IV. Alternatives Considered

Record of Decision

Federal Highway Administration

IV) ALTERNATIVES CONSIDERED

A) Purpose and Need

At the outset of the current NEPA study, DelDOT, the FHWA, and the Resource Agencies undertook an analysis of the transportation needs and agreed upon a new and detailed statement that identifies the needs in the study area that the US 301 project is intended to address. The three needs identified for the US 301 project are to:

1) Reduce existing and projected roadway congestion
2) Improve safety
3) Manage traffic by separating US 301 through traffic, particularly truck traffic, from local traffic

These needs are explained in detail in ***Section I*** **(Pages I-1 to I-15)** of the Final EIS. The purpose of the US 301 project is to address these three needs within the study area. The proposed action would best reduce congestion, improve mobility, improve safety, and manage traffic by removing through traffic, including the high percentages of long-distance heavy trucks, from local roads.

A draft Purpose and Need Statement was presented for public review and comment at the three 2005 public workshops and on the project website. These workshops were designed primarily to gain public input on the draft Purpose and Need Statement, the project goals and objectives, and the various alternatives. Over 2,400 people attended the workshops, and approximately 2,000 public comments were received on the draft Purpose and Need, the preliminary project goals and objectives, and the various alternatives.

Comments on the draft Purpose and Need were also provided by a number of the Resource Agencies. The draft Purpose and Need provided a framework for conducting an assessment of the ideas generated through the scoping process. All comments were considered in development of the final Purpose and Need Statement, which was ultimately concurred upon by the Resource Agencies in July and August of 2005. Minor refinements, including updated accident data were provided in the Purpose and Need Statement provided in the Draft EIS (November 2006) and the Final EIS (December 2007).

B) Scoping

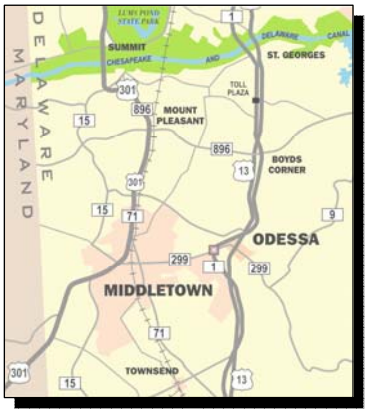
The scoping process for the current US 301 study was initiated in April 2005 with the initial meeting of representatives from appropriate Resource Agencies.

As previously summarized in ***Section II*** of the ROD, the NEPA process for US 301 is the third major study performed on this proposed action in the last 20 years. Therefore, the Resource Agencies had an opportunity to consider, through the scoping process, the numerous alternatives that had been evaluated as part of prior studies (1993 DEIS and 2000 MIS). These alternatives included alternative locations for a new US 301 or other road improvements, modes of transportation (highway and transit), non-highway alternatives (travel demand management, and DelTrac), and a No-Build Alternative.

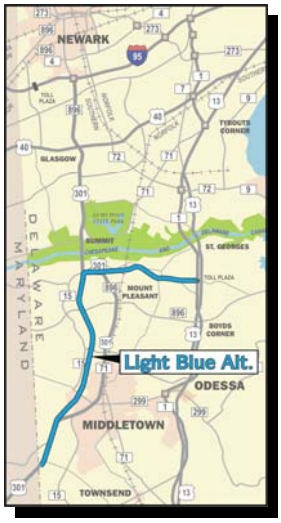
In light of the earlier MIS and the draft Purpose and Need, DelDOT, in consultation with the FHWA and the Resource Agencies (five meetings/field reviews with various Resource Agencies from April to the June 2005 public workshop), developed a potential Range of Alternatives to be considered and presented to the public. The following 10 alternatives (Potential Range of Alternatives) were presented at the June 2005 public workshops to determine if they should be included in the Range of Alternatives:

- No-Build
- Light Blue
- Black
- White
- Yellow
- Orange
- Purple
- Brown
- Green
- Red

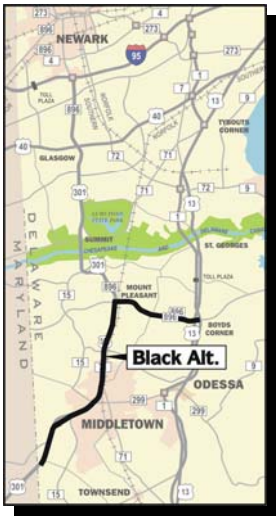
These alternatives are illustrated on ***Figure 4*** and briefly described on the following pages.



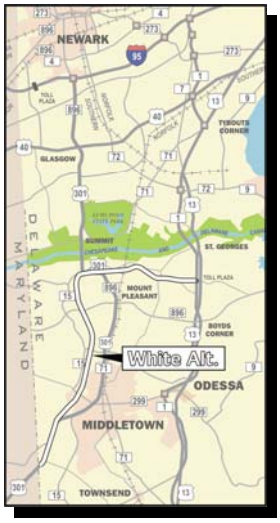
No-Build



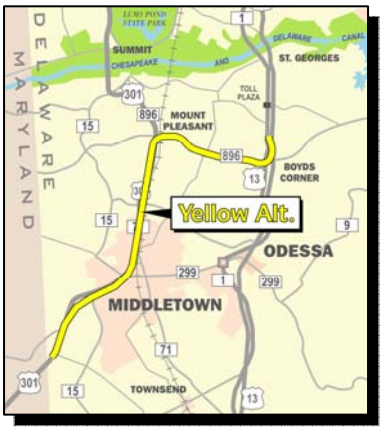
Light Blue



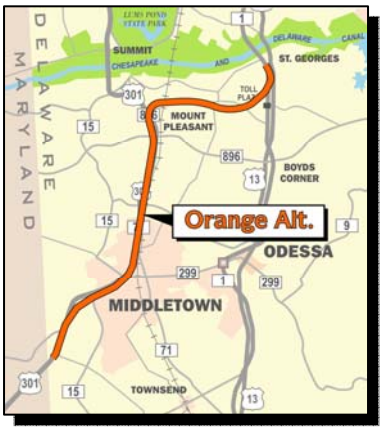
Black



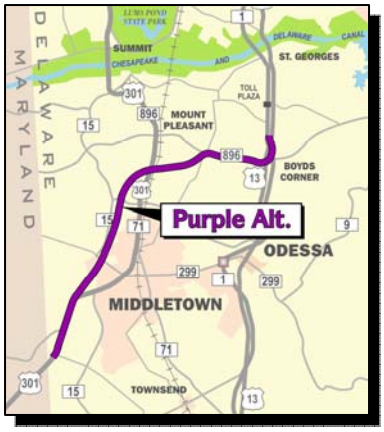
White



Yellow



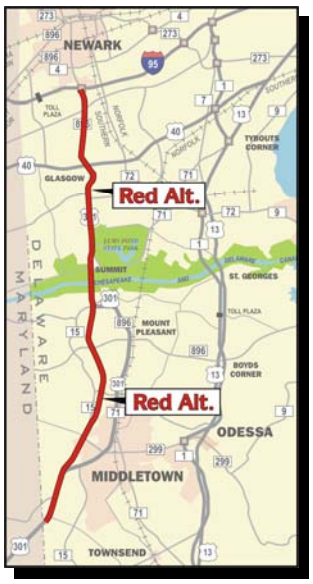
Orange



Purple

Brown

Green



Red

Figure 4: Potential Range of Alternatives

NO-BUILD

The No-Build condition includes existing roadways and normal maintenance, along with projects included in DelDOT's current Capital Transportation Plan (CTP) and Constrained Long Range Transportation Plan (CLRP). The CTP and CLRP projects are also included in the other alternatives considered.

LIGHT BLUE

A new north-south two-lane, access-controlled roadway, west of existing US 301, on new location (Ridge Route) from the Maryland/Delaware state line to south of the C&D Canal and then extending east-west, on new location, to SR 1 south of the C&D Canal.

BLACK

A new north-south four-lane roadway with no access control, along existing US 301, from the Maryland/Delaware state line to Mount Pleasant and a new east-west roadway with no access control along existing SR 896 (Boyds Corner Road) to SR1.

WHITE

A new north-south two-lane, access-controlled roadway, west of existing US 301, on new location (Ridge Route) from the Maryland/Delaware state line to south of the C&D Canal and then extending east-west, on a new location, to SR 1 south of the C&D Canal, with no local access.

YELLOW

A new north-south four-lane, access-controlled, tolled roadway, along existing US 301, from the Maryland/Delaware state line to Mount Pleasant and a new east-west 4-lane, access-controlled, tolled roadway along existing SR 896 (Boyds Corner Road) to SR 1.

ORANGE

A new north-south four-lane, access-controlled, tolled roadway, along existing US 301, from the Maryland/Delaware state line to north of SR 896 (Boyds Corner Road), and a new east-west 4-lane, access-controlled, tolled connection, south of the C&D Canal to SR 1.

PURPLE

A new north-south four-lane, access-controlled, tolled roadway, west of existing US 301, on new location (Ridge Route) from the Maryland/Delaware state line to the vicinity of Armstrong Corner Road, extending northeast-southwest on a new location to SR 896 (Boyds Corner Road) and a new east-west roadway along existing Boyds Corner Road to SR 1.

BROWN

A new north-south four-lane, access-controlled, tolled roadway, west of existing US 301, on a new location (Ridge Route) from the Maryland/Delaware state line to south of the C&D Canal and then extending east-west, on a new location, to SR 1 south of the C&D Canal. The North Option crosses north of the Summit Airport and the South Option extends through Summit Airport.

GREEN

A new north-south four-lane, access-controlled, tolled roadway, west of existing US 301, on a new location (Ridge Route) from the Maryland/Delaware state line to the vicinity of Armstrong Corner Road, extending northeast on new location to SR 1 south of the C&D Canal. The North Option extends east and north of the proposed Scott Run Business Park and the South Option extends east and south of the proposed Scott Run Business Park.

RED

A new north-south four-lane, access-controlled, tolled roadway, west of existing US 301, on a new location (Ridge Route) from the Maryland/Delaware state line to the C&D Canal, crossing the C&D Canal on the Summit Bridge, and then extending north from the C&D Canal along SR 896 to I-95.

Along with the 450 public comments received at the June 2005 workshops, comments were also provided by the environmental Resource Agencies during the continuous consultation effort (14 meetings/field reviews with various Resource Agencies were held from April through August 2005). These comments and the revised draft Purpose and Need Statement provided a framework to begin a preliminary assessment of this potential Range of Alternatives generated through the scoping process.

Each of the ten highway alternatives was screened to determine whether it met the Purpose and Need or if the alternative presented extraordinary environmental or engineering obstacles. As a result of this preliminary screening, the Light Blue, Black, and White Alternatives were dropped from further consideration. The No-Build Alternative was carried forward, as a requirement of NEPA, and used as a base for comparison of the Build Alternatives. However, the No-Build Alternative does not meet the three basic components of the project Purpose and Need.

The Light Blue Alternative was not included in the Range of Alternatives because this two-lane limited-access roadway would not accommodate 2030 design year traffic. By not providing sufficient capacity relief, the Light Blue Alternative did not meet project Purpose and Need. The MIS did not recommend the Light Blue Alternative for further study. There was public agreement (almost 88 percent of those providing comments) with the Project Team recommendation to drop the Light Blue Alternative from further consideration. (Refer to *Alternatives Retained for Detailed Study*, November 8, 2005, pages 7-10, 26.)

The Black Alternative was not included in the Range of Alternatives because it did not separate through traffic, especially truck traffic, from local traffic through Middletown, and was not be expected to improve safety to the same degree as other alternatives, because it did not provide a limited access facility. Since the Black Alternative did not manage truck traffic, it did not meet project Purpose and Need. The MIS also recommended that this alternative not be carried forward based on its "moderate" congestion benefits. There was public agreement (82 percent of those providing comments) with the Project Team recommendation to drop the Black Alternative from further consideration. (Refer to *Alternatives Retained for Detailed Study*, November 8, 2005, pages 7-10, 26.)

The White Alternative was not included in the Range of Alternatives because no local access would be provided on a new two-lane highway, i.e., the White Alternative only accommodated through traffic. The White Alternative only provided minimal congestion relief on local roads and thus did not meet project Purpose and Need. This alternative was recommended to be dropped from consideration in the MIS. There was public agreement (92 percent of those providing comments) with the Project Team recommendation to drop the White

Alternative from further consideration. (Refer to *Alternatives Retained for Detailed Study*, November 8, 2005, pages 7-10, 26.)

Blue Alternative

In response to public comments received at the June 2005 workshops, the Blue Alternative ***(see Figure 5)*** was added for study. The Blue Alternative provided a new east-west four-lane, access-controlled, tolled roadway on a new location, extending from the Maryland/Delaware state line to SR 1, in the vicinity of Townsend. The Blue Alternative included two options: a North Option, passing north of Townsend; and a South Option, passing to the south of Townsend.

