community cohesion and individual properties. The substantial number of noise impacts could not be cost-effectively mitigated. The Yellow Alternative had the highest amount of impacts to wetlands and would physically impact four historic resources. The Yellow Alternative would have been the most difficult to construct and had, with real estate acquisition costs, the highest construction costs of all of the alternatives retained for detailed study.

### 3) Purple + Spur Road Alternative

The Purple + Spur Road Alternative was *not selected* because of greater impacts to communities and community facilities along the portion of the alignment that follows SR 896 (Boyd's Corner Road), including visual impacts resulting from the elevated roadway and noise impacts that could not be cost-effectively mitigated. The Purple + Spur Road Alternative had the



highest number of potential residential noise impacts (104), and many (45) of the potential noise impacts were identified at residences and communities along Boyd's Corner Road, where mitigation would not be cost-effective. There were potential impacts to the New Covenant Presbyterian Church, potential farmland/approved development impacts, and potential noise impacts to the Cedar Lane Educational Campus. The location of the alignment adjacent to Boyd's Corner Road (which is programmed for expansion to four lanes) would have created a 350-foot wide transportation corridor along Boyd's Corner Road, disrupting community cohesion in the area. The Purple + Spur Road Alternative would require relocation of the Odessa Fire Department substation. Higher right-of-way costs and complex interchange and access road configurations led to a greater cost than the selected Green North + Spur Road Alternative. In

general, the Purple + Spur Road Alternative has similar numbers of natural environmental impacts, as does the Green North + Spur Road Alternative, with slightly less wetlands impacts, less sub aqueous lands impacts, and slightly greater Waters of the US impacts. The Purple + Spur Road Alternative had the highest potential number (22) of historic properties indirectly affected (visual and noise effects) of all of the retained alternatives. DNREC considered the Purple + Spur Road Alternative to be an environmentally preferable route to the Green Alternatives North & South Options because it is partially on alignment and minimizes impacts to tributaries of the C&D Canal (*Section IV.D.9, page 19 of 37* in the Final EIS). Details of the Purple Alternative impacts are located throughout *Section III* of the Final EIS. A summary of impacts and the rationale for not selecting it are located in the Final EIS, *Section II.B.3.b*.

In conclusion, the Purple Alternative was not selected because of its greater impacts on communities and community facilities along the proposed roadway adjacent to SR 896 as well as the large number of noise impacts that could not be cost-effectively mitigated.

#### 4) Brown Alternative (North and South Options)

The Brown Alternative North and South Options were *not selected* primarily because of their impact on Summit Airport. The Brown South option would impact the existing airport runway and support buildings, and the Brown North option would impact the runway clear zone and affect expansion plans approved by the FAA. Impacts to the natural environment would be somewhat similar to the Green and Purple Alternatives, although the Brown Alternatives would have the greatest impacts to high quality wetlands, streams and habitat areas. DNREC did not support the Brown Alternative options because of their impact to the high quality wetlands and relatively undisturbed natural stream systems and wildlife corridors in the C&D Canal watershed (east-west portion of the alignment) (Final EIS *Section IV.D.9, pages 19 and 23 of 37.*)



The Brown Alternatives would impact one additional historic resource whose eligibility has not been determined, as this effort would require removal of parts of the building.

Community impacts were also deemed high, as the North Option results in a three-level interchange between the communities of Summit Bridge Farms and Lea Earra Farms. Although the potential for noise impacts was lowest for the Brown Alternative options, mitigating the impacts to communities adjacent to the Summit Interchange area would not be cost effective. The Brown Alternative options also received consistent and considerable opposition at the public workshops and community meetings. Details of the Brown Alternative Options impacts are located throughout *Section III* of the Final EIS. A summary of impacts and the rationale for not selecting it are located in the Final EIS, *Section II.B.4.b*.

In conclusion, the Brown Alternative Options were not selected because they would have impacted the Summit Airport, an important economic resource, and because of the impacts to high quality wetlands and relatively undisturbed natural stream systems.

#### 5) Green South + Spur Road Alternative

The Green + Spur Road Alternative South Option was *not selected* because although the impacts to resources are similar to those of the selected North Option, the South Option requires two crossings of Scott Run while the North Option requires a single crossing. In addition, the South Option's crossing of Scott Run, east of Jamison Corner Road, is longer and more skewed than the North Option's crossing. The Green South Option would impact the family-owned and operated Emerson Dairy Farm and the potential future high school site just north of Boyds Corner



Road. Although a similar modification could have been made for Green South to avoid impacts to the potential school parcel and the Emerson Farm (as was made for Green North in Ratledge Road Area by Option 4B Modified), this would have increased the length of the second crossing of Scott Run, further increasing the amount of impact to this sensitive watershed. Because of the South Option's additional Scott Run crossing and the greater impacts to wetlands and Waters of the US, DNREC preferred the Green North Option (Final EIS, *Section IV.D.9, pages 19 and 24 of 37*). Details of the Green South Alternative impacts are located throughout *Section III* of the

Final EIS. A summary of impacts and the rationale for not selecting it are located in the Final EIS, *Section II.B.5.b*.

In conclusion, the Green Alternative South Option was not selected because of its greater impacts, when compared to the Green Alternative North Option, to streams and wetlands in the sensitive Scott Run watershed.

#### **H) Views of Relevant Agencies and the Public**

FHWA received comments both in favor and against the Build Alternatives. Public and agency comments were carefully considered by FHWA. In response to the Final EIS, 78 comment letters were submitted. Throughout the public involvement process, the Green North + Spur Road (Selected Alternative) has garnered the most support of the Alternatives Retained for Detailed Study. Out of the thousands of comments received, few advocated the No-Build Alternative. Comments submitted by the public on the Final EIS (*Attachment H*) are summarized in *Section VI* and are included, with responses, in *Attachment I* to this ROD.