

Airmont Questions and Concerns as to 301 Project

APRIL 4, 2013

<p>1. Berm Size (as to Airmont's Berm)</p> <p>1-A: "10/12/12 Airmont Community Berm Paper"</p> <p>1-B: Berm Profile</p> <p>1-C: Berm Cross Sections</p> <p>1-D: Berm Plan for Airmont</p> <p>1-E: Berm Plan for St. Georges HS</p> <p>1-F: Noise Table</p>	<ul style="list-style-type: none"> - Airmont's continued request that the berm: <ul style="list-style-type: none"> (a) be 16' high; (b) run the entire length of the neighborhood <p><i>The proposed berm will be 12' high and 2,000' long, extending the full length of the Airmont community that parallels the US 301 alignment. Both berm slopes will be landscaped with trees to provide additional visual screening for the community. Additional shielding between the community and US 301, to the southwest, will be provided by the landscaping along the proposed ramp from southbound US 301 to Jamison Corner Road (see attached profiles). Additional landscaping will be provided by the 412A project between the southwest corner of the Airmont community and Road 412A/Jamison Corner Road.</i></p> <ul style="list-style-type: none"> - Residents that back-up to 301 will take the brunt of the impact from 301. <p><i>All landscaped visual earth berm heights were assessed primarily for effective visual screening, i.e. aesthetic purposes. Noise mitigation was not warranted because no noise impacts are predicted. Berm heights were then increased only if excess earth material was available from the adjacent construction contract and did not result in increased costs. Existing noise levels for the Airmont residences along Hyetts Corner Road range from 50 dBA to 52 dBA (affected by Hyetts Corner Road and SR 1). The 12' high / 2,000' long berm at Airmont is predicted to restore noise levels to existing levels at all but 3 residences: 602 Joy Ct. (+2 dBA), 603 Joy Ct. (+1 dBA) and 604 Joy Ct. (+ 1 dBA). Noise differences of 2 dBA or less are generally considered not perceptible by the human ear. Airmont with-berm noise levels are predicted to range between 50 dBA and 54 dBA. Raising the berm to 14' or 16' would increase costs due to the need to revise the current construction bid document and acquire additional right-of-way. Noise levels for a 14' or 16' high berm are essentially identical to those for a 12' high berm, except at a single location where an additional 1 dBA decrease results.</i></p> <ul style="list-style-type: none"> - There will be no protection from noise that comes out of the top of tractor trailers/dump trucks. <p><i>Noise generated by trucks traveling on a highway is associated with three components; tire-roadway interaction, engine noise and stack or exhaust noise. The general elevations above the pavement of these sources are zero height for tire-roadway interaction, approximately 5' for the engine, and 13' to 13'- 6" for the stack. Title 21 of the Delaware State Code prohibits operation of a vehicle in excess of 13' 6" in height without a permit. Reduction in sound from the source to receiver is a function of distance, and whether any solid barrier, berm, wall or other structure blocks the direct line from source to receiver. For the Airmont community, the distance from the source to the receiver ranges from 620' to 720'. This distance alone produces a significant drop-off in sound level. Additionally, the proposed visual/aesthetic 12' berm, as seen in the attached cross sections of the actual terrain conditions, blocks the direct path from source to receiver for all three source elements, thereby providing additional reduction in sound. Raising the berm to 14' or 16' does not increase this noise reduction. This is a result of the long distance from the source to the receptors, and because the 12' high berm effectively blocks all three sources of noise for the vehicles on US 301.</i></p>
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- 16' berm would provide complete visual screening.

Sightlines are dependent on angles. A 12' landscaped berm will provide more than 12' of vertical screening coverage to the residences in Airmont. Please see attached cross sections of the actual terrain conditions with the proposed 12' berm in the assessment of this concern.

- DelDOT's only explanation as to why not the 16' berm is that it would be too expensive. When asked what that cost is, DelDOT did not know and has not provided an answer. Furthermore, DelDOT has to realize that not all costs are measure in monetary terms (i.e., visual screening, noise abatement, etc.).

DelDOT acknowledges this point. DelDOT has analyzed multiple berm configurations ranging in height from 6' to 16' to identify which height provides the most effective benefit (see response to question 3 regarding berm cost and supporting documentation 3A).

- DelDOT should be required to build a berm along Airmont that is at least 16' high and will run the entire length of the community.

The proposed berm has been revised from 6' high and 1,670' long to 12' high and 2,000' long, extending the full length of the Airmont community that parallels the US 301 alignment. The berm will be landscaped with trees to provide additional visual screening for the community. Additional shielding between the community and US 301, to the southwest, will be provided by the landscaping along the proposed ramp from southbound US 301 to Jamison Corner Road (see attached profiles). Additional landscaping will also be provided by the 412A project between the southwest corner of the Airmont community and Road 412A/Jamison Corner Road.

Background:

- DelDOT originally proposed Airmont's berm to be 6' x 1670'.
- Airmont in response requested 16' berm and for entire length of community
- Airmont's State Senator Hall-Long, Rep. Becky Walker, and NCC Councilman Bill Bell all provided written support to DelDOT as to Airmont's requested berm size of 16'.
- At the 2011 workshop between Airmont and DelDOT, DelDOT proposed refined berm for Airmont, which was 12' x 2000'.
- At this workshop, Airmont's residents asked Bill Hellerman of DelDOT why not 16' and he replied too expensive. Residents asked Bill Hellerman to quantify what too expensive means. He said he would let the community know the cost. DelDOT never provided such a cost.
- In DelDOT's amended 2011 NEPA report, DelDOT states that the berm for Airmont "...will run the **entire length** of the neighborhood." DelDOT's drawings to date, however, do not reflect such a commitment.

Question 1

Supporting Documentation

1-A

Airmont Community – Landscaped Visual Earth Berm

FEIS/ROD Proposal: 6' high, 1,670' long earth berm, extending from Station 630+00 to 646+70 (see attached plan)

Community Proposal: 16' high, 2,000' long earth berm

Recommended Proposal: 12' high, 2,000' long earth berm, along the full length of the community (see Evaluation and Rationale sections below)

Community Request: At the August 24, 2011 Pre-Workshop Community Meeting with the Airmont community (see attached meeting notes and DelDOT responses – also located on the project website), the community requested that the proposed 6' high, 1,670' long visual earth berm be modified to provide a 16' high berm that extended the full length of the community, along Hyetts Corner Road.

The Project Team, in response to questions from the community, noted that the elevation/profile of the proposed US 301 Mainline, along the Airmont community, has not changed from that noted in the FEIS/ROD and shown to the community during the March 2009 Public Workshop. The Project Team also noted that the elevation/profile of the southbound US 301 off ramp (Ramp P) to Jamison Corner Road has been raised during final design, by less than one foot at the ramp gore, by approximately 10' at Station 776+00 and by approximately 5' at the tie-in to Jamison Corner Road, when compared to the FEIS/ROD elevation/profile. This increase in elevation/profile was the result of selection of a roundabout intersection and the required approach grades to the roundabout, refinement of design criteria, and more detailed design information being available for the proposed Jamison Corner Road structure over US 301 and the proposed Road 412A improvements project.

The Project Team committed to evaluating the request and responding to the community, following the Public Workshop (rescheduled from August 31 to September 6, due to Hurricane Irene).

Evaluation: The Department is agreeable to providing a 12' high berm, extending from approximately Station 779+00 to Station 799+00, which will encompass the full length of the Airmont Community along Hyetts Corner Road. The volume of material needed for the berm of this height equals the excess topsoil associated with the Contract 1A construction. The 12' height is measured from the highest cross-sectional elevation of US 301 Mainline pavement. The earth berm would be 4' wide at the top with 3:1 side slopes (see attached plan, profiles and cross sections).

From Station 779+00 (west edge of the Airmont community) to 784+00, the elevation/profile of the US 301 Mainline is 0' to 5' above the elevation/profile of Hyetts Corner Road. From Station 784+00 to 799+00 (east edge of the Airmont community), the elevation/profile of the US 301 Mainline is about the same as the elevation/profile of Hyetts Corner Road.

West of the Airmont Community, beginning near Station 779+00, the elevation/profile of Ramp P rises to meet Jamison Corner Road, thus providing an extension of the 12' visual berm between US 301 and Hyetts Corner Road, to the west of existing Road 412A. The elevation/profile of Ramp P varies from 12' above the elevation/profile of existing Hyetts Corner Road near Station 779+00 (the west edge of the Airmont community) to 25' above the elevation/profile of existing Hyetts Corner Road at the proposed intersection with Jamison Corner Road. The elevation/profile of Ramp P varies from 8' at Station 779+00 (the west edge of the Airmont community) to 20' above the elevation/profile of US 301 Mainline, at the Jamison Corner Road intersection.

Distances between mainline and first-row dwellings range from 620 to 720 feet (distance to closest property lines is 440 to 600 feet).

In summary, the combination of the proposed 12' high visual earth berm and profile of Ramp P will provide a sufficient visual obstruction between US 301 and the Airmont Community.

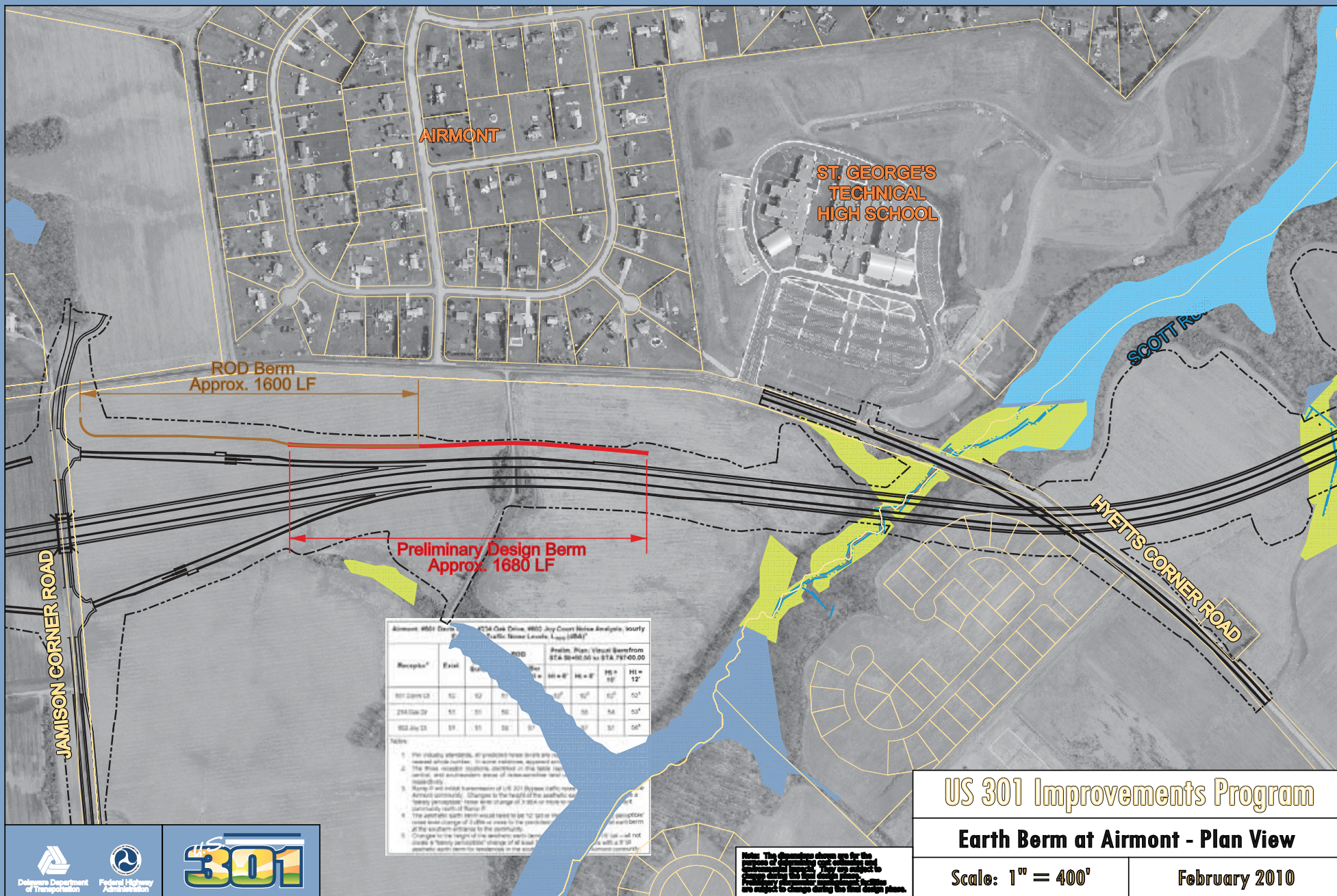
Rationale: Providing the 12' high berm would also result in advantages during construction for Section 1A, which currently has a projected 41,200 cubic yards of excess topsoil. The local DelDOT Maintenance yard has indicated that they do not want the excess topsoil, and no other sites have been identified to dispose of this material. Off-site disposal may result in an additional cost to the project. Using the excess topsoil to construct the 12' high visual earth berm along the Airmont community, may result in a reduction in overall construction cost.