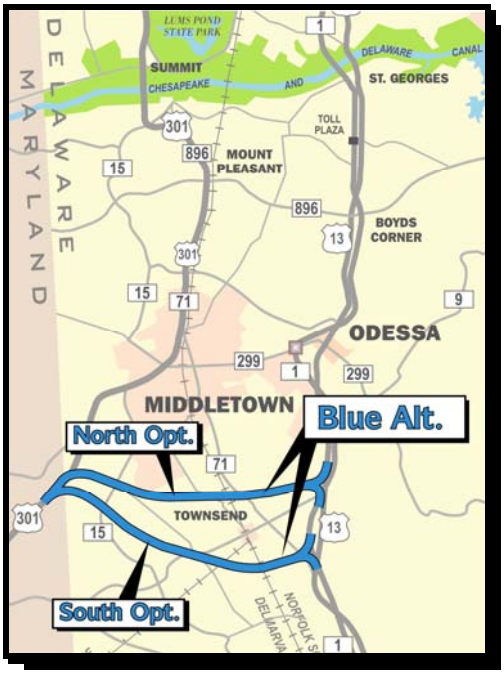


Figure 5: Blue Alternative

The addition of the Blue Alternative resulted in eight distinct alternatives (Range of Alternatives) that were identified for preliminary consideration to determine if they warranted in-depth development as alternative courses of action to be included in the Draft EIS:

- No-Build
- Orange
- Purple
- Brown
- Green
- Blue
- Red
- Yellow

The Resource Agencies concurred with the Range of Alternatives to be evaluated. The Range of Alternatives was then presented at the September 2005 public workshops. Over 1,000 people attended this round of workshops, resulting in over 1,000 comments received and several petitions with over 1,800 signatures. Refer to the November 8, 2005 *Alternatives Retained for Detailed Evaluation* for additional information on the eight alternatives.

The next step was to analyze the Range of Alternatives to determine if they could adequately address all of the elements of this project's Purpose and Need. This analysis is referred to as the determination of the Alternatives to be Retained for Detailed Study (ARDS), and is summarized in ***Section II*** of the Final EIS. Consultation with the various Resource Agencies continued through the 11 meetings/field reviews from July through early December 2005, as the Range of Alternatives was narrowed to those warranting detailed study. A Spur Road was recommended to be added to the Purple and Green Alternatives because of feedback received from the public and because of the results of the Origin and Destination (O&D) Traffic Survey and confirming traffic projections that indicated that one-third of the existing US 301 traffic was coming from or going to a location north of Summit Bridge (Final EIS, ***Section II,*** **page II-41**; see also ***Spur Road Added to Green and Purple Alternatives***, **pages 35-38** of this ROD).

A number of comments received during the June 2005 and September 2005 Public Workshops provided support for the Red Alternative. Public comments noted the desire/demand of traffic to use the Summit Bridge and the SR 896 corridor, north of the C&D Canal. This, along with the results of the O&D Traffic Survey and design year traffic projections, reinforced the purpose, need and benefits of providing a direct connection from new US 301 to Summit Bridge. The Red Alternative, however, was not recommended to be retained for detailed study, for reasons noted below.

An O&D Survey was conducted in November 2004 for three days, ten hours each day, at seven locations north and south of the C&D Canal, with a focus on roadways south of the Canal. The survey indicated that while 65 percent of motorists traveling north on US 301 are headed northeast (Churchmans Crossing, Wilmington, Philadelphia, New Jersey), a significant 35 percent are going north (Glasgow, Newark, Elkton, Maryland).

Upon further analyses, the Red, Blue, and Orange Alternatives were recommended to be dropped from further consideration, based on their inability to meet project Purpose and Need, unacceptable environmental impacts, Resource Agency input, and public input from the September 2005 public workshops.

Red Alternative

The Red Alternative was recommended to be dropped from further consideration because it provided improvements in the SR 896 corridor (with 35 percent of traffic destinations) as opposed to providing a more direct connection to the northeast and I-95 via the SR 1 corridor (with 65 percent of traffic destinations). The Red Alternative did not provide direct access to SR 1.

The Red Alternative was also recommended to be eliminated from further consideration because of significant impacts to environmental resources. The Red Alternative had high impacts to Waters of the US (32.9 acres of wetlands and 22,355 linear feet of streams and ditches), hydric soils (123 acres), floodplains (5.3 acres) and forests (88.9 acres), and had the second highest number of property acquisitions (304) of all of the alternatives considered. The Red Alternative had potential and known physical impacts to historic properties, as well as known physical impacts to parks (Iron Hill Park, Lums Pond State Park, and the C&D Canal Wildlife Area). The Red Alternative would also increase traffic volumes on Summit Bridge by over 50 percent, thus requiring construction of a new bridge over the C&D Canal and a new interchange with US 301/SR 896/I-95, while not taking advantage of the existing infrastructure capacity on SR 1 or programmed capacity improvements in the SR 1 corridor. The Red Alternative required the construction of the most overpasses (10) and interchanges (7), and had the highest estimated cost ($789 million).

Orange Alternative

The Orange Alternative was recommended to be dropped from further consideration because it was found to have substantial disadvantages, including high environmental impacts, high estimated cost, and a number of community impacts. The Orange Alternative would have the highest impacts to wetlands (47.5 acres), would impact 1.5 acres of tidal wetlands, and would impact 14,438 linear feet of Waters of the US.

The Orange Alternative would result in potential and known impacts to four parks/historic resources. The Orange Alternative would have a high number of property impacts (302) and also would impact a large number of existing communities within 600 feet of the corridor (including Middletown Village, Springmill, The Legends, Post and Rail Farms, Summit Pond, and Airmont Acres). The Orange Alternative would bisect Middletown, thus dividing the community in two and affecting east-west access through town. The Orange Alternative would impact the current operations and future expansion of the Summit Airpark and would likely impede emergency services access.

Blue Alternative, North and South Options

The Blue Alternative Options were recommended to be dropped from further consideration because they did not address traffic needs to a satisfactory level. The options would provide a new roadway south of Middletown that did not address traffic congestion caused in large part by development from Middletown north to the C&D Canal. The Blue Alternative Options introduced a highway into an area not planned for urban or suburban development.

The Blue Alternative Options would not significantly reduce congestion on Boyds Corner Road, SR 299, existing US 301, or local roads. The Blue Alternative Options would not provide local access which would likely result in the roadway being underutilized. The Blue Alternative did not fully meet project Purpose and Need.

The Blue Alternative Options would have high environmental impacts and impacts to the Townsend area communities. The South Option would have the second highest impacts to wetlands (46.1 acres). The North Option would impact 3.0 acres of (then) proposed state resource conservation areas and 5.8 acres in the Noxontown Pond Natural Area. The Blue Alternative Options would also have unacceptable impacts to historic properties. The North Option would likely have impacts to Wiggins Mill Pond, a significant public park. The South Option impacted the most environmentally sensitive area (Blackbird State Forest) of all the alternatives. Finally, the Blue Alternative Options would impact agricultural preservation lands and have a greater potential for impacts to rare, threatened and endangered species than the other alternatives. Strong Resource Agency opposition to the significant natural environmental

impacts of the Blue Alternatives, along with public opposition, was a factor in the decision to eliminate the Blue Alternative.

The Red, Orange and Blue Alternatives are shown on ***Figures 4 and 5***. Additional information on these alternatives is available in *US 301 Project Development: Alternatives Retained for Detailed Evaluation* (ARDS Report - Delaware Department of Transportation, November 2005) and in the Draft EIS***, Section II,* pages II-5 to II-8**.

Spur Road Added to Green and Purple Alternatives

The Green and Purple Alternatives were originally developed without the Spur Road. The Spur Road was added in the fall of 2005, due to of feedback received from the public, the results of the O&D Traffic Survey, and confirming traffic projections that indicated that while the majority of traffic (approximately two-thirds) from the Middletown area which crosses the C&D Canal is destined for points to the northeast and would be best served by a direct connection to SR 1, south of the Summit Bridge, a significant portion of the traffic crossing the C&D Canal (approximately one-third) was found to be destined for points north.

The design year (2030) projections noted that there was a consistently high traffic demand at the Summit Bridge. Under the original Green and Purple Alternatives, two existing roads: US 301 and Choptank Road, served most of this traffic demand. In order to better serve this demand and better meet the project purpose and need, i.e., congestion relief, improved safety, and the management of truck traffic, a two-lane Spur Road from new US 301 to Summit Bridge was added to the Green and Purple Alternatives.

Congestion Relief:

The initial Green and Purple Alternatives were projected to significantly reduce traffic on a number of the key east-west roadways in the study area (SR 299, Boyds Corner Road). One of the key benefits to adding the Spur Road to these Alternatives was to reduce the projected traffic on the two key north-south roads which serve Summit Bridge: existing US 301 and Choptank Road. The Spur Road would provide a third route choice for this traffic and would significantly reduce traffic on both Choptank Road and existing US 301. The Spur Road would extend from the new US 301 mainline (near the Armstrong Corner area) and would be an attractive route for both long-distance through traffic (including trucks) entering from Maryland and traffic

generated in the Westown area of Middletown which could access the new US 301 and the Spur Road at the Levels Road interchange. The traffic projections for the Spur Road confirmed its role as an attractive alternative route. By carrying a projected volume of over 22,000 vehicles per day, the Spur Road would reduce traffic on Choptank Road by 57 percent from 14,500 to 6,200 vehicles per day (vpd) and would reduce traffic on existing US 301, north of Boyds Corner Road, by 25 percent from 37,200 to 27,900 vpd (Final EIS, ***Section II,* page II-42)**. ***Table 3*** summarizes these findings.

Table 3: Projected Traffic with and without the Spur Road

Road Segment	**2030 Predicted vpd, with Spur Road**	**2030 Predicted vpd, without Spur Road**	**% Reduction in vpd with Spur Road**
Existing US 301, north of Boyds Corner Road	27,900	37,200	25%
Choptank Road, north of Churchtown Road	6,200	14,500	57%
Spur Road	22,000	--	--

The Spur Road also has emergency and incident management benefits, by providing an additional option to re-route drivers to Summit Bridge in the event of an incident on either existing US 301 or Choptank Road.

Safety:

In addition to the congestion relief, the addition of the Spur Road to the Green and Purple Alternatives provides safety benefits. Without the Spur Road, a significantly higher volume of traffic would use existing US 301 and Choptank Road, two undivided roadways that lack access controls. Undivided roadways which lack access control are associated with higher crash rates than access-controlled, divided roadways. Existing US 301 has a history of serious, often fatal crashes. While the original Green and Purple Alternatives were found to somewhat reduce the traffic projected for existing US 301 and Chpotank Road, when compared to the No-Build Alternative, provision of the Spur Road would significantly reduce projected traffic on existing US 301 and Choptank Road (both undivided roadways lacking access controls).

The Spur Road would provide a fully access-controlled facility, designed to meet or exceed appropriate design standards, with a wide median (62 feet). The potential for several serious crash types (angle and left turn collisions) would be eliminated on the Spur Road, and the

potential for head-on, crossover collisions would be significantly reduced by the width of the median. Due to its design, the Spur Road would thus provide a significantly safer facility than existing US 301 and Choptank Road. A safety analysis conducted for this project, which estimated the potential number of crashes under each alternative, based on existing crash rates in the study area and statewide averages for similar facilities, found that the Spur Road would further reduce crashes on the existing roadway network by approximately 14 percent compared to alternatives without the Spur Road.

Managing Truck Traffic:

The third component of the project purpose and need, managing truck traffic, is directly related to congestion and safety in the project area. The Spur Road would help manage truck traffic by providing a direct, fully access-controlled, divided roadway from the state line to the Summit Bridge, thus reducing traffic, especially through truck traffic, on existing US 301 from Armstrong Corner Road to Summit Bridge.

Currently, at the Delaware/Maryland state line, trucks comprise approximately 27 percent of the traffic on existing US 301. These trucks, which are predominantly through traffic with destinations along the I-95 corridor, mix with local commuter traffic and increase congestion on the local road network, thus increasing the number of severe crashes involving a heavy truck and a passenger automobile. An O&D traffic survey conducted at a travel plaza along existing US 301 found that approximately 95 percent of the long-haul and interstate truck traffic on existing US 301 was destined for points to the northeast along the I-95 corridor. The mainline portion of the Green North Alternative would serve a significant portion of that demand. However, the remaining portion of that long-haul truck traffic is destined for points to the north, and would utilize Summit Bridge and the SR 896 corridor. Additionally, a portion of the shorter distance truck trips would want to utilize the Summit Bridge. Under the original Green and Purple Alternatives, truck traffic would have to exit new US 301 in the Armstrong Corner Road area and utilize existing US 301 to access Summit Bridge. This through truck traffic would continue to mix with local traffic on the existing roadway network. Without the Spur Road, a significant number of these trucks would use existing US 301; another portion would divert to other routes, including MD 213 in Maryland (a roadway similar to existing US 301, having one lane in each

direction and lacking access controls) which is also not conducive to heavy volumes of truck traffic.

The traffic projections developed for the Spur Road verify its utility in managing truck traffic. The Spur Road is projected to carry approximately 2,000 trucks per day in 2030. This reduction in truck traffic on existing US 301 and other local roads would provide additional congestion relief by freeing up roadway capacity on the local road system for use by local drivers and would enhance safety by reducing the number of potential conflicts between heavy trucks traveling through the project area and passenger vehicles.

The recommendation to add the Spur Road to the Green and Purple Alternatives was presented at the December 2005 public workshop sessions. Over 500 people attended the third round of public workshops and over 500 comments were received, along with several petitions with over 1,800 signatures.

Purpose and Need Component	2030 Predicted vpd with Spur Road
Congestion Relief	▪ Significantly reduces traffic on Choptank Road (by 57 percent) and on existing US 301 (by 25 percent) ▪ Provides an attractive alternate route for through and longer distance trips, freeing up roadway capacity for local trips on the existing roadway network
Safety Improvements	▪ Provides a divided, limited access highway facility for use by 22,000 vpd ▪ Reduces the number of trucks on the existing roadway network, decreasing the potential for severe crashes ▪ Results in an additional 14 percent reduction in crashes on the local roadway network
Manage Truck Traffic	▪ Carries approximately 2,000 trucks per day in 2030 ▪ Separates through trucks from local automobile traffic ▪ Reduces total truck traffic on local roadways, including existing US 301, MD 213, and Choptank Road

C) Alternatives Retained for Detailed Study (ARDS)

Major comments from the December 2005 public workshops included: reviewing the Purpose and Need for the Spur Road (Purple and Green Alternatives); retaining the toll free ramps at US 13/SR 1, south of the C&D Canal; impacts to two churches in the project area

(Middletown Baptist Church and New Covenant Presbyterian Church); and safety improvements to the sharp curve on SR 896, south of Summit Bridge.

The ARDS Report was thoroughly reviewed with the Resource Agencies. In January 2006, following the December 2005 public workshops, the USACE and the EPA expressed concurrence, in writing, with the ARDS. The USFWS, along with DDA, DNREC, SHPO, and the OSP also expressed their concurrence with the ARDS determination through feedback at several subsequent Resource Agency meetings.

The ARDS analysis concluded that the Draft EIS would study in detail the No-Build Alternative, along with the Yellow, Purple + Spur Road, Brown, and Green + Spur Road Alternatives. These alternatives, along with a number of interchange and alignment options, are summarized below and described in ***Section II*** **(pages II-8 to II-37*)*** of the Final EIS.

As a result of public workshop comments and continuing consultation with the Resource Agencies, an additional round of public workshops was held in February 2006 to receive additional public comments on the ARDS and focus on the issues raised at the December 2005 public workshops. The issues included: the provision of additional information on the rationale for adding the Spur Road to the Purple and Green Alternatives; a decision to retain the toll free ramps at SR 1 south of the C&D Canal; the refinement of alignments and development of interchange and alignment options to avoid, minimize, or mitigate impacts to Middletown Baptist Church and New Covenant Presbyterian Church; options to improve the sharp curve on the south end of Summit Bridge; and refinements to the ARDS, including their advantages, disadvantages, and potential impacts. The refinement of the alternatives and interchange and alignment options was coordinated with the various Resource Agencies, during 13 meetings/field reviews between January and August 2006, in an effort to minimize environmental and community impacts.

The evaluation of the range of alternatives that led to the ARDS is documented in detail in the technical report, *Alternatives Retained for Detailed Evaluation* and in the administrative record. In the Draft EIS, the ARDS were compared to one another to identify the alternative that best balanced impacts to the environment and best met project Purpose and Need. The impacts associated with the ARDS are presented throughout ***Chapter III*** of the Draft and Final EIS and are summarized in **Table S-2, page S-22** and ***Section II,*** **pages II-17 to II-22** of the Final EIS

and in ***Section V, Table 6*** of this ROD. The following sections summarize the key elements of the ARDS analysis.

1) No-Build Alternative

The No-Build Alternative analyzed in the Final EIS assumes that all transportation improvements formally planned for construction by 2030, except for new US 301, will be built. It reflects the existing roadway conditions, with only scheduled maintenance and minor roadway and safety improvements. Programmed improvements included in the DelDOT's Capital Transportation Plan (CTP) Fiscal Year (FY) 2008 – FY 2013 and DelDOT's Constrained Long Range Transportation Plan (CLRP) are assumed under the No-Build Alternative as well as the build alternatives, but none of the alternatives, Build or No-Build, include any of the impacts associated with the CTP or CLRP improvements. These improvements are described in the Final EIS, ***Section II,*** **page II-12** and **Figure II-5**.

- US 13: Odessa Transportation Plan Implementation
- Intersection Improvements: US 13 and SR 896 (Boyds Corner Road) and SR 896 (Boyds Corner Road) and SR 71 at Mount Pleasant
- Southern New Castle County Local Road Circulation Plan
- SR 15 (Choptank Road) Improvements: Bunker Hill Road to Bethel Church Road
- Passenger Rail Study
- St. Ann's Railroad Bridge Improvements
- US 301 Northbound: Truck Weigh Station

2) Build Alternatives

The four Build Alternatives Retained for Detailed Study would each provide a four-lane (two lanes in each direction), divided, fully access controlled (denial of access along both sides of roadway except at interchange locations), tolled roadway from the Maryland/Delaware state line to SR 1, south of the C&D Canal. The Purple and Green Alternatives also provide a two-lane (one lane in each direction), divided, access controlled Spur Road from new US 301 in the Armstrong Corner Road area to an interchange with SR 896 south of the Summit Bridge. The Alternatives Retained for Detailed Study are shown on ***Figures 6-10*** and are described in the following sections.

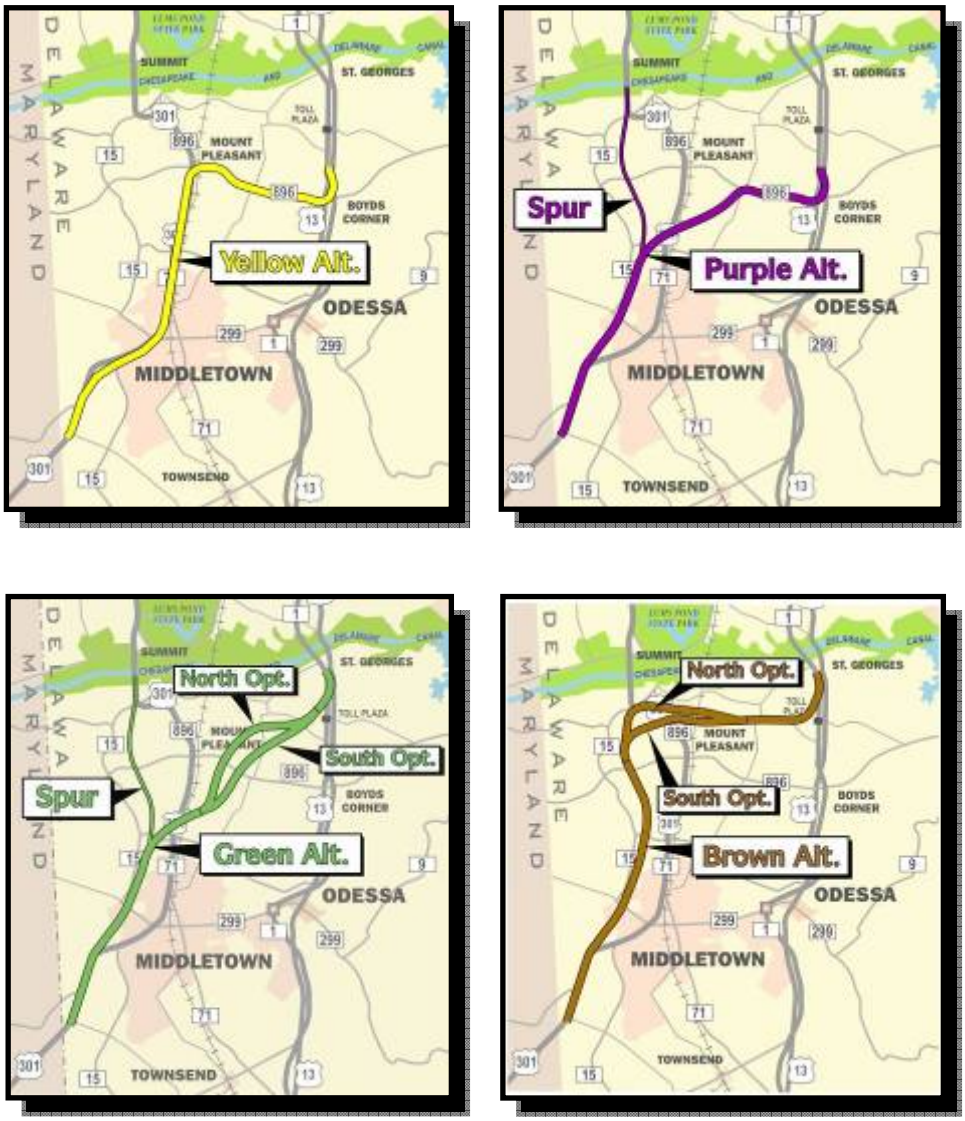


Figure 6: Build Alternatives Retained for Detailed Evaluation

All of the retained build alternatives would include a US 301 mainline toll plaza north of the Maryland/Delaware state line prior to any local access points. The collection of tolls is proposed on all north-serving ramps (all on-ramps for vehicles entering new US 301 traveling northbound and all off-ramps for vehicles traveling southbound as they exit new US 301).

The following section includes descriptions of the four Alternatives Retained for Detailed Study.

a) Yellow Alternative

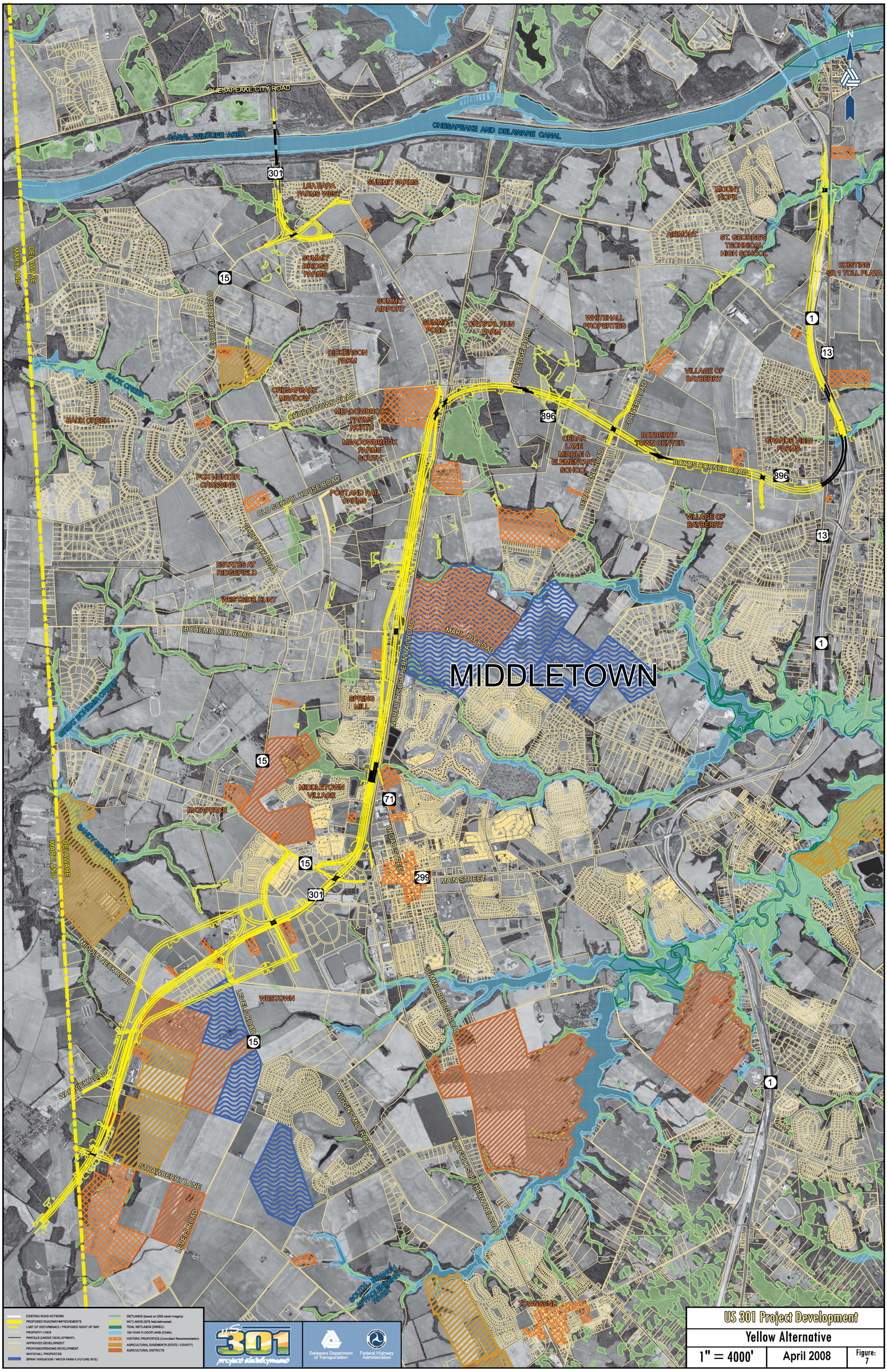
State Line to Mount Pleasant: Beginning just west of the Maryland/Delaware state line, the Yellow Alternative would tie into the existing four-lane Maryland portion of US 301 prior to entering Delaware. The new alignment would parallel existing US 301 on the west side, minimizing impacts to a series of historic (listed or eligible for listing in the National Register of Historic Places) properties along existing US 301. Arterial frontage roads located parallel to the mainline would provide access for properties along existing US 301 and allow for the circulation of local traffic. From Bunker Hill Road to Mount Pleasant, the Yellow Alternative would overpass SR 299, Bunker Hill Road, Main Street, SR 71, Frogtown Crossing, Armstrong Corner Road, and the Norfolk Southern rail line just south of Mount Pleasant.