While increasing the height of the berm from 6' to 12', increases the width of the berm and the required right-of-way, DelDOT Real Estate has indicated that the cost of additional required right-of-way may be negligible, since the remaining area between the north side of the berm and Hyetts Corner Road is likely to be an uneconomic remnant, with limited utility, resulting in DelDOT paying full market value (per DelDOT Real Estate and the assigned independent appraiser) for the property. Any small increase in right-of-way costs may be offset by the reduction in construction costs resulting from utilizing the excess topsoil. Therefore, it is anticipated that increasing the height of the visual earth berm will not result in additional cost to the Department.

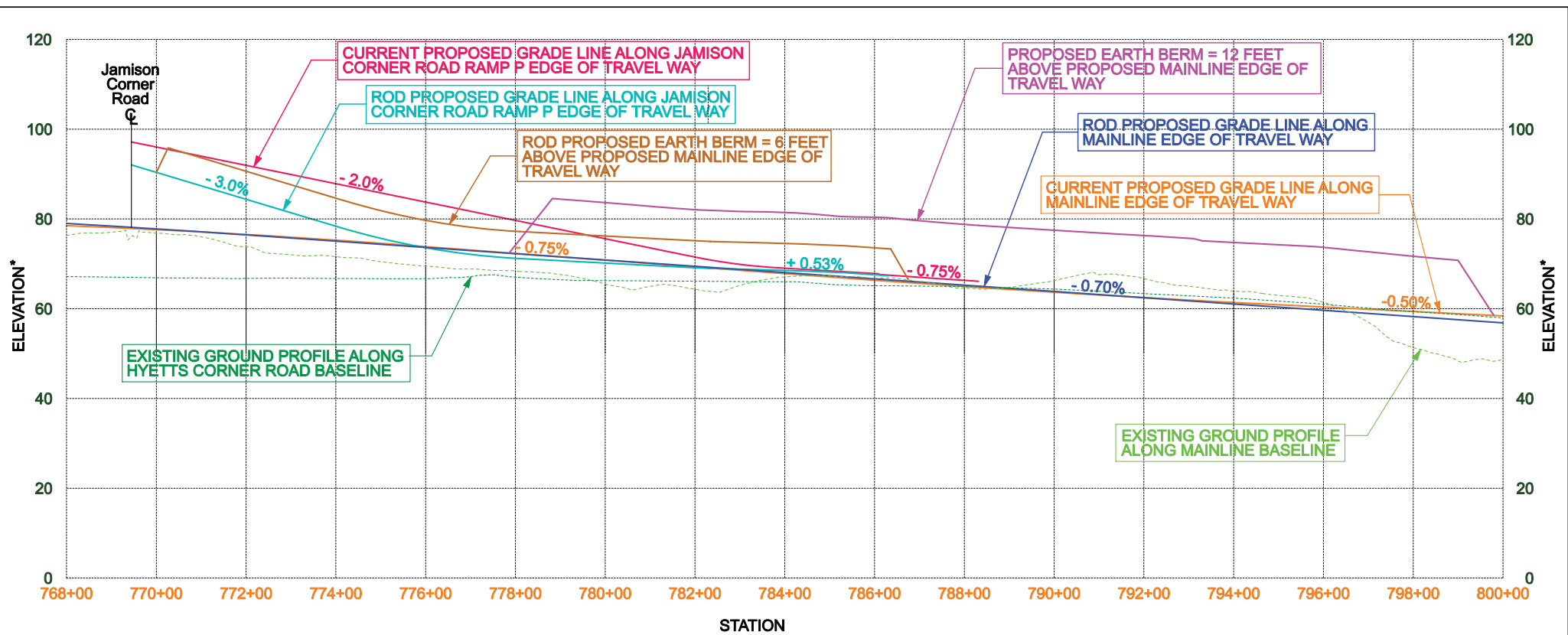
There are no additional impacts anticipated to natural or cultural resources from extending or increasing the height of the berm.

Raising the berm height to 14' or 16' is not recommended because it would result in the need for more borrow material (off-site) and a subsequent increase in construction cost.

Finally, the noise analyses along the Airmont Community, based on final design details and the current DelDOT Noise Policy (approved by the Federal Highway Administration), indicate that no residences are impacted for all existing and design year conditions. The 12' high visual earth berm is projected to reduce future (2030) design year noise levels down to existing levels, except at three locations, where there is projected to be a 1dBA or 2dBA increase, which is not discernible by the human ear (see attached table). In addition, analysis indicates that noise levels for a 14' or 16' high berm are essentially identical to those for a 12' berm, except at a single location, where a 1 dBA decrease results (see attached table).







US 301 / RAMP P Current vs. ROD Profile

US 301 Project Development

PROFILES

September 2011



Delaware Department
of Transportation

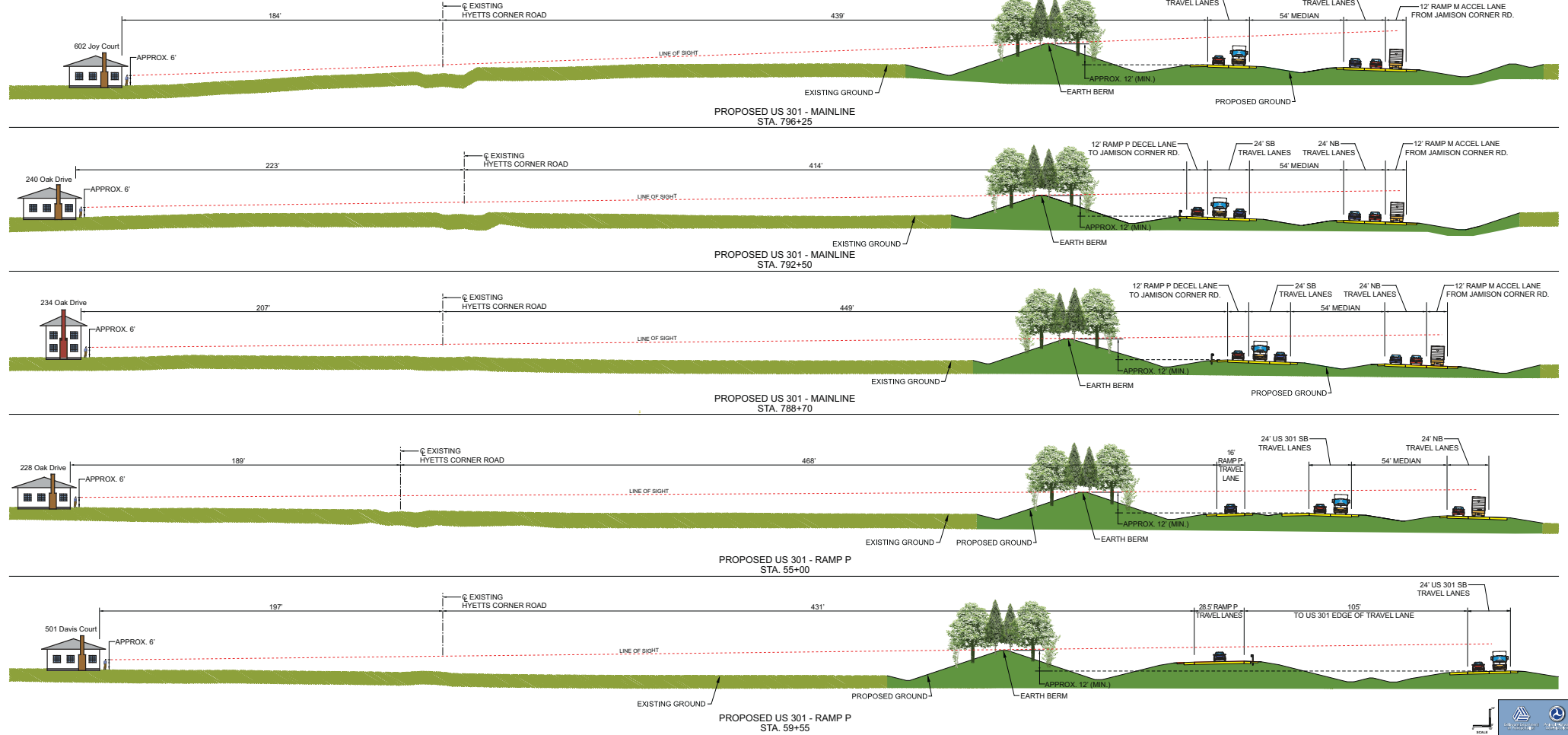


Federal Highway
Administration



Scale : 1" = 100'

*NOTE: VERTICAL SCALE IS EXAGGERATED 10:1



Noise Summary – Airmont (September 15, 2011)

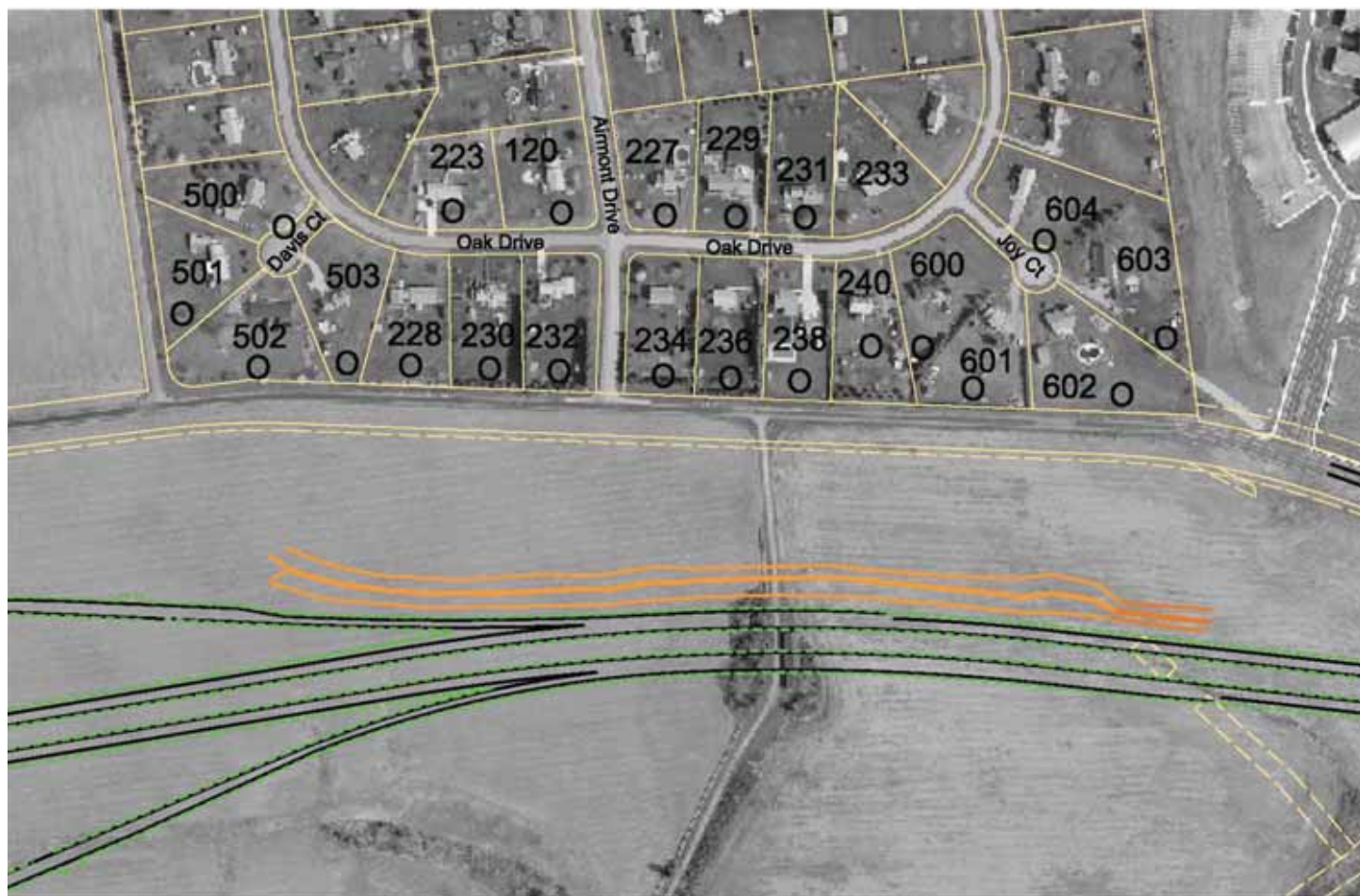
A visual earthen berm, 12 feet high and 2000 feet long, is proposed to the south of this community, aligned adjacent to the Selected Alternative. No residences are predicted to be impacted for all Existing and Design Year conditions. The visual berm is intended to provide an aesthetic improvement for the community, but also provides some degree of noise reduction.