Mount Pleasant to SR 1: After crossing over the Norfolk Southern rail line, the Yellow Alternative would extend in an east-west direction parallel to SR 896 (Boyds Corner Road). Existing Boyds Corner Road would continue to provide local access. The new US 301 would cross over Jamison Corner Road, Emerson Road, Shallcross Lake Road, US 13 and SR 1 and tie into SR 1, north of the SR 1/Boyds Corner Road interchange and south of the existing Biddles Corner Toll Plaza. Directional ramps from southbound SR 1 to southbound US 301 and from northbound US 301 to northbound SR 1 would bypass the toll plaza.

SR 15/SR 896 Interchange: An interchange would replace the existing SR 15/SR 896 intersection at the base of Summit Bridge to address traffic and safety issues.

The Yellow Alternative measures a total length of 19.4 miles, including 6.7 miles of frontage roads, and has four interchanges: right-on/right-off ramps southwest of Middletown at Levels Road; slip ramps to service roads north of Middletown; directional ramps to and from SR 1 near Boyds Corner Road; and an interchange at the junction of SR 15/SR 896 at the base of Summit Bridge.

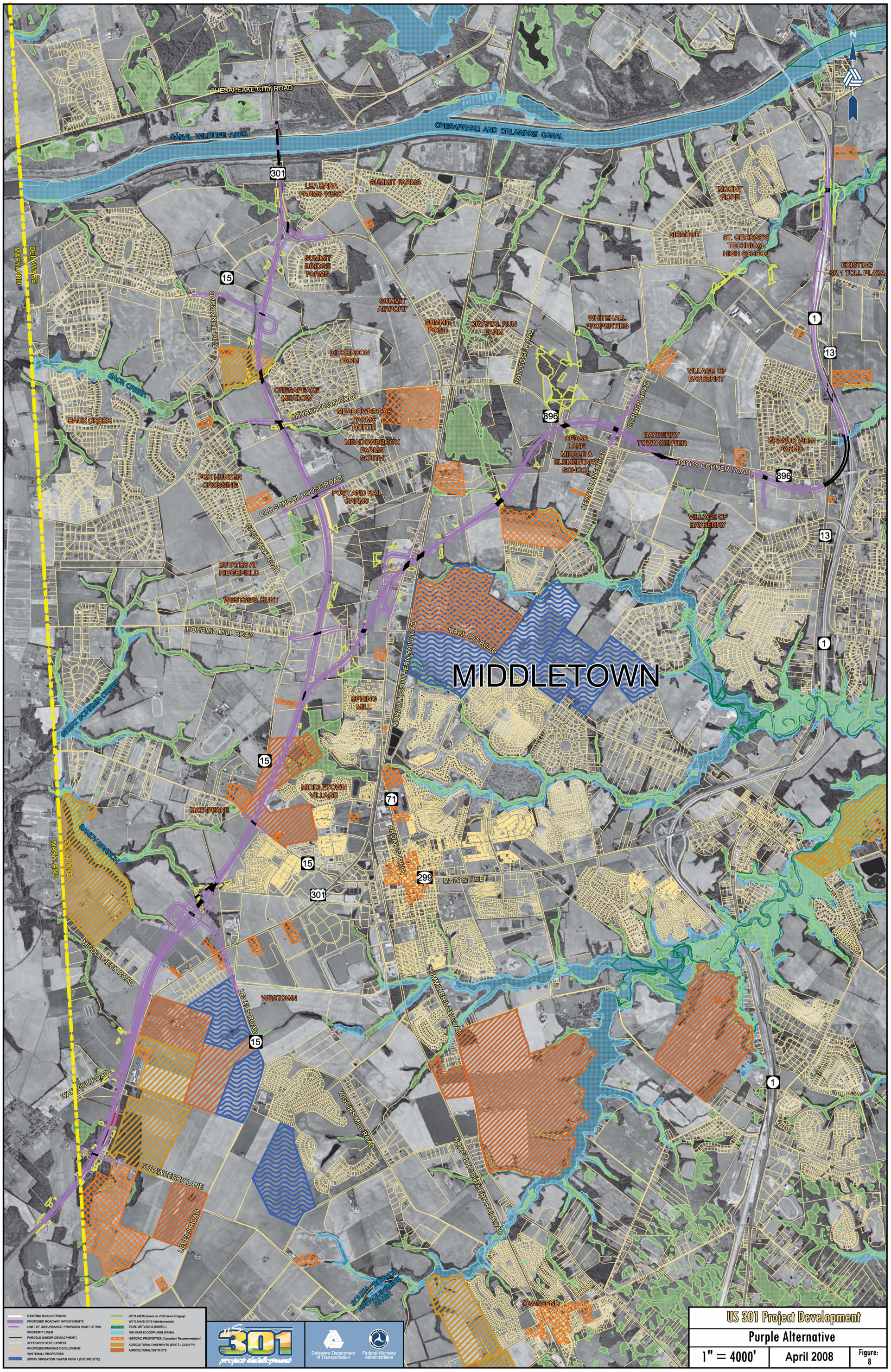
The Yellow Alternative is shown on ***Figure 7*** and was shown in detail on **Yellow Alternative, Engineering Sheets 1 through 6 in *Appendix B*** of the Draft EIS.



US 301 Project Development

Yellow Alternative

1" = 4000'	April 2008	Figure: 7


CHESAPEAKE CITY ROAD
CANAL WILDLIFE AREA
CHESAPEAKE AND DELAWARE CANAL
301
LEA EARA FARMS WEST
SUMMIT FARMS
MOUNT HOPE
AIRMONT
ST. GEORGE'S TECHNICAL HIGH SCHOOL
EXISTING SR 1 TOLL PLAZA
SUMMIT BRIDGE FARMS
15
DELAWARE
MARYLAND
CHOPTANK ROAD
SUMMIT AIRPORT
SUMMIT POND
CRYSTAL RUN FARM
RATLEDGE ROAD
WHITEHALL PROPERTIES
1
13
DICKERSON FARM
BACK CREEK
CHESAPEAKE MEADOW
CHURCHTOWN ROAD
MEADOWBROOK FARMS NORTH
MEADOWBROOK FARMS SOUTH
396
CORNER ROAD
VILLAGE OF BAYBERRY
CEDAR LANE MIDDLE & ELEMENTARY SCHOOL
BAYBERRY TOWN CENTER
GRANDE VIEW FARMS
BOYDS CORNER ROAD
FOX HUNTER CROSSING
OLD SCHOOL HOUSE ROAD
POST AND RAIL FARMS
CEDAR LANE ROAD
ESTATES AT RIDGEFIELD
WESTSIDE HUNT
BOHEMIA MILL ROAD
MARL PIT ROAD
NORFOLK SOUTHERN RAILROAD
MIDDLETOWN
GREAT BOHEMIA CREEK
SPRING MILL
MIDDLETOWN VILLAGE
71
MATAPEAKE
SANDY BRANCH
BROAD STREET
299
MAIN STREET
MIDDLE NECK ROAD
WESTOWN
LEVELS ROAD
SUMMIT BRIDGE ROAD
WARWICK ROAD
WIGGINS MILL ROAD
STRAWBERRY LANE
SOUTH BRANCH APPOQUINIMINK RIVER
TOWNSEND
N
EXISTING ROAD NETWORK
PROPOSED ROADWAY IMPROVEMENTS
LIMIT OF DISTURBANCE / PROPOSED RIGHT OF WAY
PROPERTY LINES
PARCELS (UNDER DEVELOPMENT)
APPROVED DEVELOPMENT
PROPOSED/DEPENDING DEVELOPMENT
WHITEHALL PROPERTIES
SPRAY IRRIGATION / WATER FARM II (FUTURE SITE)
WETLANDS (based on 2002 aerial imagery)
WETLANDS (GPS field-delineated)
TIDAL WETLANDS (DNREC)
100-YEAR FLOODPLAINS (FEMA)
HISTORIC PROPERTIES (Consultant Recommendation)
AGRICULTURAL EASEMENTS (STATE / COUNTY)
AGRICULTURAL DISTRICTS
US 301 project development
Delaware Department of Transportation
Federal Highway Administration
US 301 Project Development
Purple Alternative
1" = 4000'
April 2008
Figure: 8

b) Purple + Spur Road Alternative

State Line to Armstrong Corner Road Area: The Purple + Spur Road Alternative alignment would extend northerly from the Maryland/Delaware Line, on a new location (the Ridge Route), west of Middletown, to the vicinity of Armstrong Corner Road.

Armstrong Corner Road Area to SR 1 – Mainline: From Armstrong Corner Road, the Purple Alternative Mainline would extend northeast crossing over existing US 301, the Norfolk Southern Railroad, and SR 896 (Boyds Corner Road) before extending to the east, parallel to SR 896 (Boyds Corner Road). In this location, the Purple + Spur Road and Yellow Alternatives would share a common alignment. Existing Boyds Corner Road would continue to provide local access. The new US 301 would cross over Jamison Corner Road, Emerson Road, Shallcross Lake Road, US 13 and SR 1 and tie into SR 1, north of the SR 1/Boyds Corner Road interchange and south of the existing Biddles Corner Toll Plaza. Directional ramps from southbound SR 1 to southbound US 301 and from northbound US 301 to northbound SR 1 would bypass the SR 1 Biddles Corner Toll Plaza.

Armstrong Corner Road Area to Summit Bridge - Spur Road: The Purple Alternative two-lane (one lane in each direction) Spur Road would extend from the new US 301 mainline in the vicinity of Armstrong Corner Road and continue on the Ridge Route, between Choptank Road and existing US 301, to just south of the Summit Bridge. The existing US 301/SR 896/SR 15 intersection would be replaced with a "Y" type interchange. Old Schoolhouse Road and Churchtown Road would overpass the Spur Road (no access). Bethel Church Road would be extended east from the existing intersection of Bethel Church Road and Choptank Road, and would interchange with the Spur Road (partial cloverleaf providing toll free access to and from the north).

The Purple Alternative measures a total length of 16.9 miles, including the Spur Road, and has five interchanges: a diamond interchange southwest of Middletown at Levels Road, right-on/right-off ramps at existing US 301 in the vicinity of Armstrong Corner Road; a flyover ramp at the terminus of the Spur Road at SR 896; flyover ramps at SR 1 near US 13 and SR 896 (Boyds Corner Road); and a partial cloverleaf interchange along the Spur Road at an extended Bethel Church Road. The Purple Alternative is shown in ***Figure 8*** was shown in detail on **Purple Alternative, Engineering Sheets 1 through 8 in *Appendix B*** of the Draft EIS.

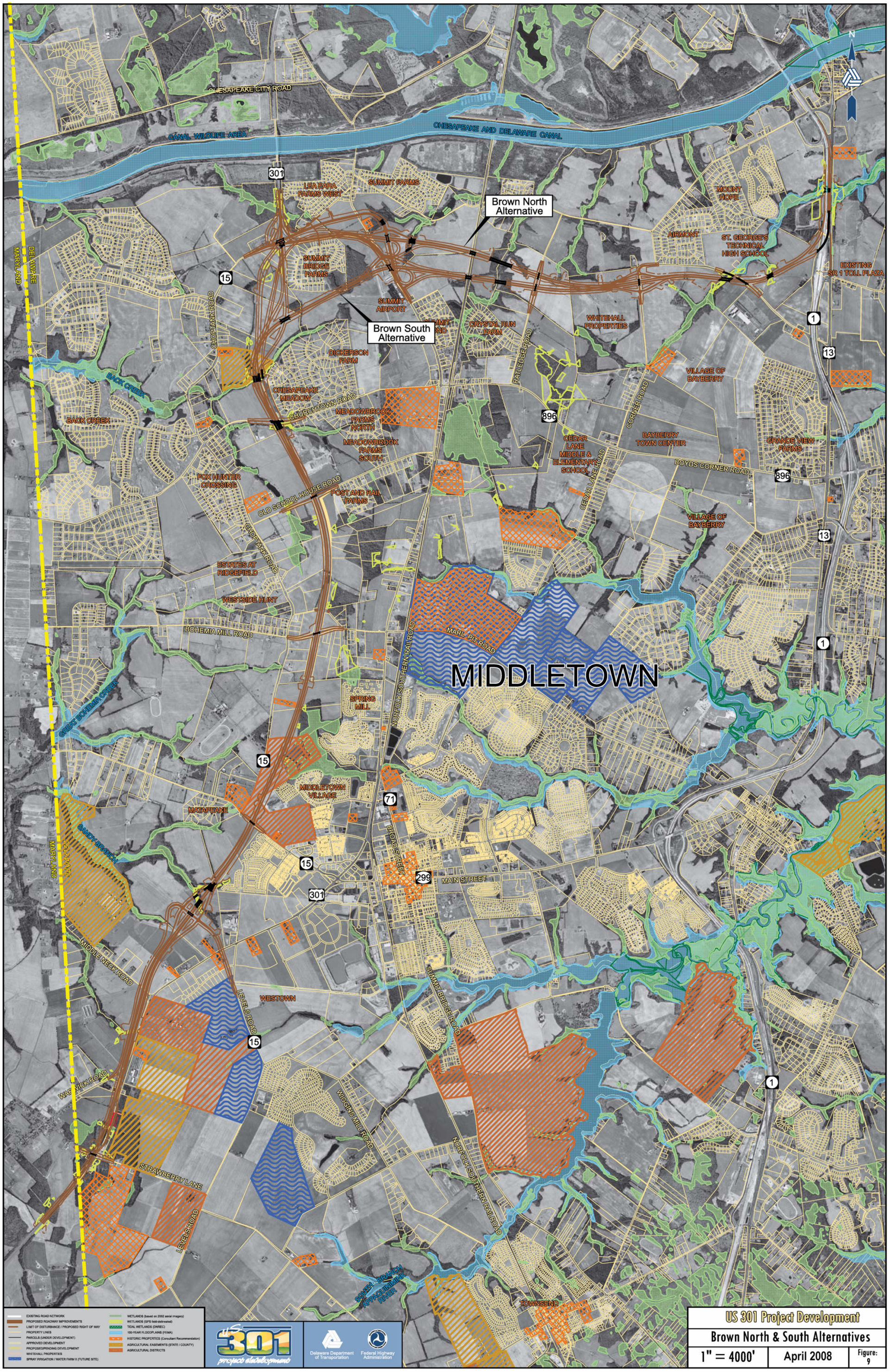
c) Brown Alternative, North and South Options

State Line to North of Churchtown Road: This portion of the Brown Alternative would be identical to the Purple Alternative until just south of Armstrong Corner Road, where the Brown Alternative would continue north along the Ridge Route until north of Churchtown Road.

North of Churchtown Road to SR 1 – North Option: North of Churchtown Road, the Brown Alternative North Option would continue in a northerly direction towards the existing SR 15/SR 896 intersection south of Summit Bridge. The North Option would then continue east on a new alignment toward SR 1, passing between the communities of Summit Bridge Farms and Lea Eara Farms. The North Option would cross over the Norfolk Southern rail line and under both a reconstructed Ratledge Road and a reconstructed Jamison Corner Road, pass south of the Airmont community, cross over Scott Run and under a reconstructed Hyetts Corner Road, and continue east to an interchange with SR 1 north of the existing Biddles Corner Toll Plaza and south of the SR 1 bridge (recently named the Senator William V. Roth, Jr. Bridge) over the C&D Canal. Directional ramps would be provided from southbound SR 1 to southbound US 301 and from northbound US 301 to northbound SR 1.

North of Churchtown Road to SR 1 – South Option: Just north of Churchtown Road, the Brown Alternative South Option Alignment would turn northeast between the communities of Chesapeake Meadow and Summit Bridge Farms. The alignment would pass through the Summit Airport and cross over SR 896 and the Norfolk Southern Railroad. East of Ratledge Road, the alignment would then extend to SR 1 on the same alignment as the Brown North Option.

The Brown Alternative North and South Options measure a total length of 15.5 and 15.9 miles, respectively, and each has five interchanges. Both options include a diamond interchange southwest of Middletown at Levels Road; directional ramps and a half diamond interchange at SR 15/SR 896 south of Summit Bridge; a diamond interchange at Jamison Corner Road; and directional ramps between US 301 and SR 1 north of the Biddles Corner Toll Plaza. The North Option has an additional diamond interchange at SR 896 east of the Summit Airport, and the South Option includes a partial cloverleaf at SR 896 east of Summit Airport. The Brown Alternative with North and South Options is shown in ***Figure 9*** and was shown in detail on **Brown Alternative, Engineering Sheets 1 through 6 in *Appendix B*** of the Draft EIS.


Brown North Alternative
Brown South Alternative
MIDDLETOWN
CHESAPEAKE CITY ROAD
CANAL WILDLIFE AREA
CHESAPEAKE AND DELAWARE CANAL
LEA-ERA FARMS WEST
SUMMIT FARMS
SUMMIT BRIDGE FARMS
SUMMIT AIRPORT
MOUNT HOPE
AIRMONT
ST. GEORGE'S TECHNICAL HIGH SCHOOL
EXISTING SR 1 TOLL PLAZA
WHITEHALL PROPERTIES
CRYSTAL RUN FARM
RATLEDGE ROAD
VILLAGE OF BAYBERRY
CORNER ROAD
BAYBERRY TOWN CENTER
GRANDE VIEW FARMS
CEDAR LANE MIDDLE & ELEMENTARY SCHOOL
CEDAR LANE ROAD
BOYDS CORNER ROAD
DICKERSON FARM
CHESAPEAKE MEADOW
CHURCHTOWN ROAD
MEADOWBROOK FARMS NORTH
MEADOWBROOK FARMS SOUTH
FOX HUNTER CROSSING
OLD SCHOOL HOUSE ROAD
POST AND RAIL FARMS
CHOPTANK ROAD
ESTATES AT RIDGEFIELD
WESTSIDE HUNT
BOHEMIA MILL ROAD
MARL PIT ROAD
NORFOLK SOUTHERN RAILROAD
SPRING MILL
GREAT BOHEMIA CREEK
MIDDLETOWN VILLAGE
MATAPEAKE
BROAD STREET
MAIN STREET
SUMMIT BRIDGE ROAD
WESTOWN
LEVELS ROAD
WIGGINS MILL ROAD
STRAWBERRY LANE
WARWICK ROAD
MIDDLE NECK ROAD
SANDY BRANCH
SOUTH BRANCH APPOQUINIMINK RIVER
TOWNSEND
BACK CREEK
DELAWARE
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EXISTING ROAD NETWORK
PROPOSED ROADWAY IMPROVEMENTS
LIMIT OF DISTURBANCE / PROPOSED RIGHT OF WAY
PROPERTY LINES
PARCELS (UNDER DEVELOPMENT)
APPROVED DEVELOPMENT
PROPOSED/PENDING DEVELOPMENT
WHITEHALL PROPERTIES
SPRAY IRRIGATION / WATER FARM II (FUTURE SITE)
WETLANDS (based on 2002 aerial imagery)
WETLANDS (GPS field-delineated)
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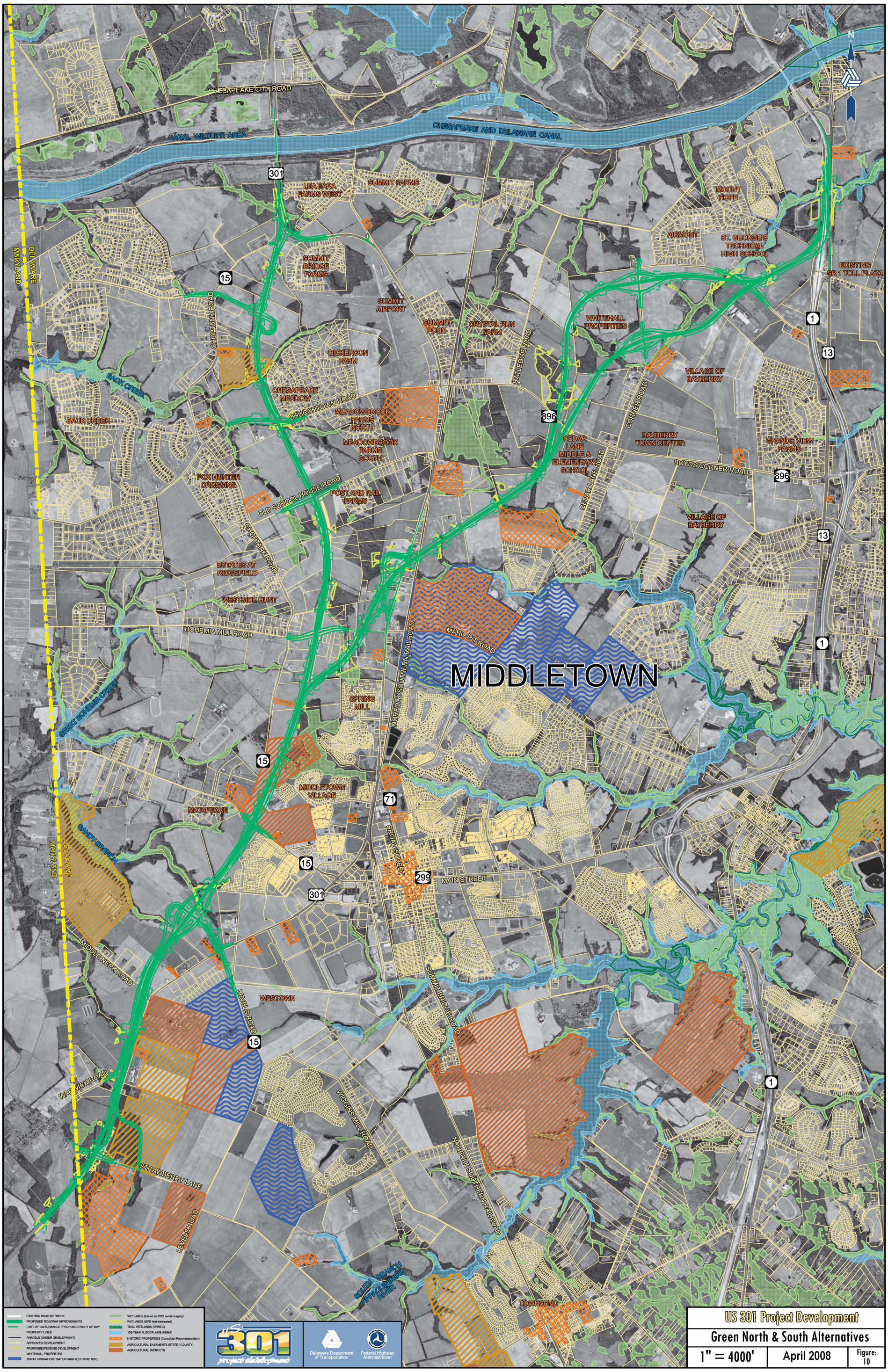
100-YEAR FLOODPLAINS (FEMA)
HISTORIC PROPERTIES (Consultant Recommendation)
AGRICULTURAL EASEMENTS (STATE / COUNTY)
AGRICULTURAL DISTRICTS
US 301 project development
Delaware Department of Transportation
Federal Highway Administration
US 301 Project Development
Brown North & South Alternatives
1" = 4000'
April 2008
Figure: 9


CHESAPEAKE CITY ROAD
CANAL WILDLIFE AREA
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301
LEA EARA FARMS WEST
SUMMIT FARMS
MOUNT HOPE
AIRMONT
ST. GEORGE'S TECHNICAL HIGH SCHOOL
EXISTING SR 1 TOLL PLAZA
MARYLAND
DELAWARE
SUMMIT BRIDGE FARMS
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CHOPTANK ROAD
SUMMIT AIRPORT
SUMMIT POND
CRYSTAL RUN FARM
WHITEHALL PROPERTIES
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RATLEDGE ROAD
DICKERSON FARM
VILLAGE OF BAYBERRY
BACK CREEK
CHESAPEAKE MEADOW
CHURCHTOWN ROAD
MEADOWBROOK FARMS NORTH
MEADOWBROOK FARMS SOUTH
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CORNER ROAD
BAYBERRY TOWN CENTER
CEDAR LANE MIDDLE & ELEMENTARY SCHOOL
CEDAR LANE ROAD
GRANDE VIEW FARMS
BOYDS CORNER ROAD
FOX HUNTER CROSSING
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MIDDLETOWN
GREAT BOHEMIA CREEK
SPRING MILL
MIDDLETOWN VILLAGE
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AGRICULTURAL DISTRICTS
Delaware Department of Transportation
Federal Highway Administration
US 301 Project Development
Green North & South Alternatives
1" = 4000'
April 2008
Figure: 10

d) Green + Spur Road Alternative (South Option)

State Line to Armstrong Corner Road Area (South Option): The alignment of the Green + Spur Road Alternative South Option would be identical to the Purple + Spur Road Alternative and Brown Alternative for this portion of the roadway.

Mainline - Armstrong Corner Road Area to SR 1 (South Option): From Armstrong Corner Road, the Green + Spur Road Alternative South Option would continue northeast, crossing over existing US 301 and the Norfolk Southern Railroad. East of the Norfolk Southern Railroad overpass, the South Option alignment would continue in a northeasterly direction to pass over SR 896 (Boyds Corner Road). North of Boyds Corner Road, the South Option would continue on new location in a northeasterly direction toward SR 1, interchanging with Jamison Corner Road. The alignment would then cross over Scott Run and under a reconstructed Hyetts Corner, and continue east terminating at SR 1 north of the existing Biddles Corner Toll Plaza and south of the SR 1 bridge over the C&D Canal. Directional ramps would be provided from northbound US 301 to northbound SR 1 and from southbound SR 1 to southbound US 301.

Armstrong Corner Road Area to Summit Bridge - Spur Road (South Option): The alignment of the Green Alternative South Option Spur Road would be identical to the Purple Alternative + Spur Road for this portion of the roadway.