Distance from front-row properties to edge-of-roadway is nominally 450 to 500 feet. The visual berm is predicted to restore Design Year noise levels to existing levels, except at three locations. Noise level increases with the berm are predicted to be 1 or 2 dBA, which is generally accepted to be indiscernible to the human ear.

Table 1: Noise Levels (dBA) at Airmont

Address	Existing / (ROD)	DY-no berm / (ROD)	DY-Berm 6' / (ROD)	DY-Berm 8'	DY-Berm 10'	DY-Berm 12'	DY-Berm 14'	DY-Berm 16'
501 Davis Ct	52 (52)	53 (54)	52 (54)	52	52	52	52	52
502 Davis Ct	52	55	53	53	52	52	52	52
503 Davis Ct	52	56	53	53	52	52	52	52
228 Oak Dr	52	56	54	53	52	52	52	52
230 Oak Dr	52	57	55	54	52	52	52	52
232 Oak Dr	52	57	55	54	52	52	52	52
234 Oak Dr	52 (51)	57 (59)	55 (56)	54	53	52	52	52
236 Oak Dr	52	57	55	54	53	52	52	52
238 Oak Dr	52	57	55	54	53	52	52	52
240 Oak Dr	52	57	54	53	53	52	52	52
600 Joy Ct	52	57	54	53	53	52	52	52
601 Joy Ct	52	58	55	55	54	52	52	52
602 Joy Ct	52 (51)	57 (59)	55 (57)	54	54	54	53	53
603 Joy Ct	52	55	54	54	53	53	53	53
500 Davis Ct	51	51	51	51	51	51	51	51
223 Oak Dr	50	53	51	51	50	50	50	50
120 Airmont Dr	50	53	51	51	50	50	50	50
227 Oak Dr	50	54	51	50	50	50	50	50
229 Oak Dr	50	53	51	50	50	50	50	50
231 Oak Dr	50	53	51	50	50	50	50	50
233 Oak Dr	50	52	51	50	50	50	50	50
604 Joy Ct	51	54	53	53	52	52	52	52

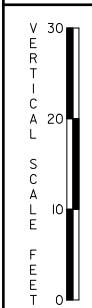
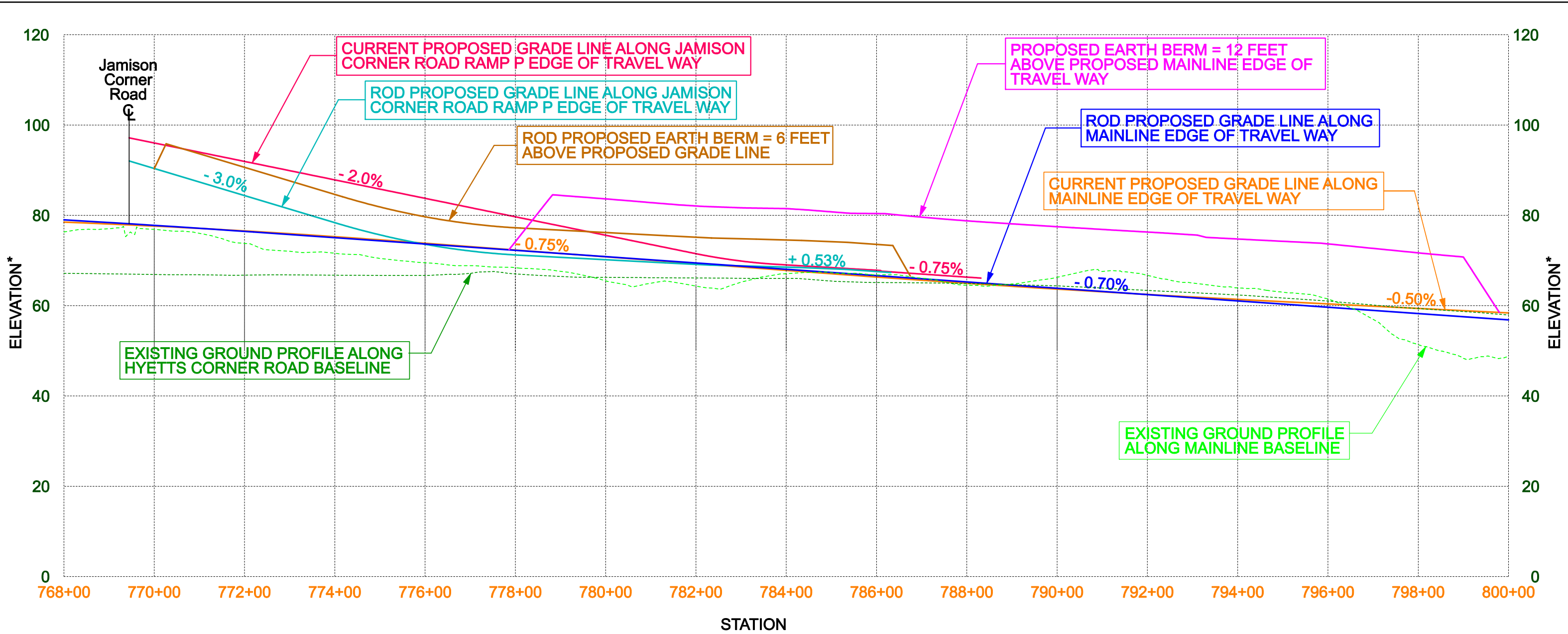
Figure 1: House Numbers, Receptor Locations, Berm and Roadway Alignments - Airmont



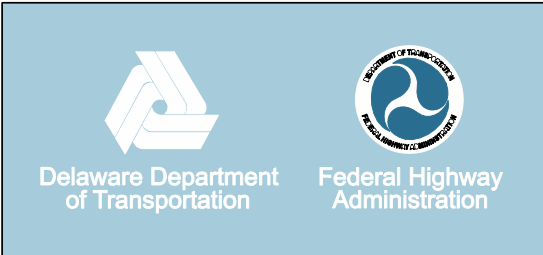
Question 1

Supporting Documentation

1-B



*NOTE: VERTICAL SCALE IS EXAGGERATED 10:1



US 301 Project Development

PROFILES

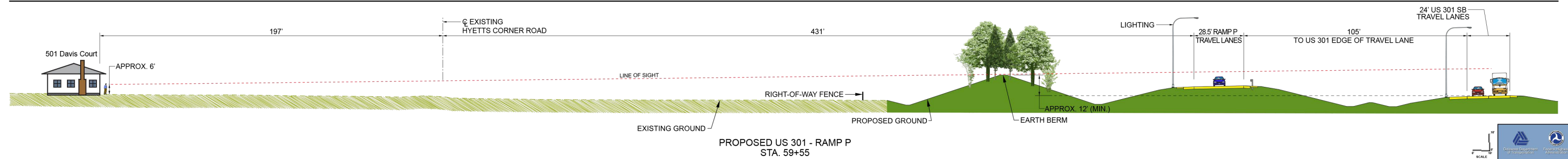
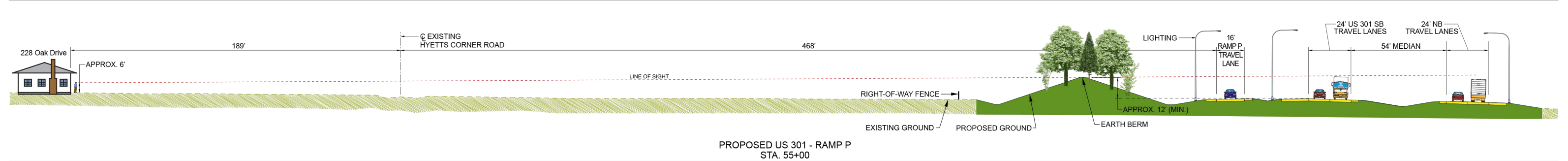
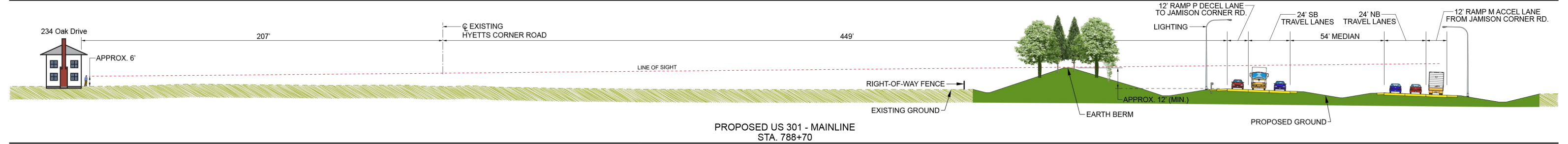
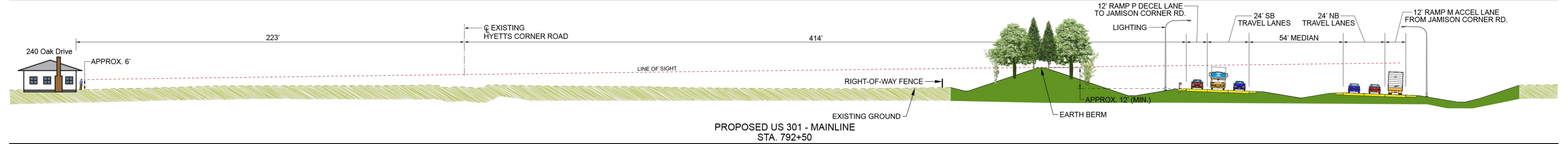
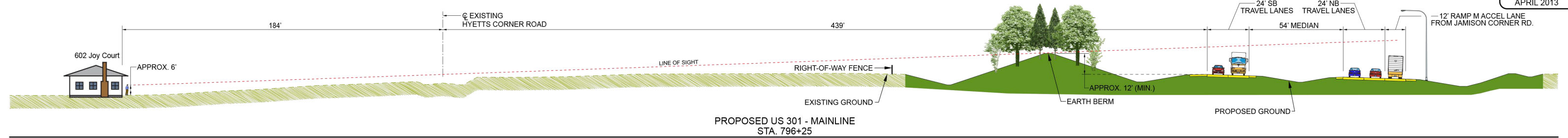
April 2013

Scale : 1" = 100'