The Green + Spur Road Alternative South Option measures a total length of 17.5 miles, including the Spur Road, and has six interchanges: a diamond interchange southwest of Middletown at Levels Road; right-on/right-off ramps at existing US 301 in the vicinity of Armstrong Corner Road; a diamond interchange at Jamison Corner Road; directional ramps with SR 1 north of the Biddles Corner Toll Plaza; a partial cloverleaf interchange along the Spur Road at an extended Bethel Church Road; and directional ramps with SR 896, south of Summit Bridge. The Green Alternative + Spur Road South Option is shown in ***Figure 10*** and was shown in detail on **Green Alternative Engineering Sheets 1 through 8 in *Appendix B*** of the Draft EIS.

e) Green + Spur Road Alternative (North Option)

State Line to Armstrong Corner Road Area (North Option): The alignment of the Green + Spur Road Alternative North Option would be identical to the Green + Spur Road Alternative

South Option, the Purple + Spur Road Alternative, and the Brown Alternative for this portion of the roadway.

Mainline – Armstrong Corner Road Area to SR 1 (North Option): The Green North + Spur Road Alternative would continue northeast passing over existing US 301, the Norfolk Southern Railroad, and SR 896 (Boyds Corner Road), similar to the Green South + Spur Alternative. North of Boyds Corner Road, the North Option will continue in a northerly direction before turning almost directly east toward SR1. The North Option alignment will interchange with a reconstructed Jamison Corner Road, pass south of the Airmont community, cross over Scott Run and under a reconstructed Hyetts Corner Road and continue east, terminating at SR 1 north of the existing Biddles Corner Toll Plaza and south of the SR 1 bridge, over the C&D Canal. Directional ramps would be provided from southbound SR 1 to southbound US 301 and from northbound US 301 to northbound SR 1.

Armstrong Corner Road Area to Summit Bridge - Spur Road (North Option): The Green + Spur Road Alternative North Option's Spur Road would be identical to the Spur Road for the Purple Alternative and the Green + Spur Road South Option. The Green Alternative North Option is shown in ***Figure 10*** and was presented in detail on **Green Alternative Engineering Sheets 1 through 8 in *Appendix B*** of the Draft EIS.

3) Recommended Preferred Alternative (Green North + Spur Road)

The Green North + Spur Road was identified as the Recommended Preferred Alternative, after considering the results of the April 2006 public workshops comments and after additional consultation and coordination with the Resource Agencies (both office and field reviews). The Recommended Preferred Alternative, Green North + Spur Road, along with the other Retained Alternatives and a number of interchange and alignment options were evaluated and included in the Draft EIS that was circulated in November 2006 and presented at the January 2007 Joint Public Hearing sessions, sponsored by DelDOT, FHWA, and the USACE. The Resource Agencies were provided with advance copies of the Draft EIS. The Resource Agencies, in turn, provided comments to DelDOT, before public distribution. The rationale for the Recommended Preferred Alternative and the reasons why the other alternatives were not recommended, as noted in ***Section V*** of this ROD, were presented at the public hearing sessions and in ***Section V*** of the

Draft EIS. Over 450 people attended the hearings, providing 120 comments. Forty-five persons provided either public or private oral testimony.

D) Post Draft EIS Considered Options for the Recommended Preferred Alternative

The January 2007 public hearings resulted in a number of comments, including:

- A request to shift the alignment of the Recommended Preferred Green North + Spur Road Alternative in the Boyds Corner/Ratledge Road area to avoid direct impacts to a long-term family owned and operated farm
- A request to delete the Spur Road from the Recommended Preferred Green North + Spur Road Alternative and replace it with improvements to existing US 301
- Requests by a number of communities that the proposed earth berms, provided to screen the highway, be constructed, prior to the roadway, in order to minimize potential impacts during new US 301 construction
- A request to connect Strawberry Lane to existing US 301, in order to provide safe travel conditions for farm vehicles

Options for the Recommended Preferred Alternative were developed as a result of these comments and are described below.

1) Ratledge Road (RR) Area Options – Preferred (Green North + Spur Road) Alternative

Seven options were developed for the Recommended Preferred Alternative as a result of comments received from members of the public following publication of the Draft EIS and prior to, during, and following the public hearing sessions. The FHWA, DelDOT and the Resource Agencies were asked to avoid impacts to two long-term family-owned and operated farms in the Ratledge Road/Jamison Corner Road/Boyds Corner Road area. Citizens offered alternative alignments for consideration, and these and other options were subsequently developed and evaluated with the environmental Resource and Regulatory Agencies and stakeholders with the goal to avoid or minimize impacts to active farmlands while minimizing impacts to wetlands, Waters of the US and forests in the area. All of the options evaluated the Green North + Spur Road mainline alignment from approximately 4,800 feet south of Boyds Corner Road to the proposed interchange with Jamison Corner Road, north of Boyds Corner Road.

The RR Area Options are described below. The potential impacts of the Green North + Spur Road Alternative under each RR Area option are compared in ***Table 4.*** The RR Area Options are shown on ***Figure 11.*** The Preferred Option 4B Modified is also shown on the Preferred Alternative drawings in ***Appendix B*** of the Final EIS.

Table 4: Impacts Comparison –
Ratledge Road Area Alignment Options Considered (Preferred Alternative)

Option	Option 1	Option 2	Option 3	Option 4	Option 4A	Option 4B	Option 4B Mod
Wetlands (acres)	27.4	32.2	35.4	31.2	36.1	35.2	34.2
High Quality	10.1	14.3	12.0	9.0	9.0	9.0	9.0
Medium Quality	13.3	13.3	13.6	13.1	20.5	19.9	19.4
Low Quality	4.1	4.6	9.8	9.8	6.6	6.3	5.6
Number of Wetlands	51	53	53	50	53	49	50
Number of Wetland Crossings	4	4	4	4	4	4	4
Number of Wetlands Fragmented	7	7	7	7	7	7	7
Waters of the US, total (lf)	15,679	15,947	15,923	16,207	16,059	16,015	16,019
Streams (lf)	323	534	340	517	340	415	436
Ditches (lf)	15,356	15,413	15,583	15,690	15,720	15,600	15,582
DNREC Tidal Wetlands (acres)	0. 4	0.4	0.4	0.4	0.4	0.4	0.4
100-Year Floodplains (acres)[1]	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Agricultural Districts (No.)	1	1	1	1	1	1	1
Agricultural Easements (No.)	1	1	1	1	1	1	1
Forestland (acres)	34.21	34.28	42.17	33.24	44.56	40.60	37.98
T.J. Houston Farm Potential Adverse Effects: Visual (V)[2]	0	0	0	(V)	0	(V)	(V)

[1] 100-Year floodplain impacts were further minimized to 0.7 acres through the addition of retaining walls along the connections of US 301 to SR1 over Scott Run.
[2] All other effects to historic resources in the project area would be identical for the RR Options considered.

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OPTION 1
Nov 06 - DEIS - Opposed by community - impacts to Wooleyhan Farms, Ratledge Road residents, etc.

OPTION 2
Early Dec 06 - by Project Team - to move further away from Ratledge Road - Community still opposed - impact to Wooleyhan Farm

OPTION 3
April 06 Workshop
Shifted to Option 1
wetland impacts

OPTION 4
Sept 05 Workshop
Shifted to Option 3
impacts to Emerson Dairy Farm

OPTION 4A
Mid Dec 06
Suggested by Community
(Mrs. Carroll)

OPTION 4B
Mid Dec 06
Suggested by Community
(Dicki Wooleyhan)

SCOTT RUN BUSINESS PARK AT WHITEHALL
WINDSOR AT HYETTS CORNER
HYETTS CORNER ROAD
WHITEHALL PROPERTIES
J. HOUSTON HOUSE (N.R.E. - N05195)
HYETT'S CORNER
NORFOLK SOUTH
CRYSTAL RUN FARM
RATLEDGE ROAD
UMMIT CROSSING PHASE II
VILLAGE OF BAYBERRY
ASBURY CHASE
MOUNT PLEASANT
JAMISON CORNER ROAD
BAYBERRY TOWN CENTER
ASBU CHAS
ALFRED G. WATERS MIDDLE SCHOOL
CEDAR LANE ELEMENTARY SCHOOL
CEDAR LANE ROAD
GRANDE VIEW FARMS
896
BOYDS CORNER ROAD
CHURCHTOWN MANOR
T.J. HOUSTON FARM (N.R.E. - N05131)

- PROPOSED ROADWAY IMPROVEMENTS
- PAVEMENT ACCESS TO BE REMOVED
- LIMIT OF DISTURBANCE / PROPOSED RIGHT OF WAY
- PROPERTY LINES
- PROPOSED DEVELOPMENT
- APPROVED DEVELOPMENT
- PROPOSED/PENDING DEVELOPMENT
- WHITEHALL PROPERTIES
- SPRAY IRRIGATION / WATER FARM II (FUTURE SITE)
- POTENTIAL STORMWATER MANAGEMENT FACILITY
- WETLANDS (based on 2002 aerial imagery)
- WETLANDS (2007 field surveyed)
- WATERS OF THE U.S. (2007 field surveyed)
- TIDAL WETLANDS (DNREC)
- 100-YEAR FLOODPLAINS (FEMA)
- NATURAL AREAS (State Defined Voluntary Protections)
- STATE RESOURCE AREAS (State Protected Lands)
- PARKS AND RECREATION
- HISTORIC PROPERTIES
- AGRICULTURAL EASEMENTS (STATE / COUNTY)
- AGRICULTURAL DISTRICTS
- PROPOSED EARTH BERMS
- RESIDENTIAL, BUSINESS, OR COMMUNITY FACILITY DISPLACEMENT
- NOISE RECEPTOR SITE

US 301 Project Development

Final Environmental Impact Statement

Ratledge Road Area Options

Scale:		
1"=1000'	April 2008	Figure 11

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a) RR Area Option 1

The option presented in the November, 2006 Draft EIS, RR Area Option 1 would follow an almost due north alignment, crossing Boyds Corner Road approximately 450 feet east of Ratledge Road. RR Area Option 1 would provide the least amount of impacts to wetlands (27.4 acres), Waters of the US (15, 679 lf) and forest (34.21 acres). Option 1 would also be furthest from the Cedar Lane School campus, but would eliminate an operating farm (Wooleyhan farm).

Option 1 ***was not preferred*** because of impacts to the Wooleyhan farm (this Option divides the farmed area in half), an active family-owned and operated farm, which would result in cessation of the farming operation, and impacts to the surrounding community along Ratledge Road.

b) RR Area Option 2

RR Area Option 2 would follow an almost due north alignment, approximately 425 feet east of Option 1, crossing Boyds Corner Road approximately 875 feet east of Ratledge Road. Option 2 would avoid impacts to the majority of farmable acreage but would increase impacts to high quality wetlands (14.3 acres) and Waters of the US (15,947 lf).

Option 2 ***was not preferred*** because the Resource Agencies could not support the greater impacts to high quality wetlands that would occur with this option.

c) RR Area Option 3

RR Area Option 3 would follow a more northeasterly alignment, crossing Boyds Corner Road approximately 1,350 feet east of Ratledge Road, impacting a larger quantity of wetlands (35.4 acres) and forest (42.17 acres). This alignment was originally evaluated in April 2006 and eliminated from consideration in favor of RR Area Option 1.

Option 3 ***was not preferred*** because the Resource Agencies could not support the greater impacts to wetlands that would occur with this option.

d) RR Area Option 4

RR Area Option 4 would follow an almost due north alignment, crossing Boyds Corner Road approximately 2,900 feet east of Ratledge Road, and would be closest to the Cedar Lane School campus. Option 4 would impact the western portion of the Emerson Dairy Farm. This

alignment was originally evaluated in September, 2005 and was eliminated from consideration because of the farm impacts, impacts to a parcel being considered by New Castle County as the location of a new high school and proximity to the Cedar Lane school campus. Option 4 would have a potential adverse effect (audible and visual) on the T.J. Houston Farm, an historic resource.

Option 4 ***was not preferred*** because of its proximity to the Cedar Lane Schools campus, and because of impacts to the Emerson Dairy Farm, a long-term family-owned and operated farm operation and one of the last dairy farms in New Castle County. Option 4 also impacts a parcel north of Boyds Corner Road that is being considered for acquisition for a future high school.

e) RR Area Option 4A

RR Area Option 4A would follow an alignment slightly to the east of Option 3 and west of Option 4, crossing Boyds Corner Road approximately 1,900 feet east of Ratledge Road. This option was proposed by community members in order to avoid impacts to the active long-term family-owned and operated farm properties (Wooleyhan and Emerson farms). Option 4A would have the greatest wetlands impacts (36.1 acres) and forest impacts (44.56 acres).

Option 4A ***was not preferred*** because of the greater impacts to wetlands and forests.

f) RR Area Option 4B

RR Area Option 4B was also proposed by community members in order to avoid impacts to long-term family-owned and operated farm properties. RR Area Option 4B would follow the Delmarva Power and Light (DP&L) right-of-way, crossing Boyds Corner Road approximately 2,140 feet east of Ratledge Road. Option 4B would avoid farmland impacts and impacts 35.2 acres of wetlands, 16,015 linear feet of Waters of the US and 40.6 acres of forests. Option 4B would have a potential adverse effect (audible and visual) on the T.J. Houston Farm, a historic resource.