Question 1

Supporting Documentation

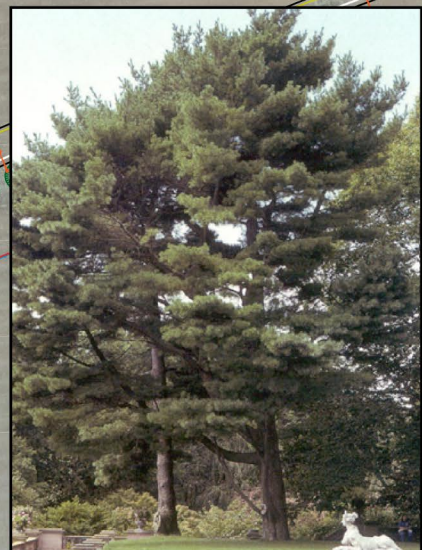
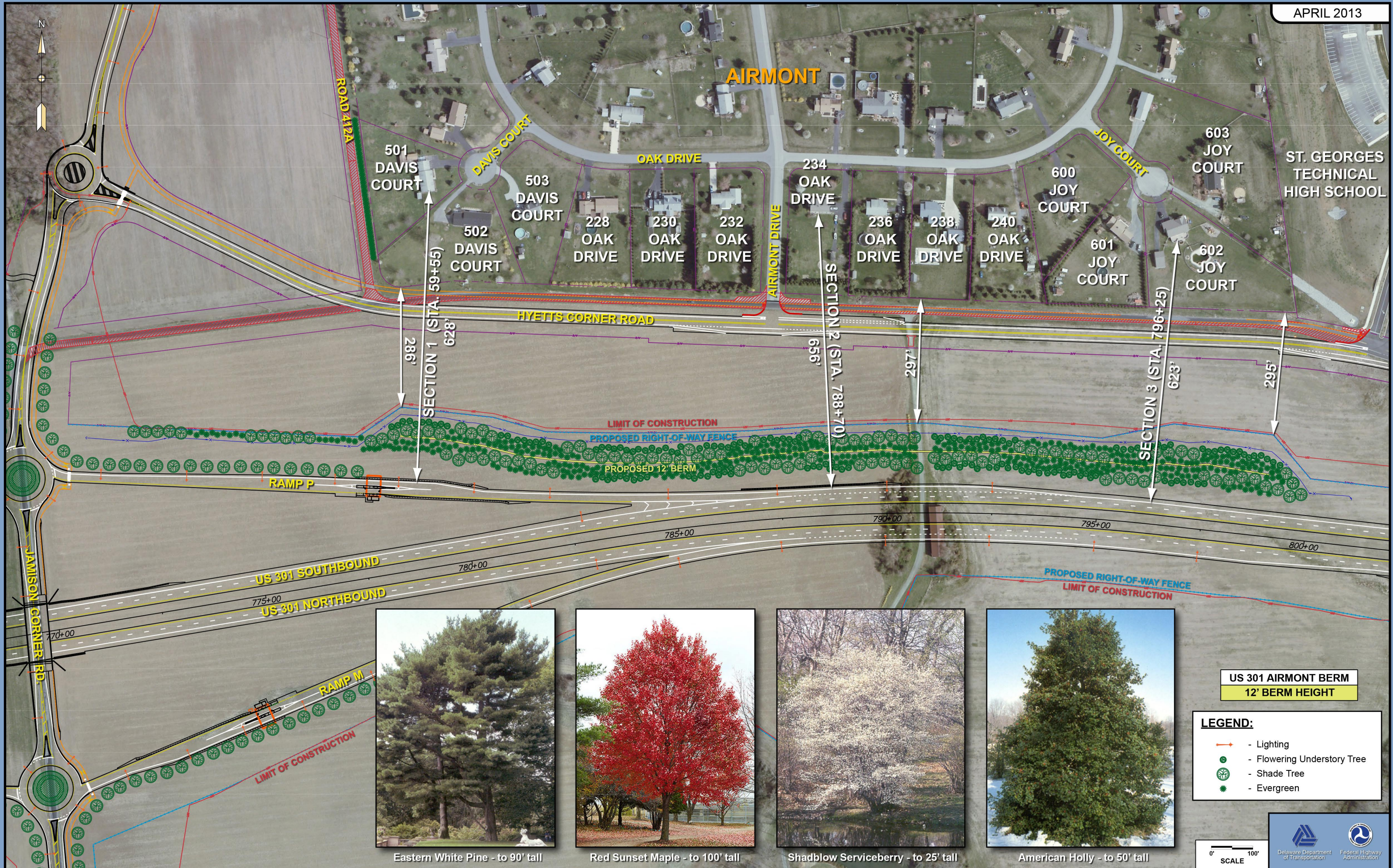
1-C



Question 1

Supporting Documentation

1-D



Eastern White Pine - to 90' tall



Red Sunset Maple - to 100' tall



Shadblow Serviceberry - to 25' tall



American Holly - to 50' tall

US 301 AIRMONT BERM 12' BERM HEIGHT

LEGEND:

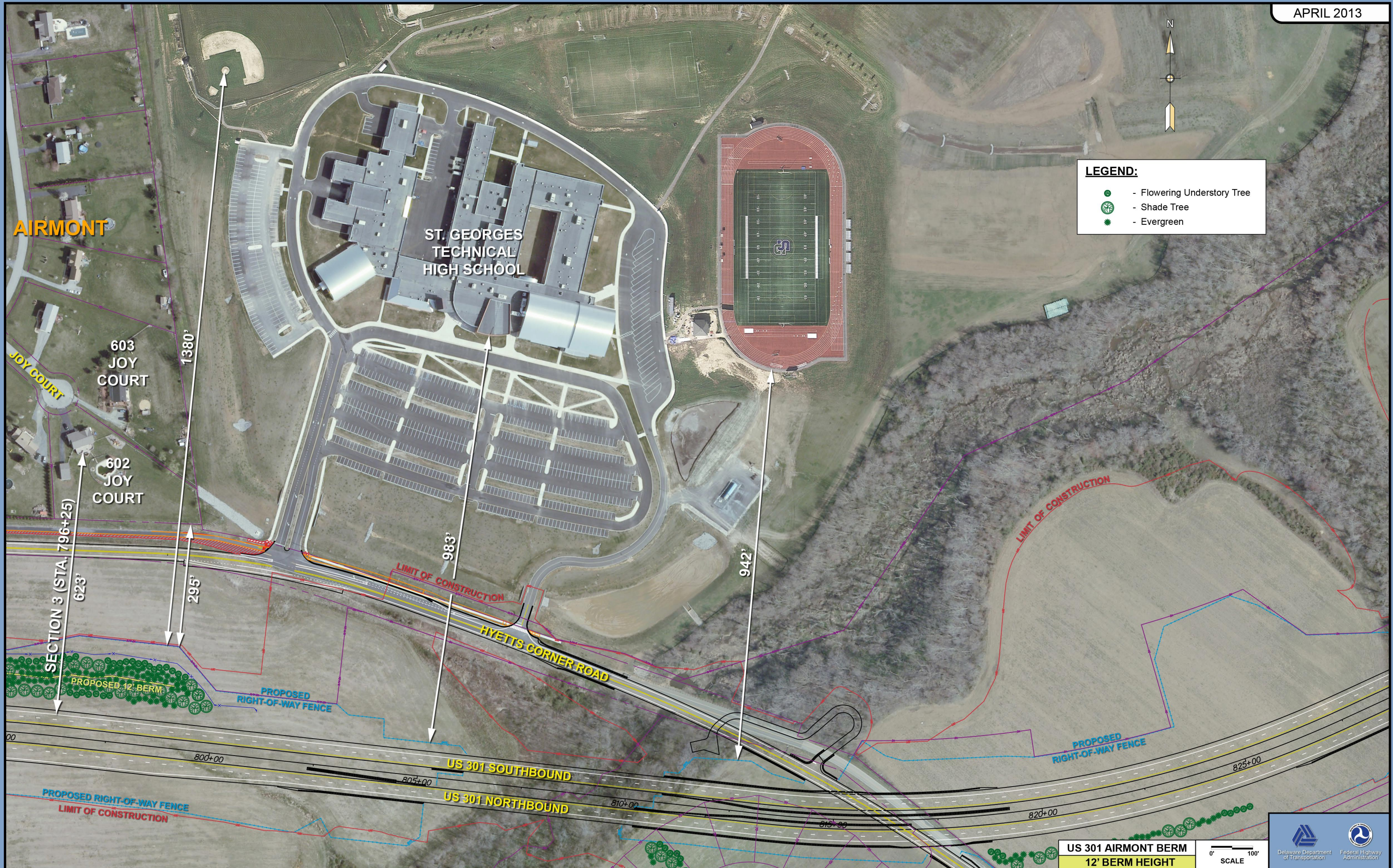
- Lighting
- Flowering Understory Tree
- Shade Tree
- Evergreen

0' 100'
SCALE

Question 1

Supporting Documentation

1-E



Question 1

Supporting Documentation

1-F

Noise Summary – Airmont (September 15, 2011)

A visual earthen berm, 12 feet high and 2000 feet long, is proposed to the south of this community, aligned adjacent to the Selected Alternative. No residences are predicted to be impacted for all Existing and Design Year conditions. The visual berm is intended to provide an aesthetic improvement for the community, but also provides some degree of noise reduction.

Distance from front-row properties to edge-of-roadway is nominally 450 to 500 feet. The visual berm is predicted to restore Design Year noise levels to existing levels, except at three locations. Noise level increases with the berm are predicted to be 1 or 2 dBA, which is generally accepted to be indiscernible to the human ear.

Table 1: Noise Levels (dBA) at Airmont

Address	Existing / (ROD)	DY-no berm / (ROD)	DY-Berm 6' / (ROD)	DY-Berm 8'	DY-Berm 10'	DY-Berm 12'	DY-Berm 14'	DY-Berm 16'
501 Davis Ct	52 (52)	53 (54)	52 (54)	52	52	52	52	52
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236 Oak Dr	52	57	55	54	53	52	52	52
238 Oak Dr	52	57	55	54	53	52	52	52
240 Oak Dr	52	57	54	53	53	52	52	52
600 Joy Ct	52	57	54	53	53	52	52	52
601 Joy Ct	52	58	55	55	54	52	52	52
602 Joy Ct	52 (51)	57 (59)	55 (57)	54	54	54	53	53
603 Joy Ct	52	55	54	54	53	53	53	53
500 Davis Ct	51	51	51	51	51	51	51	51
223 Oak Dr	50	53	51	51	50	50	50	50
120 Airmont Dr	50	53	51	51	50	50	50	50
227 Oak Dr	50	54	51	50	50	50	50	50
229 Oak Dr	50	53	51	50	50	50	50	50
231 Oak Dr	50	53	51	50	50	50	50	50
233 Oak Dr	50	52	51	50	50	50	50	50
604 Joy Ct	51	54	53	53	52	52	52	52

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<p>2. Berm Cost (as to Airmont)</p>	<p>– Provide the estimate of additional cost to increase Airmont’s berm size from 12’ to 16’.</p> <p><i>The berm for the Airmont community has been increased from the 6’ height in the original US 301 Record of Decision (ROD) to 12’ to address comments from the Airmont community. The decision to double the height of the berm from 6’ to 12’ and increase the length of the berm from 1,670’ to 2,000 is included in the approved US 301 Design Refinements Report. In summary, the increased height and length of the berm was estimated to be constructed with topsoil generated from the excavations in the immediate vicinity that is in excess of the topsoil needed for the US 301 contract, thus not increasing project costs.</i></p> <p><i>Two sections of the Airmont berm have been constructed to the 12’ height. These sections of berm were constructed with excess material generated during the construction of the separate DelDOT contract for improvements to Jamison Corner Road, which is adjacent to the US 301 project. There would be additional costs to the US 301 project to increase the height of these berms. Where additional material is to be placed on the existing berms, the vegetation growing on the top and side of the berms would need to be removed and benches would also need to be excavated into the slopes. These are standard measures employed to avoid the possibility of creating a slip-plane within the embanked materials that could cause a slope failure.</i></p> <p><i>Even with the two sections of the 12’ berm having already been constructed, the amount of material needed to increase the berm from 12’ to 16’ is more than the estimated excess topsoil that will be generated in the immediate vicinity by the initial construction phases of the US 301 contract. Evaluation of the current conceptual construction schedule in the context of available excess material and the recently-placed 12’ berm indicates that the excess topsoil material necessary for a 12’ berm will likely be available in the first nine months or so of construction.</i></p> <p><i>The contractor for the Jamison Corner Road improvements obtained permission from the landowner to place their excess materials for the berm in advance of DelDOT obtaining possessory rights to the lands. DelDOT has since obtained possessory rights from this parcel for the right-of-way needed for the US 301 mainline improvements based on the 12’ berm height. Approximately 1 acre of additional right of way would be necessary to increase the berm to 16’. Additional costs would be incurred for the required appraisal and acquisition activities in addition to the cost of the extra land. DelDOT must also demonstrate a need for the additional right-of-way in order to justify expenditure of public funds. Also, if the land owner would object to DelDOT acquiring the additional land, DelDOT would have to file for condemnation and the need for the additional right-of-way could be questioned in the subsequent court proceedings.</i></p> <p><i>Additional design cost would also be required to make the necessary changes to the completed / final construction contract bid documents and the final right-of-way plans.</i></p> <p><i>The total additional cost to increase the berm from 12’ to 16’ is estimated to be \$174,000.</i></p>
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<p>3. Berm Cost (as to Southridge now called Spring Arbor)</p> <p>3-A: “Visual Earth Berm Comparison – Airmont, Middletown Village, Spring Arbor”</p>	<p>– Provide the estimate of additional cost to increase Spring Arbor’s berm size from 10’ to 16’.</p> <p><i>There was no additional cost to the US 301 project to increase Spring Arbor’s berm size from 10’ to 16’. Most of the berm will now be 16’, though a portion of the berm will remain at 10’ to avoid impacts to other resources. In the immediate vicinity of the Spring Arbor berm, the US 301 project has material that <u>must</u> be excavated to create stormwater management facilities and to create the required acres of wetlands at the Levels Borrow / Mitigation site, necessary to meet Corps of Engineers’ permit requirements. This material that must be excavated is in excess of what is needed to construct the US 301 road embankment. The additional height of the berm is being constructed with this excess material rather than hauling it longer distances to other disposal sites. This also reduces emissions during construction. The additional right of way required for the larger footprint of the taller berm is being donated by the adjacent landowner.</i></p>
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Question 3

Supporting Documentation

3-A

Visual Earth Berm Comparison – Airmont, Middletown Village, Spring Arbor

Introduction: The initial noise evaluation for the US 301 project was conducted in 2007 under the then current DelDOT Noise Policy [approved by the Federal Highway Administration (FHWA)]. DelDOT's newly revised Noise Policy, also approved by the FHWA, became effective on July 13, 2011.

Significant Differences, New vs. Previous Noise Policy

A noise impact (per definition found in the Noise Policy) has to meet either of the following criteria:

- Future Noise Levels “approach” the 67 dBA criteria level. For both the old and new Noise Policies, this “approach level” is 66 dBA, which is 1 dBA less than the 67 dBA criteria level.
- Future Noise Levels indicate a substantial noise increase as compared to existing noise levels. For the previous policy this was an increase of 10 dBA. The new policy has changed this to 12 dBA.

Assuming a noise impact (per definition) has been identified, for noise mitigation to be considered, it also has to pass Feasibility and Reasonableness, and Cost Effective criteria. For feasibility and reasonableness of abatement measures, such as noise berms and barriers, a benefited receptor is now one that receives a reduction of at least 9 dBA (compared to 3 dBA with the previous policy). Mitigation is considered cost-effective only if the cost is determined to be less than \$25,000 per impacted-and-benefited receptor (compared to \$20,000 per any-benefited residence with the previous policy). Noise barrier analysis will be considered only where there is a cluster of at least 3 impacted receptors in a common noise environment. Spring Arbor was the only community found to meet the reasonable and feasible criteria for noise mitigation in the 2007 study. Spring Arbor is not predicted to be eligible under the new policy.

Table 1 summarizes noise impacts, with and without visual earth berms, for the 2008 Record of Decision (ROD) and refinements that have occurred during the final design of the project, subsequent to the ROD. Impacts are noted for the previous noise policy effective in 2008, as well as the Refined Design with DelDOT's current noise policy. Differences between number of impacts under the FEIS/ROD and the Refined Design (2008 noise policy) are due to slight adjustments in roadway geometry, updated topography, and/or refined berm dimensions. Differences in impacts for the Refined Design, between the 2008 and 2011 noise policies, are the result of different impact criteria applied to the same conditions.

Table 1. Community Noise Impact Comparison - ROD versus Refined Design

Community	FEIS/ROD Noise Impacts 2008 Noise Policy		Refined Design Noise Impacts 2008 Noise Policy		Refined Design Noise Impacts 2011 Noise Policy	
	no Berm	with Berm	no Berm	with Berm	no Berm	with Berm
Airmont 6' x 1,670' berm refined to 12' x 2,000'	0	0	0	0	0	0
Chesapeake Meadow 11' x 1,600' berm refined to 11' x 1,800'	11	0	7	0	2	0
Middletown Village 16' x 2,000' berm refined to 16' x 2,700'	15	0	16	0	10	0
Southridge/Spring Arbor 10' x 2,840' berm refined to 16'/10' x 2,600'/400'	75	14	81	3	38	1
Springmill 6' x 2,200' berm refined to 6' x 1,800'	0	0	0	0	0	0
Summit Bridge Farms ¹ 11' x 1,840' berm added to west of community	12	12	12	12	12	12
TOTAL IMPACTS	113	26	116	15	62	13

¹ Twelve (12) properties located along the north side of Summit Bridge Farms are impacted in the existing condition by traffic on SR 896, not the proposed US 301 Spur Road.

As noted in the table on the previous page, the US 301 project does not result in noise impacts (per definition of policy) to the Airmont community, under the preliminary design and 2008 noise policy, the refined design and the 2008 noise policy and the refined design and the 2011 noise policy, with a 6' high – 1,670' long berm (ROD) or the 12' high – 2,000' long berm (refined design).

Proposed Landscaped Visual Earth Berms: Although not required to do so under the prior or current noise policy, DelDOT has committed to visual screening by providing landscaped earth berms adjacent to a number of communities. See table above for the proposed earth berms – community and height x length – ROD and Refined Design. These landscaped earth berms would also provide beneficial noise effect. Attached are graphics and noise analysis results associated with each of these berms.

Comparison of Landscaped Visual Earth Berms – Airmont, Middletown Village and Spring Arbor: The information below provides an evaluation and comparison of the factors that resulted in the recommendation to provide a 16' high berm at Spring Arbor and Middletown Village and a 12' high berm at Airmont.

Factors That Determine Berm Height

The factors generally used to determine the heights of the visual earth berms are as follows:

- Three-dimensional relationship between community, berm and roadway
 - Distance between community and roadway
 - Relative elevations of roadway and community
 - Location and alignment of berm relative to roadway and community
- Aesthetic benefit
- Number of noise impacts
- Severity of noise impacts
- Cost effectiveness / relative performance of increased height

Distance of Community to Roadway

The distance between roadway and community is a primary determinant for visual berm height since it affects the line of sight between traffic and residence. In addition to affecting the line of sight geometry, distance is also a factor in the general assessment of visual impact (roadway traffic that is very close to a community will create a higher visual impact than traffic at a great distance).

Distances shown below were measured from the nearest edge of pavement.

- **Airmont:** Distances between mainline and first-row dwellings range from 620 to 720 feet (distance to closest property lines is 440 to 600 feet).
- **Middletown Village:** Distances between mainline and first-row dwellings range from 380 to 470 feet (distance to closest property lines is 210 feet to 400 feet).
- **Spring Arbor:** Distances between mainline and first-row dwellings range from 250 to 440 feet (distance to closest property lines is 220 feet to 415 feet).

Relative Elevations of Roadway and Community

Differences in elevation between the roadway and community can help to visually shield traffic from the community, depending upon the intervening terrain and the chosen berm alignment.

- **Airmont:** First-row residences and US 301 elevations are similar for most of the length of the community.

- **Middletown Village:** Roadway is nominally 5 to 10 feet higher than the elevations of the closest residences.
- **Spring Arbor:** The roadway is nominally 8 to 10 feet higher than the elevations of the closest residences.

Alignment of Berm Relative to Roadway and Community

Berm alignment should be aligned close to either roadway or community to maximize visual shielding. A visual berm that is equidistant from the roadway and community is generally least efficient in terms of breaking the line of sight between residence and traffic. The berms at the three communities were aligned as close to the roadway as possible given the topography, berm height and desired 3:1 side slopes.

- **Airmont:** The top of berm is nominally 63 feet from the edge of pavement, in the vicinity of the closest residence.
- **Middletown Village:** The top of berm is nominally 85 feet from the edge of pavement, in the vicinity of the closest residence.
- **Spring Arbor:** The top of berm is nominally 63 feet from the edge of pavement, in the vicinity of the closest residence.

Aesthetic Benefit

Profile and cross-section geometries were assessed to determine visual screening effectiveness.

- **Airmont:** The recommended 12 foot berm is required to effectively shield all large trucks for front-row residences. Some residences will benefit from existing tree-lined property borders.
- **Middletown Village:** The recommended 16 foot berm is required to effectively shield all large trucks for first-row residences. Some residences on the north side may also benefit from an existing line of trees.
- **Spring Arbor:** The recommended 16 foot berm is required to effectively shield all large trucks for first-row residences. There is no screening by existing trees, except at the extreme south side of the community.

Number of Noise Impacts

Minimization of the number of noise impacts was secondary to the visual screening analysis, but was still optimized, where possible, within the resources available to do so. Noise impacts are defined as an increase of 10 dBA/12 dBA or greater, or an overall noise level approaching 67 dBA (see New vs. Previous Policy).

- **Airmont:** Noise impacts are zero (0) without and with the visual earth berm.
- **Middletown Village:** Sixteen (16/10) noise impacts are predicted at Middletown Village, without the visual earth berm. No impacts are predicted with the berm.
- **Spring Arbor:** Eighty-one (81/38) noise impacts are predicted at Spring Arbor, without the visual earth berm. Three/one (3/1) impacts are predicted to remain with the berm.

Severity of Noise Impacts

Consideration was also given toward impacted properties with very large predicted noise increases.

- **Airmont:** No noise impacts; highest predicted increase is +6 dBA without the berm
- **Middletown Village:** All 16 noise impacts are due to substantial noise increases of at least 10 dBA over existing (without the berm). Worst-case increase without the berm is +18 dBA at 820 Woodline Dr.
- **Spring Arbor:** All 81 noise impacts are due to substantial noise increases of at least 10 dBA over existing, without the visual earth berm. Three first-row residences on Palisade Circle are predicted to experience increases of +18 dBA without the berm.

Cost Effectiveness / Relative Performance of Increased Height

Noise mitigation was not analyzed at the Airmont community because no noise impacts were predicted. Noise mitigation was analyzed for Middletown Village but was determined to be neither feasible nor reasonable. Noise mitigation was found to be feasible and reasonable at Spring Arbor. However, it was decided that visual mitigation for the full lengths of these communities was to be incorporated in the roadway design.

All visual earth berm heights for these three communities were assessed primarily for effective visual screening. Berm heights were then increased only if excess earth material was available from the adjacent construction contract. Although additional noise reduction benefits are diminished for incremental increases in berm heights beyond 12 feet, the minor additional noise reductions attained with such increases can be especially beneficial to Middletown Village and Spring Arbor.

- **Airmont:** Existing noise levels for the Airmont residences along Hyetts Corner Road range from 50 dBA to 52 dBA (affected by Hyetts Corner Road and SR 1). The 12' high / 2,000' long berm at Airmont is predicted to restore noise levels existing levels to all but 3 residences: 602 Joy Ct. (+2 dBA), 603 Joy Ct. (+1 dBA) and 604 Joy Ct. (+ 1 dBA). Noise differences of 2 dBA or less are generally considered not perceptible by the human ear. Airmont with-berm noise levels are predicted to range between 50 dBA and 54 dBA. The refined berm would fully utilize the excess topsoil generated by Construction Contract 1A, and not increase construction costs. Raising the berm to 14' or 16' would increase construction costs due to the need to purchase off-site borrow material. In addition, noise levels for a 14' or 16' high berm are essentially identical to those for a 12' high berm, except at a single location where a 1 dBA decrease results.
- **Middletown Village:** Existing noise levels along the west side of Middletown Village range from 46 dBA to 48 dBA. The 16-foot high visual earth berm at Middletown Village will limit noise level increases to within +6 dBA over existing levels at the most severely impacted receptor (820 Woodline Drive). Most noise level increases, with the berm, are in the +2 dBA to +4 dBA range. The 16-foot high berm results in overall noise levels nominally in the 50 dBA to 52 dBA range. The berm would utilize the excess excavation material from Contract 2A, resulting from the project's need to create a 58-acre wetland mitigation site, near the Levels Road extension, and will not increase construction costs.
- **Spring Arbor:** Existing noise levels along the west side of Spring Arbor range from 46 dBA to 47 dBA. With the exception of first-row residences on Garden Gate Drive in the south side of the community, three of which will remain impacted by noise, the 16-foot high visual earth berm at Spring Arbor will limit noise level increases to within +5 dBA over existing levels. Most noise level increases, with the berm, are in the +2 dBA to +4 dBA range. The 16-foot high berm is predicted to result in noise levels in the 48 to 53 dBA range. The berm would utilize the excess excavation material from Contract 2A, resulting from the project's need to create a 58-acre wetland mitigation site, near the Levels Road extension, and will not increase construction costs.