Option 4B was aligned to avoid high quality wetlands, but impacts to lower quality wetlands along the suggested corridor are high (35.2 acres) as are impacts to forests (40.6 acres).

g) RR Area Option 4B Modified

RR Area Option 4B was modified by moving the alignment on the north side of Boyds Corner Road slightly eastward to minimize impacts to a wetland system and forest land. Wetland impacts were reduced by one acre and forest impacts were reduced by more than 2.5 acres. Option 4B Modified would have an adverse effect (audible and visual) on the T.J. Houston Farm, a historic resource. Option 4B Modified would also impact the Hobson family property, located on Boyd's Corner Road.

Option 4B Modified ***was preferred and included*** as a component of the Preferred Alternative, Green North + Spur Road, because it impacts less high quality wetlands and forest impacts than Option 4B, and is supported by the community. Option 4B Modified avoids impacts to both the Wooleyhan and Emerson farms (long-term family-owned and operated). Option 4B Modified was concurred with by the Regulatory Agencies.

A mitigation plan provided with Option 4B Modified includes conservation of high quality wetlands, enhancement of wetlands and uplands within the Scott Run watershed, additional wetland creation (15 acres) at the proposed Levels Road mitigation site, and additional reforestation. The mitigation commitments are discussed in detail in ***Section III, B3*** of this ROD, ***Attachment B***, and in ***Chapter III.F*** of the Final EIS.

2) Green North Alternative - without Spur Road

The Green North + Spur Road Alternative includes a two-lane (one lane in each direction) Spur Road that extends from new US 301 in the Armstrong Corner Road area to Summit Bridge, with an interchange at SR 896 south of Summit Bridge. The Green Alternative was originally developed without the Spur Road. However, the Spur Road was added to the Purple and Green Alternatives in the fall of 2005, because of feedback received from the public, and because the Spur Road improved the ability of to the Green and Purple Alternatives to better meet the Project Purpose and Need, regarding reducing congestion, improving safety, and managing truck traffic (refer to ***Section IV.B***).

Testimony was received at the January 2007 public hearing sessions suggesting that DelDOT delete the Spur Road from the Recommended Preferred Alternative. Additional detailed studies were conducted to compare the differences between the Green North Alternative, with

and without the Spur Road. Members of the community also requested that studies be conducted to evaluate using/improving existing US 301 to serve as the "Spur" route for those wishing to travel north to Summit Bridge.

The proposals to remove the Spur Road from the Green Alternative and to "replace" it with improvements to existing US 301 were evaluated against the project purpose and need to determine if this alternative would provide congestion, safety, and truck management benefits commensurate to those provided by the inclusion of the Spur Road. The suggested improvements to existing US 301 were also evaluated.

The traffic projections developed for the Green + Spur alternative showed that the Spur Road would significantly reduce traffic on the existing routes to the Summit Bridge. Without the Spur Road, the volumes on both existing US 301 and Choptank Road are projected to be significantly higher. For example, without the Spur Road, Choptank Road traffic in 2030, north of Churchtown Road, is projected to more than double to 14,500 vehicles per day (vpd), with 6 percent trucks, from 6,200 vpd (6% trucks) with the Spur Road, and traffic on existing US 301 north of Boyds Corner Road is projected to increase by nearly one-third to 37,200 vpd (6% trucks) without the Spur Road compared to a projected volume of 27,900 vpd (5% trucks) with the Spur Road. The peak hour traffic projected for Choptank Road under a Green Alternative without the Spur Road would also result in traffic operations verging on failure at roundabout (currently under construction) at the intersection of Choptank Road and Churchtown Road.

It was proposed to improve existing US 301 to accommodate the increase in traffic on existing US 301 resulting from deletion of the Spur Road. An evaluation was conducted to determine what improvements would be necessary for existing US 301 to operate acceptably without the Spur Road. US 301 would, in this scenario, require upgrading to four lanes (two in each direction) with added turn lanes from Peterson Road to Mount Pleasant [SR 896 (Boyds Corner Road)/existing US 301 intersection]. While these improvements would cost approximately $40 million less than the construction of the Spur Road, the community impacts associated with the suggested improvements to existing US 301 were substantial. Compared with the Spur Road, which requires no residential or business relocations, the upgrade to existing US 301 would require a substantial number of potential relocations, *i.e.*: nine homes, three businesses and the Ringold Chapel AME Church, in order to avoid impacts to historic resources

as required by Section 4(f). An additional 14 businesses, three residential properties and two subdivisions would be partially impacted by the upgrade of existing US 301.

Safety concerns were also considered in the comparison between the Spur Road and an improved existing US 301. When the Spur Road was added to the Green North Alternative, several safety benefits were noted. The Spur Road, which would provide a direct connection to Summit Bridge, includes full access control and a wide median (62 feet). This type of facility would have a very low potential for severe crash types, including left-turn, angle, and crossover head-on collisions. These types of collisions are much more likely on facilities such as existing US 301 and Choptank Road. In fact, between Petersen Road and the Summit Bridge, existing US 301 includes seven signalized intersections and 87 unsignalized intersections/access points; compared to zero on the Spur Road.

Even if existing US 301 is improved and widened to four lanes from Petersen Road to Boyds Corner Road (providing a continuous four lane cross-section from the Summit Bridge to Middletown, this improved facility would not provide the same safety benefits as the Spur Road. A widened US 301 would not eliminate the many access points presently on existing US 301 between Petersen Road and Summit Bridge. If a median were to be provided, given the extensive development along existing US 301, this median would not be as wide as the median provided on the Spur Road. Similarly, the ongoing improvements to existing Choptank Road (travel lanes increased to 11 feet wide, with added shoulders and bicycle lanes on both sides) does not upgrade that facility to the point where its safety performance would be expected to match that of the Spur Road.

The accident history along existing US 301 was also be considered in this comparison. Since January 2000, 18 people have died in crashes on existing US 301 between the state line and the C&D Canal, including five on the dualized section between Boyds Corner Road and Summit Bridge. These fatalities have occurred at a rate of one every 4½ months. The fatal crash rate of 2.4 crashes per 100 MVMT on existing US 301, south of the C&D Canal, exceeds the Delaware statewide fatal crash rate of 1.5 crashes per 100 MVMT by over 50 percent. In the seven-year period between January 2000 and December 2006, nearly 250 crashes (a rate of over three per month) have occurred on existing US 301 south of the C&D Canal, resulting in injuries to motorists, pedestrians and bicyclists. The most recent fatal crash occurred in July 2007 at the

intersection of US 301 and Old Summit Bridge Road. This intersection was also identified as a Highway Safety Improvement Program (HSIP) site, indicating that accidents have been occurring at a rate that is higher than the statewide average.

Given its history of severe accidents, including on the four-lane, median-divided portion, between Boyds Corner Road and Summit Bridge, any alternative which results in a significantly higher volume of traffic on existing US 301 would not be expected to significantly enhance safety for the traveling public. By removing the Spur Road from the Green Alternative, over 20,000 additional vehicles per day would utilize Choptank Road and existing US 301. It is expected that this additional traffic would increase the number of accidents on these two roadways.

Improving existing US 301 would also not best meet the project Purpose and Need to manage truck traffic. The Spur Road is expected to serve approximately 2,000 trucks per day in the year 2030; this includes a portion of the long-distance truck traffic entering from Maryland, as well as some portion of short-haul trips which cross the C&D Canal. If the Spur Road is removed, the long-distance trucks would be forced to exit new US 301 in the Armstrong Corner area, and utilize existing US 301 to access Summit Bridge. If the Spur Road is removed, any of the shorter haul trips which would use the Spur Road would likely rely solely on the existing roadway network. The removal of the Spur Road would thus result in a significant increase in trucks on the local roadway network. These trucks would continue to mix with local passenger auto traffic on the existing roadways, increasing congestion and the potential for severe collisions between trucks and smaller vehicles.

Retaining the Spur Road, though somewhat more costly than improving existing US 301, better meets the project Purpose and Need. The Spur Road provides roadway capacity that accommodates projected traffic demand for year 2030. The Spur Road also removes traffic from two-lane roadways and shifts it to a much safer divided two-lane highway. Finally, the Spur Road addresses regional connectivity south of the C&D Canal by providing another north-south route that could carry traffic in the event of a closure on SR 1 or US 301. For these reasons, among others, the Green North Alternative with the Spur Road remained the Recommended Preferred Alternative, and subsequently was identified as the Preferred Alternative.

3) Consideration of Early Construction of Visual Earth Berms

Advancing the construction of mitigation (berms and landscaping) ahead of the construction of the Spur Road, wherever feasible and practical, is a project commitment, as noted in ***Attachment B***.

4) Addition of Strawberry Lane to Existing US 301 to Provide Safe Passage for Farm Vehicles

The connection of Strawberry Lane to existing US 301 was added to the Recommended Preferred Alternative in the Final EIS, after consultation with the Resource Agencies, affected property owners, and the farming community, as a result of comments received on the Draft EIS. The roadway connection will provide a direct, safe passage for oversized farm vehicles between the farming community west of US 301 and other farms and agriculturally oriented businesses located east of US 301. These include Hoobers, a farm machinery supplier/repair business located along existing US 301 and the Peavey Agricultural Products processing plant and grain storage/shipping facility in Townsend, Delaware, located approximately 5 miles to the southeast. The roadway connection, Option 3 as described and shown in the Final EIS (**Appendix B, Sheet 1 of 9**), completely surrounds a 55 acre forest area with roads, bisecting forested land from adjacent agricultural field habitat and impacting forest, agricultural land, and preserved farmland (***Table 5 and Figure 12***).

In response to comments received on the Final EIS, Option 3 was reevaluated. Option 1, developed in response to public input prior to the Final EIS, provided the connector close to existing US 301, minimizing impacts to the agricultural lands easement in the northeast corner of US 301 and Strawberry Lane (see ***Figure 13***). However, Option 1 had wetlands impacts that were greater (1.3 acres) than Option 3 (0 acres) and that were considered unacceptable by the Resource Agencies. As a result, Option 3 was included in the Final EIS as preferred. Following circulation of the Final EIS and additional consultation with a number of the affected parties and the USACE, Option 1 was modified, through a cooperative effort with the Resource Agencies, to minimize impacts to the agricultural lands easement in the northeast corner of US 301 and Strawberry Lane and to wetlands by moving the connection even closer to existing US 301 between Strawberry Lane and the proposed weigh/inspection station. The new Option 1 Modified, shown in ***Figure 14***, locates the roadway connection immediately adjacent to existing

US 301 and the weigh/inspection station. This connection is shorter, would require less right-of-way and retains the forested land adjacent to the agricultural field habitat. As shown in ***Table 5***, this option reduces impacts to forests by 2.6 acres, reduces impacts to farmlands by 5.4 acres, reduces the impacts to preserved farmlands by one property (9.1 acres); and reduces the impacts to subaqueous lands by 1,242 linear feet, when compared to Option 3. Option 1 Modified slightly increases impact to medium quality forested wetlands by 0.43 acres near existing US 301. To compensate for the additional impact, wetland creation mitigation will be increased by one acre and approximately 6.5 acres of habitat (approximately 3.0 acres of forest land, approximately 3.5 acres of wetland) will be preserved between Option 1 Modified and the existing forest to the east, see ***Attachment B,* Commitment C-54**). The design, impacts, and additional mitigation of Option 1 Modified were presented to and concurred in by the Resource Agencies during a January 24, 2008 Resource Agency meeting and have the support of members of the farming community (see **Attachment J, pages 1 and 2**). Option 3 (Final EIS), Option 1 and Option 1 Modified are shown in **Figures 12, 13 and 14**. Option 1 Modified (**Figure 14**) is included as part of the Selected Alternative.