Airmont Questions and Concerns as to 301 Project

APRIL 4, 2013

4. Berm Construction	<p>– Airmont requests that the berm be built prior to start of construction of 301.</p> <p><i>Construction of the berm prior to the start of construction of US 301 is not feasible given the quantity of material required to construct the berm. Constructing the proposed 12' berm in advance will require approximately 32,800 cubic yards of borrow material in addition to temporary stabilization and erosion and sediment controls. The estimated additional construction costs for advance berm construction would be about \$484,000.</i></p> <p><i><u>As we have consistently stated at prior community meetings, DelDOT has committed to constructing the berm as early as practicable during construction. Based on evaluation of the potential project schedule, the Project Team believes that early construction of the berm along Airmont is possible. Reaching the full 12' height will be dependent in part on the contractor's timing to strip sufficient excess topsoil to reach full height. Two sections of the berm were constructed to the full 12' height in the fall of 2012 by the contractor for the separate DelDOT Jamison Corner Road project. While the contractor is ultimately responsible for developing a construction schedule, preliminary concept scheduling, developed by the US 301 Project Team, anticipates that it would be practicable to construct the 12' berm in the first nine months of construction, assuming reasonable weather conditions.</u></i></p>
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Airmont Questions and Concerns as to 301 Project

APRIL 4, 2013

5. Fees/Expenses Paid to Date to Kramer & Associates, Inc.	<p>– Provide total amount of fees/expenses paid by, or for the benefit of DelDOT, to Kramer & Associates, Inc. with respect to 301 Project.</p> <p><i>Kramer & Associates role on the US 301 project is to oversee public outreach/involvement. Over a 9 year period (2005-2013), Kramer & Associates, Inc. (KA) received a total payment of \$714,807 from DelDOT for work on the US 301 project. The majority of these payments (\$619,340.13 or 86%) occurred during the 2005-2008 period (project development phase of the project).</i></p> <p><i>Public outreach / involvement is an important part of the National Environmental Policy Act (NEPA) requirements and the effort that DelDOT feels is extremely important in project development.</i></p> <p><i>DelDOT does not have adequate internal resources to handle the significant effort required for a major complex project, such as US 301; therefore firms like Kramer & Associates, Inc. are added to the Project Team to serve as an extension of DelDOT's staff to perform public outreach / involvement.</i></p> <p><i>The Kramer firm supported DelDOT with activities such as: stakeholder listening tour; public workshops; individual community and business meetings and facilitation; project office in Middletown; as well as others.</i></p> <p><i>DelDOT feels that the investment made in public outreach / involvement has been a great benefit to stakeholders and the overall project, by creating an outreach program that has both informed the public and provided an opportunity for their input, which is critical in reaching informed decisions.</i></p>
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Airmont Questions and Concerns as to 301 Project

APRIL 4, 2013

<p>6. Fenceline/Vegetation along 301 (by Airmont)</p> <p>6-A: “Collection of Plants-US 301-2013”</p>	<ul style="list-style-type: none"> – For the fenceline, where will it be located, what material, etc. <p><i>A 4’ high right of way fence will be constructed between the berm and the community along the proposed right of way line.</i></p> <p><i>The proposed fence is standard DelDOT steel wire right of way fencing.</i></p> <p><i>The right of way fence will be located along the proposed right of way line (approximately 188’ to 261’ from Hyetts Corner Road and approximately 277’ to 352’ from the community property lines and approximately 445’ to 530’ from the Airmont homes in the area adjacent to the berm.</i></p> <p><i>The visibility of the fence will be considerably subdued considering the significant distance it will be from the community and the back drop of the berm and plants. The image to the right was taken on SR 1 just north of the Biddles Toll Plaza, about 80’ from a right of way fence, which is much closer than the fence will be to Airmont.</i></p> <p><i>Providing landscaping in front of the fence would require additional right of way, which would increase project costs. Typically, DelDOT places fencing at the right of way line to allow maintenance activities to originate from within DelDOT right of way.</i></p> <ul style="list-style-type: none"> – For the vegetation, what is the plan. <p><i>We understand the community’s desire to have evergreens included and have considered that in preparing the landscaping plan for the earth berm. The planting design on the berm utilizes a mix of major deciduous trees (such as Oaks, Maples and Sycamores), evergreen trees (such as Hollies, Pines and Junipers) and minor deciduous trees (such as Hawthorn, Witchhazel and Magnolia). This provides a variety of sizes and foliage density to create an effective screening for all seasons. The core or backbone of the planting will be evergreen to provide screening throughout the year.</i></p> <p><i>Trees will be planted on both side slopes. This allows the trees to take advantage of water runoff down the slope of the berm. This way the trees will not dry out as readily and survivability is greater.</i></p> <p><i>Trees will not be at a mature size when planted. Major Deciduous Trees will be planted at 2”-3” caliper (approximately 12’ to 14’ tall), Evergreen Trees will be planted at 6’ height, and Minor Deciduous Trees will be planted at 5’ height. These sizes provide greater survivability than if planted at a larger size; often, trees cannot withstand the shock of transplanting, if they are too large or too mature.</i></p> <p><i>Ground surface vegetation will be permanent grass seeding, the standard DelDOT roadside seeding for slope stabilization. The seed mix includes a mix of perennial fescues (for long-term effect) and annual ryegrasses (for immediate effect).</i></p> <p><i>Current public roads will continue to provide access to local residents. A multiuse trail will be provided on the east side of Jamison Corner Road, which will assist with access across US 301. See the next question regarding access along Hyetts Corner Road.</i></p>
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Question 6

Supporting Documentation

6-A

Acer rubrum 'Red Sunset' (Red Sunset Maple)



Maples are the premier trees for providing shade and dramatic fall color.

Light:

Sun, Part Sun

Zones:

3-9

Plant Type:

Tree

Plant Height:

To 100 feet tall

Plant Width:

To 50 feet wide

Landscape Uses: Containers, Beds & Borders, Slopes

Special Features: Attractive Foliage, Fall Color, Winter Interest, Attracts Birds

Liquidambar styraciflua (Sweet-gum)



The sweet gum tree creates fireworks in the garden, with star-shape leaves that change to fiery hues in fall. The handsome foliage is glossy green spring through summer. This U.S. native possesses a narrow habit that opens up and rounds with age. A fragrant sap bleeds from the tree when the bark is wounded. Spiny seed balls form on the tree and persist through the winter months. Sweet gum thrives in moist, acidic soil with lots of organic matter.

Light:

Sun

Zones:

5-9

Plant Type:

Tree

Plant Height:

65-70 feet tall

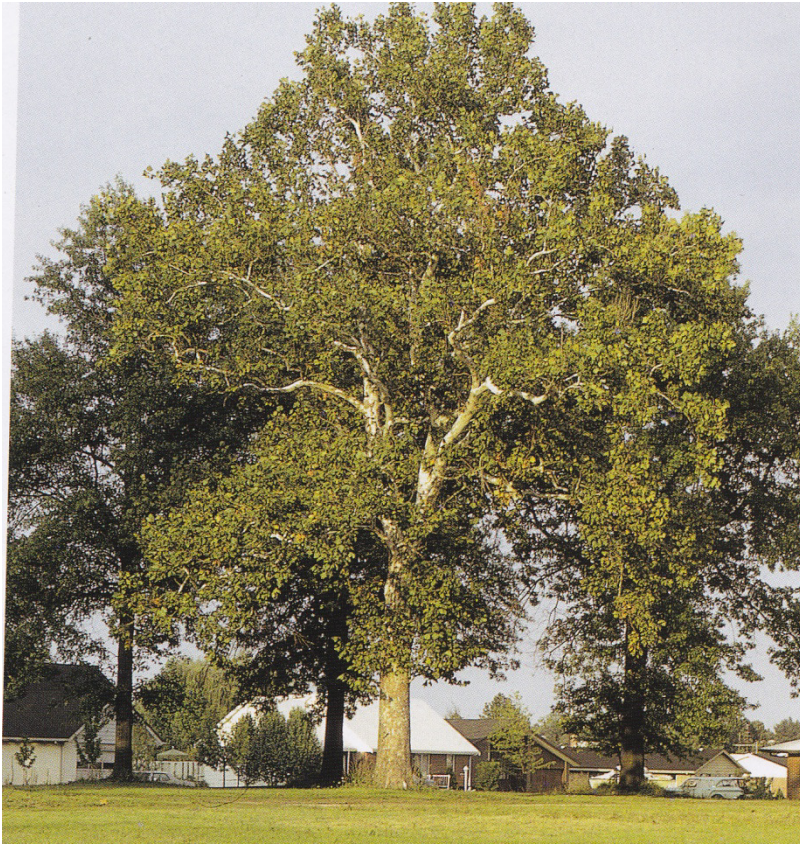
Plant Width:

40-50 feet wide

Landscape Uses: Beds & Borders, Slopes

Special Features: Attractive Foliage, Fragrant, Fall Color, Winter Interest

Platanus occidentalis (Sycamore)



From a centerpiece for native gardens to a well-behaved yet fast-growing shade tree, the sycamore offers many possibilities for the landscape. The American native sycamore grows best in a large, wild garden. Its trunk bark peels in large sheets, exposing pale color underneath that is visible from a distance, for winter interest. Sycamores produce spurred seedballs that persist on the tree through winter. They prefer a moist soil but will tolerate some drought, air pollution, and alkaline soil.

Light:

Sun, Part Sun

Zones:

5-9

Plant Type:

Tree

Plant Height:

To 80 feet tall

Plant Width:

To 70 feet wide

Landscape Uses: Beds & Borders, Privacy, Slopes

Special Features: Attractive Foliage, Winter Interest, Attracts Birds, Drought Tolerant, Tolerates Wet Soil

Quercus rubra (Red Oak)



Rounded and densely leafed, the oak is the archetypal shade tree and a stately presence in American history. Both oak leaf and acorn motifs have often appeared in the decorative arts. Most oaks grow to considerable heights, requiring plenty of space to spread their branches. Toothed oak leaves are leathery and distinctive; fall color varies from a dull yellow brown to fiery red to gold. Many species feature showy bark, either deeply furrowed or scaled. Oaks such as the Northern red oak, Kellogg oak, and coast live oak are native to the U.S.. A moist, organic-amended soil in full sun encourages most oaks to grow quickly to their full potential. Some species are sensitive to alkaline soil.

Light:

Sun, Part Sun

Zones:

3-8

Plant Type:

Tree

Plant Height:

35-80 feet tall

Plant Width:

25-70 feet wide

Landscape Uses: Beds & Borders, Privacy, Slopes

Special Features: Attractive Foliage, Fall Color, Attracts Birds

Ilex opaca 'Miss Helen' (American Holly) and Ilex opaca 'Jersey Knight' (American Holly Male Pollinator)



Any day is festive in the landscape when holly is present to cheer with its shiny dark green or green-and-yellow-patterned leaves and red berries. It always looks fresh, and can handle difficult soils where drainage is a problem. Tall American hollies form the ideal deer-resistant hedge. Hollies typically are either male or female, so plant a partner nearby to ensure a good crop of berries. Holly prefers well-drained, moist, and fertile soil. Summer is the right time to prune a holly hedge.

Light:

Sun, Part Sun

Zones:

3-10

Plant Type:

Evergreen Tree

Plant Height:

To 50 feet tall

Plant Width:

To 40 feet wide

Landscape Uses: Containers, Beds & Borders, Privacy

Special Features: Attractive Foliage, Winter Interest, Cut Flowers, Attracts Birds, Tolerates Wet Soil, Deer Resistant, Easy to Grow

Juniperus virginiana (Eastern Redcedar)



Juniper is a great plant for filling in space fast, whether as a screen, or vertical punctuation in a border. Its scaly foliage is feathery and graceful, a good contrast to large-leaf plants. Juniper thrives in a full-sun site in well-drained soil. Most varieties are drought-tolerant once established.

Light:

Sun, Part Sun

Zones:

3-9

Plant Type:

Evergreen Tree

Plant Height:

To 60 feet tall

Plant Width:

To 20 feet wide

Landscape Uses: Containers, Beds & Borders, Privacy, Slopes, Groundcover

Special Features: Attractive Foliage, Fragrant, Winter Interest, Attracts Birds, Drought Tolerant, Deer Resistant, Easy to Grow

Pinus strobus (Eastern White Pine)



Savor the resinous aroma and music of a sheltering pine tree on a breezy summer day. Tufts of long, graceful needles, rugged silhouettes, and often showy trunks are the hallmarks of this huge tree family. Well-drained soil is a must for growing pines successfully. Most species prefer moist soil in full sun. Eastern white pine may become iron-deprived and turn yellow in high pH soils.

Light:

Sun

Zones:

2-9

Plant Type:

Evergreen Tree

Plant Height:

15-90 feet tall

Plant Width:

10-60 feet wide

Landscape Uses: Containers, Beds & Borders, Privacy, Slopes

Special Features: Attractive Foliage, Fragrant, Winter Interest, Attracts Birds

Amelanchier canadensis (Shadblow Serviceberry)



Serviceberry is rare in that it offers interest in every season. It kicks off in spring with beautiful white flowers, which develop into tasty purple berries that attract birds in early summer. Or harvest the berries and use them to make delicious jams, jellies, and pies. The plant's bright green or bluish green leaves turn stunning shades of red and orange in fall, and its silvery bark offers winter appeal. You can grow serviceberry as a large shrub or small tree.

Light:

Sun, Part Sun, Shade

Zones:

2-9

Plant Type:

Small Tree, Shrub

Plant Height:

6-25 feet tall

Plant Width:

4-20 feet wide

Landscape Uses: Beds & Borders

Special Features: Flowers, Fall Color, Attracts Birds, Drought Tolerant, Easy to Grow

Hamamelis virginiana (Common Witchhazel)



Add a brilliant splash of color to your autumn landscape with witch hazels. These shrubs feature fantastic fall color in shades of gold, orange, and red. Better yet, they bloom -- usually when other plants are done. Common witch hazel blooms in late autumn. The fragrant flowers appear in shades of red, orange, and yellow, and have a spidery appearance. All witch hazels do best in a spot that gets full sun or part shade and moist, well-drained soil rich in organic matter.

Light:

Sun, Part Sun

Zones:

3-9

Plant Type:

Small Tree, Shrub

Plant Height:

To 12 feet tall

Plant Width:

To 12 feet wide

Flower Color:

Red, Yellow/Gold, Orange

Bloom Time:

Winter, Spring, Fall

Landscape Uses: Beds & Borders, Privacy

Special Features: Flowers, Fragrant, Fall Color, Easy to Grow

Viburnum prunifolium (Blackhaw Viburnum)



Viburnums are diverse in shape and foliage, but all have something special to contribute to the landscape, whether with awesome autumn color, fragrant blooms, or clusters of colorful fruits that beckon flocks of overwintering birds. Most types have a reliable performance record in colder winter climates. Plant viburnums in any fertile, moderately moist, well-drained soil.

Light:

Sun, Part Sun

Zones:

2-9

Plant Type:

Small Tree, Shrub

Plant Height:

4-15 feet tall, depending on type

Plant Width:

5-12 feet wide, depending on type

Landscape Uses: Beds & Borders, Privacy, Slopes

Special Features: Flowers, Attractive Foliage, Fragrant, Fall Color, Winter Interest, Cut Flowers, Attracts Birds, Attracts Butterflies, Drought Tolerant, Deer Resistant, Easy to Grow

Airmont Questions and Concerns as to 301 Project

APRIL 4, 2013

<p>7. Airmont Drive Closure</p> <p>7-A: DRR, pgs 43-47, Temporary Closing of Hyetts Corner Road</p> <p>7-B: Closure of Existing Road</p>	<p>(1) What type of barrier will be used by DelDOT to close Airmont Drive?</p> <p>(2) Airmont requests a permanent barrier that will prevent cars/trucks from circumventing, but a barrier in which police/fire/rescue can still utilize.</p> <p>(3) Perhaps, an access fence that DelDOT utilizes on I-95 to allow its trucks to get on/off I-95.</p> <p><i>During construction of US 301, a temporary run-around road with 11' lanes and 5' shoulders will be constructed for Jamison Corner Road through the US 301 construction area and opened to traffic prior to closing Hyetts Corner Road east of the Vo-Tech school. Traffic to and from the school that currently uses Hyetts Corner Road to the east will be able to use Hyetts Corner Road to the west and the recently constructed Road 412A and Jamison Corner Road improvements, along with Lorewood Grove Road to the east.</i></p> <p><i>In response to comments from the community, the temporary closure of Airmont Drive at Hyetts Corner Road would then be accomplished by placing Concrete Safety Barriers across the pavement and adjacent grass areas. This is the method that was eventually installed during construction of the Road 412A project and provides the best method that is not subject to vandalism.</i></p> <p><i>Emergency access to the community will be maintained along Jamison Corner Road and Road 412A to the entrance on Lorewood Grove Road. Access to the community entrance on Lorewood Grove Road can also be made via Lorewood Grove Road eastward to US13. This provides routes for emergency response from either the Odessa Fire Company or the Volunteer Hose Fire Company (Middletown).</i></p> <p><u>Background:</u></p> <ul style="list-style-type: none"> - Airmont Drive was closed during the Hyetts/412A project. - Initially DelDOT used plastic barrels as the barrier to close the exit. - Resulting complaints, damage to residents' property, and safety issues arose from use of plastic barriers. - NCC Police requested more permanent barriers. - DelDOT, in response, put down concrete barriers.
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Question 7

Supporting Documentation

7-A

wishing to enter the toll-free ramp would have direct access at the new intersection with the toll-free ramp entrance. A single traffic signal is expected to decrease overall delay.

The disadvantages would be an increased LOD of 33.7 acres, increased right-of-way requirements of 5.7 acres, and a new traffic signal that would be added on US 13 to control the intersection. There would also be increased resource impacts to wetlands (+0.1 acre), ditches (+151.6 linear feet), subaqueous lands (+151.6 linear feet), hydric soils (6.3 acres) and prime farmland soils (4.6 acres), and forest (0.7 acre). The impacted wetlands, ditches, and trees are located mainly in the area between SR 1 and US 13, north of the Biddles Toll Plaza.

Agency Coordination, Public Input and Decision

The initial refinement, as presented at the March 23, 2009 Public Workshop, was presented to the agencies at the February 19, 2009 meeting (see figure in **Appendix H** on page 25 of the Agency Meeting PowerPoint). The initial refinement proposed a four-way intersection with a relocated Port Penn Road approximately 1,150 feet south of the ROD location. Most of the public comments favored the relocation of the toll-free ramp and Port Penn Road to a single, signalized intersection with US 13. One comment suggested a flyover ramp between northbound US 13 and the northbound toll-free ramp, and one suggested DelDOT barrier-separate the turning lane to the ramp from US 13 to prevent weaving. The public clearly favored the single intersection. Further traffic studies indicated that the modification would result in backups on northbound US 13 that would extend through the Port Penn Road intersection. Consultation with the SHPO indicated that the relocation of Port Penn Road may affect additional historic resources, resulting in an expanded APE to the east of US 13.

A second modification, which provided a single intersection at the existing US 13/Port Penn Road intersection, displayed in **Figure 10** and shown on the additional PowerPoint information slides 40-41 in the September 19, 2011 Agency Meeting in **Appendix H**, was proposed at the June 9, 2011 Interagency Meeting, presented at the September 6, 2011, Public Workshop, and reviewed at the September 19, 2011 Agency Meeting. Two public comments received at the September 6, 2011 Workshop were concerned with the relocated toll-free access road: one favored the four-way intersection plan, and one opined that the new location to the south might increase traffic on St. Georges Bridge (US 13). The advantages of this refined design and a comparison of impacts as compared to the initial refinement was discussed at the June 19, 2011 Agency meeting. Consultation with the SHPO resulted in concurrence that the current modification would not have an effect on two additional historic resources within the expanded APE. Information regarding this consultation is included in **Appendix C**. At the September 19, 2011 meeting, the agencies did not object to the second modification, and DelDOT has included the refinement into the project design.

Design Refinement 4 – Hyetts Corner Road Closure during Construction of the US 301 Bridges over Scott Run and the Hyetts Corner Road Bridges over Scott Run and US 301

Refinements have been proposed for the design of the existing Hyetts Corner Road bridge over Scott Run (Bridge 1-6), the new US 301 bridges over Scott Run (Bridges 1-7N and 1-7S) in the vicinity of Hyetts Corner Road, and the design of the Hyetts Corner Road overpass of US 301 (Bridge 1-5). The Scott Run bridge refinements are shown in **Figure 11**, excerpted from the Section 1 Roll Plan displayed at the September 6, 2011 Public Workshop.

The Hyetts Corner Road and US 301 bridges over Scott Run were evaluated to determine optimal placements of piers and abutments as well as to determine the optimal type of bridges or culverts that would minimize impacts to Scott Run and the surrounding wetlands.

The Hyetts Corner Road bridge over Scott Run (Bridge 1-6) is proposed to be reconstructed in the exact location of the present roadway, thus requiring the closure of Hyetts Corner Road during construction. Although there is a ROD commitment to keep the roadway open, DelDOT proposes the closure to enhance safety, reduce environmental impacts, facilitate timely construction, and reduce costs.

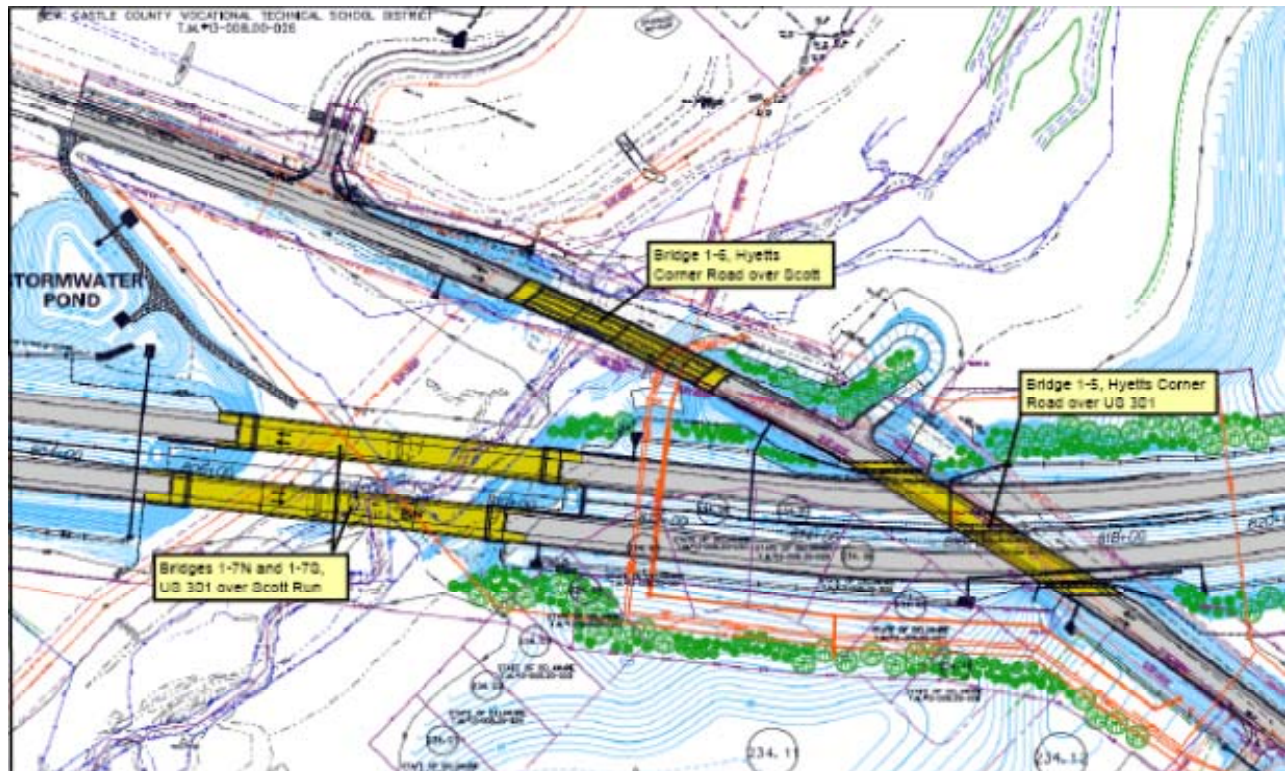


Figure 11: Design Refinement 4- Modification of Bridges 1-5, Hyetts Corner Road over US 301, and Bridges 1-6 and 1-7, Hyetts Corner Road and US 301 over Scott Run

Advantages/Disadvantages and Impacts

Closing Hyetts Corner Road during construction would eliminate the need to construct a temporary haul road through the wetlands associated with Scott Run, avoiding substantial impacts to this important habitat area. Creating and maintaining a temporary road through the wetland, which is opposed by the resource agencies, would not only cause temporary damage, but could cause permanent damage to the wetland system. Hyetts Corner Road is a critical component of US 301 mainline construction and would be used for a major earth hauling effort, which includes having a continual stream of off-road large haul vehicles carry approximately 740,000 cubic yards (CY) of material from borrow sites on the east side of Scott Run to the west side.

The disadvantage to this refinement is that users of Hyetts Corner Road would be required to detour around the closure for the duration of construction, about three years. DelDOT is committed to providing improvements to Jamison Corner Road, Road 412A, and a section of Hyetts Corner Road between Jamison Corner Road and St. Georges Technical High School, to provide a suitable detour route for school buses and the public, prior to closing Hyetts Corner Road. **Figure 12** shows the proposed detour route. Emergency response officials did not express objection to the proposed detour route.

Closing Hyetts Corner Road to passenger traffic would eliminate safety conflicts between construction vehicles and passenger vehicles, reduce construction costs, reduce construction time by approximately 15 months and reduce project financing costs (capitalized interest) by approximately \$20 million.

Regardless of the haul route, closing Hyetts Corner Road would be necessary to construct the Hyetts Corner Road overpass embankments, retaining walls, and bridges over Scott Run and the new US 301 Mainline. Concurrent construction would provide expedited construction times.

As there is anticipated to be considerable construction disturbance of the area surrounding the stream and embankments during construction, wetland and stream channel restoration is proposed for this area. The existing culvert under Hyetts Corner Road has affected the stream's location, and DelDOT would replace the culvert with a bridge and restore the channel to a more natural location (stream restoration of Scott Run is part of the mitigation package). Extensive channel reconstruction is anticipated, and, during the March 9, 2009 field review, the agencies expressed a desire to remove an old upstream dam during the restoration to open up the valley floor and floodplain.

The refinement of the design of the Hyetts Corner Road bridge over Scott Run (Bridge 1-6) and the new US 301 bridges over Scott Run (Bridges 1-7N and 1-7S) would minimize the increase in impacts to wetlands to 0.6 acre and to streams to 412.2 linear feet; increase impacts to hydric soils (+0.95 acre) and forest (+0.55 acre); and reduce impacts to prime farmland soils (-0.5 acre). The total limit of disturbance would increase by 28.1 acres, largely due to a portion of the potential Scott Run borrow site and the staging area south of US 301, which are located in this general area but not the result of this design refinement, being included in this calculation. The design refinement itself (not including the roadway supporting areas) would result in an increase in the total limit of disturbance of 4.56 acres.