Table 5: Strawberry Lane Connector Impact Comparison

Resource	**Option 3**	**Option 1**	**Option 1 - Modified**
Wetlands (Medium Quality Forested)	No Impact	1.3 Acres	0.43 Acres
Subaqueous Lands	1,242 Linear feet	No Impact	No Impact
Forest	4.2 Acres	2.0 Acres	1.6 Acres
Agricultural Lands	5.4 Acres	No Impact	No Impact
Agricultural Preservation Easements	1 Property (9.1 Acres)	No Impact	No Impact

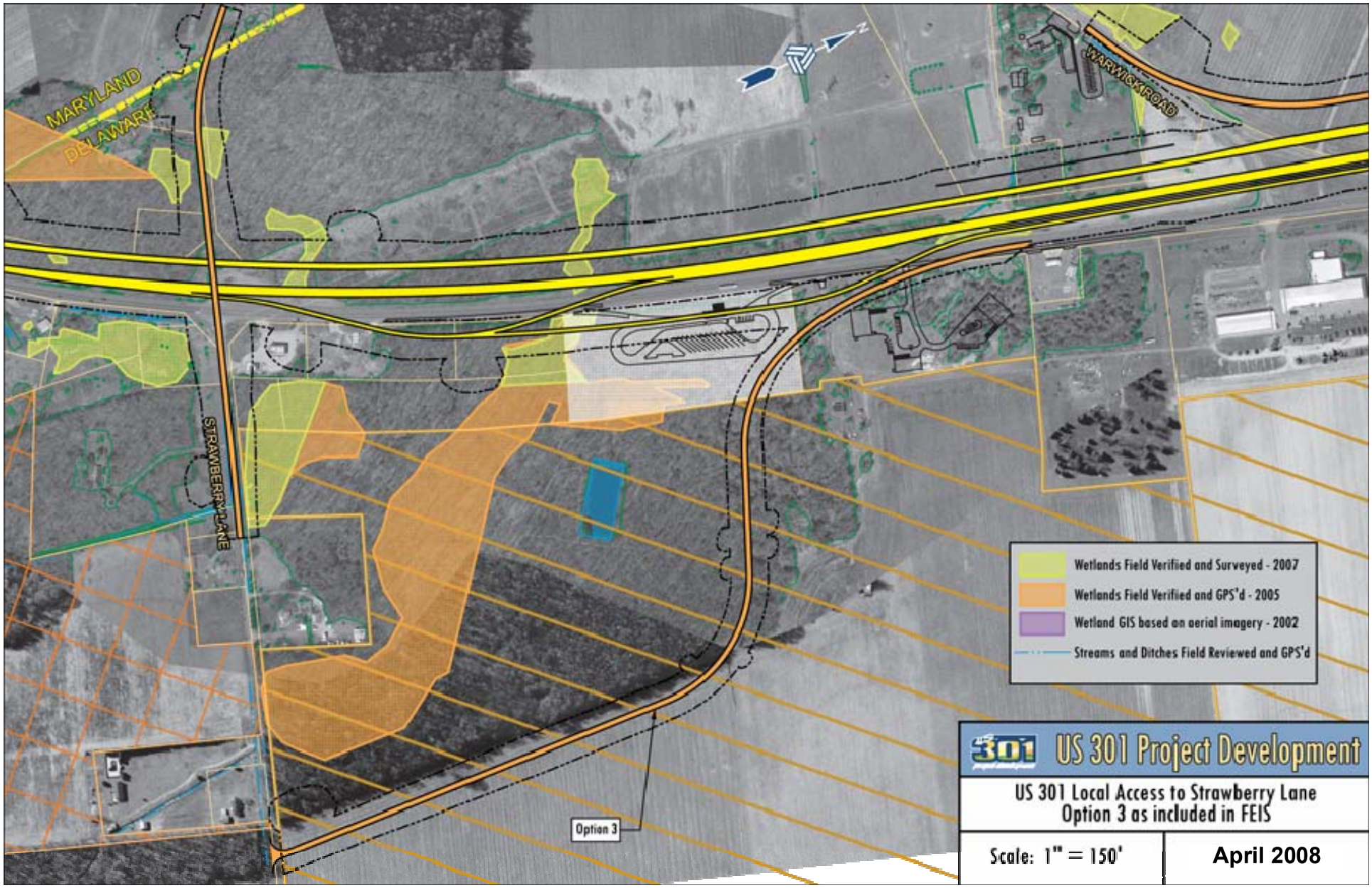

Figure 12: Option 3

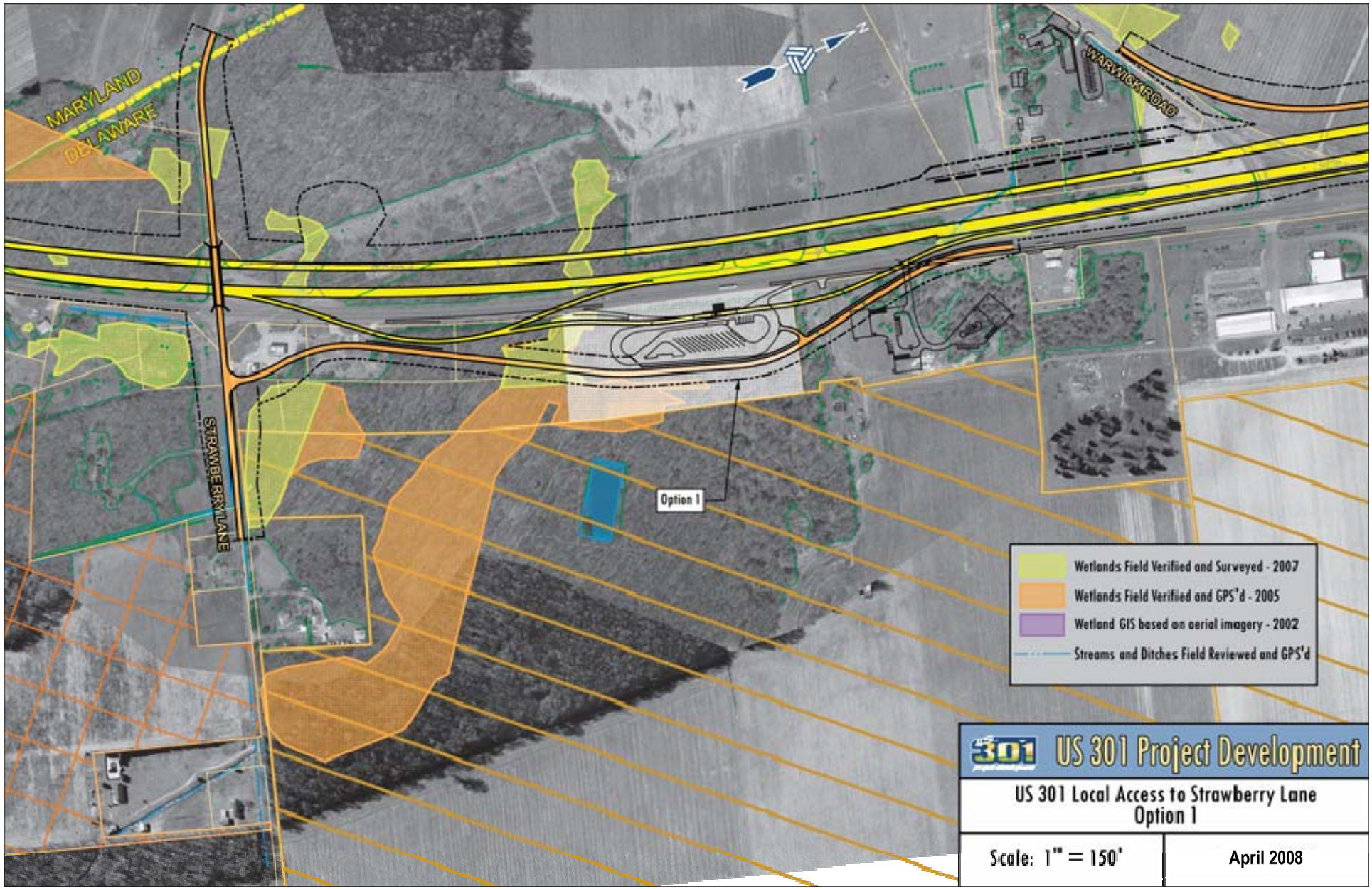

Figure 13: Option 1

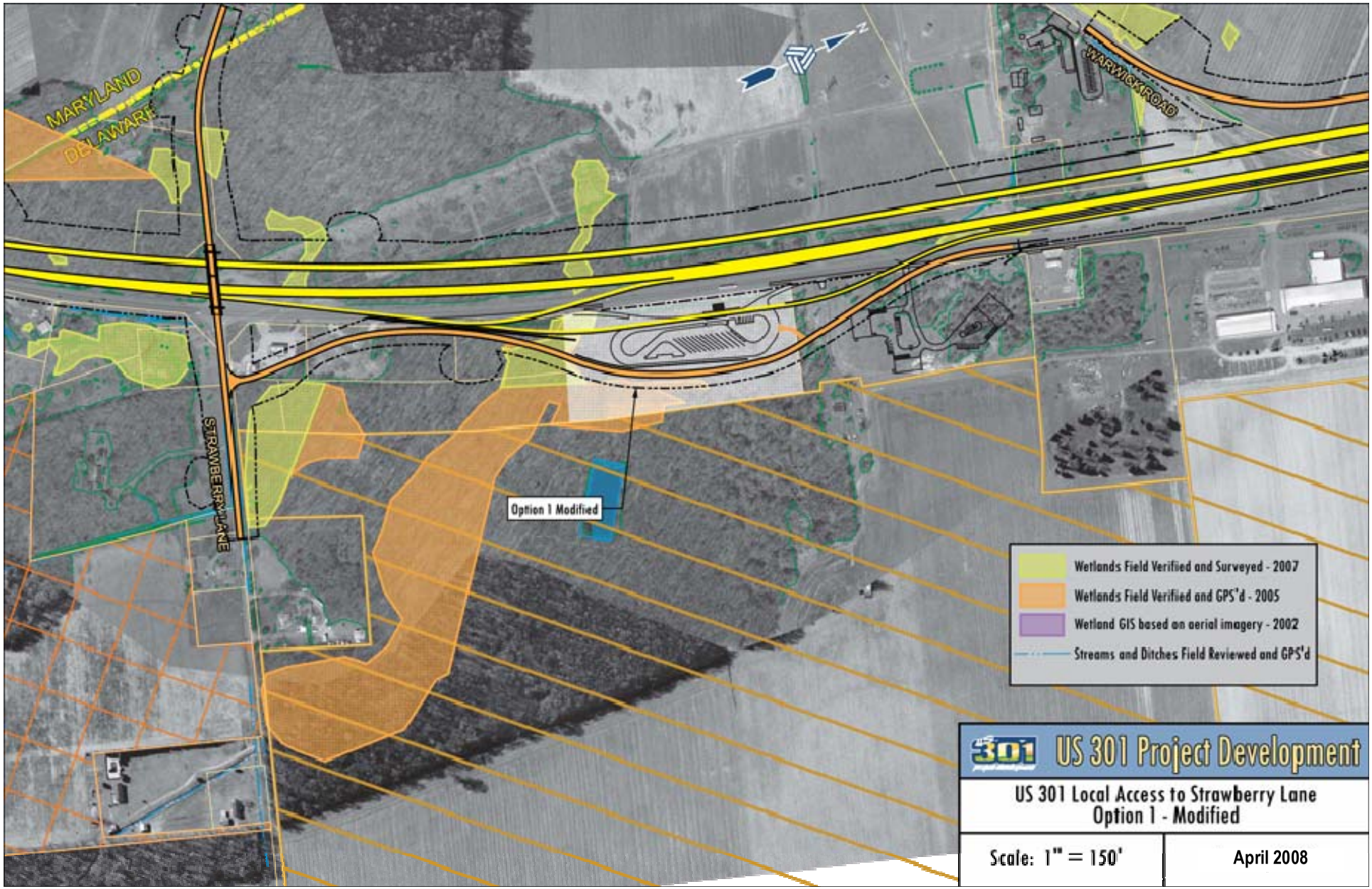

Figure 14: Option 1 Modified

E) Refinements to the Recommended Preferred Alternative

Consistent with SAFETEA-LU Section 6002, the Preferred Alternative, after being identified, was developed in more detail than the other alternatives in order to facilitate the development of mitigation measures and to accommodate processing a Section 404 permit application concurrently with NEPA. This effort did not prevent making an impartial recommendation. Three refinements of the Green North + Spur Alternative have been undertaken since being identified as the Recommended Preferred Alternative in the Draft EIS; each has contributed to an increase in some impacts. It is estimated that these refinements would result in a similar increase in the levels of impacts for each of the build alternatives, had they been subjected to a similar level of design refinement.

- First, the design of the Recommended Preferred Alternative was refined as a result of comments received on the Draft EIS. Refinements in the engineering included alignment modifications, (see ***Table 2***), refined sections based on detailed photogrammetry, and refined stormwater management design. These refinements required that the roadway elevations be raised in some areas to provide adequate drainage for stormwater management, resulting in an increased Limit of Disturbance (LOD). Prior to refined engineering, the LOD for the Green North + Spur Road Alternative was 897 acres; the Preferred Alternative LOD encompasses 941 acres, a five percent increase. This increase would have been seen in all of the build alternatives, had they been subjected to a similar level of engineering design. Second, delineation of forested areas was refined to reflect current coverage, based on more recent and improved aerial photography (2006) along the Recommended Preferred Alternative alignment. This resulted in several previously classified forested wetlands being reclassified and the inclusion of hedgerows not previously included. The resulting increases in forest coverage, along with the expanded LOD, led to an increase in the acreage of impacted forestland for the Green North + Spur Road Alternative that would, in many areas, apply proportionally to the other ARDS.
- Finally, improved wetland delineation for the Preferred Alternative included the separate delineation of streams that had previously been included within wetland systems (i.e., streams within a wetland corridor); ephemeral, intermittent and perennial Waters of the US not surrounded by wetlands were also surveyed; and traditional field survey methods

were used to precisely locate wetland boundaries previously based on Global Positioning System (GPS) surveys.

F) Preferred Alternative

After considering the results of the January 2007 Public Hearing sessions, additional consultation with the Resource Agencies, and the evaluation of the Post Draft EIS Options, the Preferred Alternative, Green North + Spur Road, including Interchange Option 2A at Armstrong Corner Road, Interchange Option 3B south of Summit Bridge, Alignment Option 4B Modified in the Ratledge Road area, and Option 1 Modified as the Strawberry Lane connection to existing US 301 announced in May 2007.

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