Agency Coordination, Public Input and Decision

This refinement was not presented at the March 23, 2009 workshop. The agencies were first apprised of the benefits of closing Hyetts Corner Road during the February 19, 2009 agency meeting. Closure was again discussed during the field review on March 5, 2009. Elements of the bridge refinements and the stream restoration project were discussed at agency meetings on March 26, 2009, July 7, 2009, June 24, 2010, and June 9, 2011. The agencies concurred/did not object to the inclusion of this design refinement at the September 19, 2011 agency meeting.

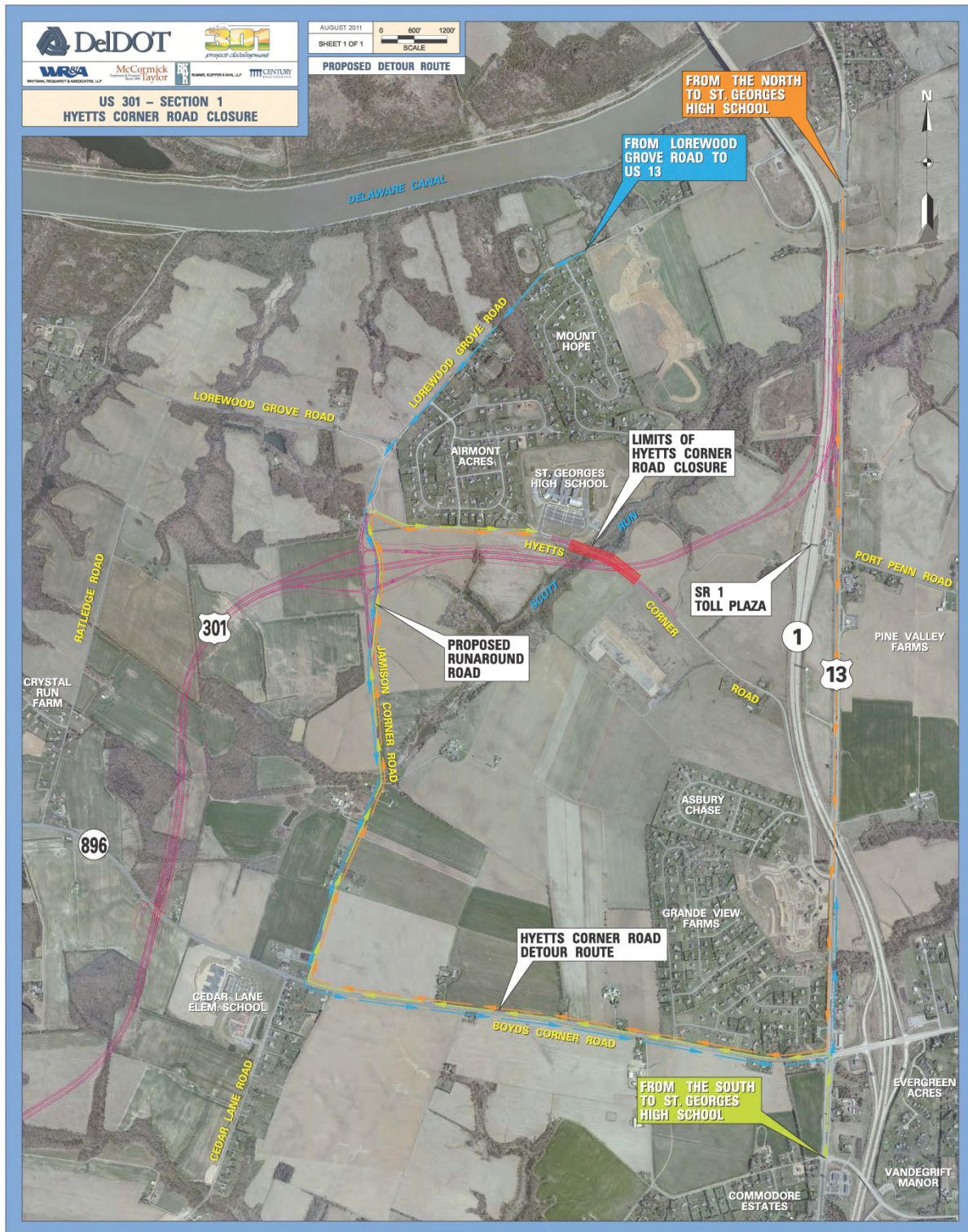


Figure 12: Proposed Hyetts Corner Road Detour Route

This refinement was presented at the Airmont/Mount Hope pre-workshop community meeting as well as to the public at the September 6, 2011 Public Workshop. Citizens at the Airmont/Mount Hope community meeting raised concerns about potential additional neighborhood cut-through traffic while the detour is in place, and requested that the duration of the detour be minimized. The same comment was received during the Public Workshop. DelDOT is continuing to work with the community to address this issue. The residents of the community have been provided ballots. Assuming 2/3 of the responding residents vote “yes,” DelDOT will take appropriate action, coordinated with emergency management services providers, to close Airmont Drive at Hyetts Corner Road during US 301 construction in the area.

Design Refinement 5 – Jamison Corner Road Interchange Roundabouts

At the proposed diamond interchange at Jamison Corner Road, the ROD proposed stop-controlled intersections would be replaced with roundabouts (see **Figure 13**). A larger figure showing the roundabouts and the Jamison Corner Road interchange may be found in **Appendix H** on page 21 of the PowerPoint of the February 19, 2009 Agency Meeting.

Advantages/Disadvantages and Impacts

Including roundabouts rather than stop-controlled intersections would provide several advantages including providing continuous flow of traffic at the ramp intersections and reducing delays to the traveling public. The design would reduce the width of the proposed Jamison Corner Road bridge over US 301, thus reducing costs; easily accommodate traffic growth as surrounding parcels are developed; improve safety through reduced speeds and the elimination of left turn and right angle conflicts; and be more convenient for drivers during off-peak hours. The interchange would be designed to accommodate future widening of Jamison Corner Road from new US 301 to north of Boyds Corner Road (a separate DelDOT project that would include bicycle lanes that would be part of Delaware Greenways; see <http://www.delawaregreenways.org/index.html>). The refined design with roundabouts would increase the LOD by 5.2 acres and result in impacts to an additional 0.2 acre of prime farmland soil; forest impacts would decrease by -0.06 acre.

Agency Coordination, Public Input and Decision

This refinement was first presented at the February 19, 2009 agency meeting and presented to the public at the March 23, 2009 Workshop. The design was reviewed again and recommended by DelDOT to be included in the Refined Design at the March 26, 2009 agency meeting. In their August 9, 2009 letter to the US 301 project stakeholders (included in **Appendix F**), DelDOT advised the public that this refinement would be incorporated into the final design for the new US 301. At the September 15, 2009 agency meeting, the agencies reiterated their acceptance of this refinement. The refinement is included in the Refined Design. There were no comments received from the public during the March 2009 or September 2011 Public Workshops objecting to the design of roundabouts for the Jamison Corner Road Interchange.

Question 7

Supporting Documentation

7-B

DelDOT Standards and Regulations for Subdivision Streets and State Highway Access

Following construction of the streets in accordance with approved construction plans, DelDOT agrees to accept for maintenance the paved portion of these streets including curbing and gutters, and open and closed drainage systems where they exist.

8.10 CONNECTOR STREET

A connector street is a continuous street or streets entirely in the Subdivision Street category beginning and ending on the state numbered road system, and having a high volume of through traffic.

1. DelDOT may transfer certain connector streets into the state maintenance numbered road system. Transfer of connector streets from subdivision streets to maintenance road number designation changes the responsibility for funding from the legislator's Community Transportation Funds to DelDOT's Paving and Rehabilitation Work Programs. Guidelines: All streets in the subdivision street category are eligible for transfer, provided the minimum Annual Average Daily Traffic (AADT) along the length of the road must be above 4,000 vehicles.
2. Acceptance of resurfacing and reconstruction responsibilities for these roads in no way changes existing acceptance agreements which remain in full force and effect. When it comes to the attention of DelDOT that a subdivision street may meet criteria for transfer, the Division of Planning shall conduct a study to determine whether the criteria are met, and whether it is in the best interest of all concerned to effect the transfer. If the study supports the transfer, the Department shall hold a public meeting in the community to receive comments on the proposal. As a minimum, the following must be

notified at least two weeks in advance of the meeting:

- Secretary of Transportation.
- DelDOT District Engineer.
- All legislators in whose districts the street is located.
- All established civic groups in areas through which the street passes.
- All residences and/or owners located on the street.

Within 30 calendar days of the public meeting, DelDOT shall decide which maintenance category the street shall be in and publicly notify the above-listed individuals/groups of that decision.

3. The responsibility for administration of these guidelines and certification of eligibility of roads rests with DelDOT's Director of Planning.

8.11 ABANDONMENT/VACATION AND/OR CLOSURE OF AN EXISTING ROAD

This section provides the guidelines for determining the merits of considering a request for the abandonment/vacation and/or closure of an existing road or an interconnection.

When considering any request for abandonment/vacation and/or closure, an Operation Analysis as outlined in the *Standards and Regulations for Subdivision Streets and State Highway Access*, Section 3.9 shall be performed by the Applicant and made available to the local land use agency and DelDOT for review.

The following additional criteria shall be considered:

1. Safety, in terms of pedestrian, bicycle, motor vehicle and property owners,
2. Traffic volumes on the road in question would exceed the capacity of the roadway and the road cannot be reasonably modified to handle the increased volume of traffic,

DelDOT Standards and Regulations for Subdivision Streets and State Highway Access

3. How the closure/abandonment/vacation will affect access to the area via emergency vehicles, school buses, local service providers,
4. Whether the closure/abandonment/vacation is for the benefit of the health, safety and welfare of the public,
5. Affect of the closure/abandonment/vacation upon the local street and pedestrian network,
6. The Local Area Plan has been amended by the local jurisdiction through a public process to allow the closure, if applicable,
7. Affect of the closure/abandonment/vacation upon the provision of transit, including paratransit,
8. How the closure/vacation/abandonment will affect pedestrian and vehicular connectivity if it is rejected and if it is approved, and
9. How the proposal will affect access to, provision of, and maintenance on public utility systems such as drinking water, stormwater, sewer, electric and gas.

Airmont Questions and Concerns as to 301 Project

APRIL 4, 2013

<p>8. Construction Noise/Schedule (NEPA Issue)</p> <p>8-A: FEIS, pgs. III-108 & III-211</p> <p>8-B: DRR Appendix B, ROD Commitments</p> <p>8-C: NCC Noise Ordinance</p> <p>8-D: Bond Bill Language</p>	<ul style="list-style-type: none"> - NEPA <u>requires</u> all proposed highway projects to evaluate and fully consider such adverse impacts <u>due to construction noise</u>. - In accordance with Bond Bill epilogue language, and the applicable sections of the Delaware Code and New Castle County Code, the construction for the 301 Project is limited to only weekday daylight hours. - In the original ROD, DelDOT's commitment was to only work during weekday daylight hours. - Nov. 2011 amended report, DelDOT advised that it would not honor this ROD commitment and may work 24 hours on the project. - 100% of the responding residents from Airmont do not consent to this extended period of work hours. - Therefore: <ul style="list-style-type: none"> (a) DelDOT <u>can not</u> proceed with its proposed extended hours, as it relates to any project that is near and/or impact Airmont; (b) DelDOT <u>can only work</u> daylight hours on weekdays for the duration of the 301 project, as it relates to the Airmont Community; and, (c) Regardless of the time of day of construction, DelDOT is left with its burden obtain the necessary waiver prior to commencing the work and to permit the work that would otherwise violate any applicable noise ordinance of New Castle County. - DelDOT has failed to address these concerns and requirements in any of their reports. - DelDOT is obligated to update the reports with such concerns and requirements, and update any applicable EIS or reevaluations. - As to Airmont, we require that DelDOT adhere to the ROD commitment to limit construction to weekdays and only daylight hours for those weekdays. - Airmont <u>does not</u> consent to <u>any work</u> that is not done on a weekday and during daylight hours on that weekday. <p><i>The National Environmental Policy Act (NEPA) of 1969 provides broad authority and responsibility for evaluating and mitigating adverse environmental effects including highway traffic noise. The NEPA directs the Federal government to use all practical means and measures to promote the general welfare and foster a healthy environment. NEPA's most significant effect was to set up procedural requirements for all federal government agencies to prepare environmental documents that contain evaluation of the environmental effects of proposed federal agency actions.</i></p> <p><i>For transportation projects, a result of NEPA was legislation that specifically involved abatement of highway traffic noise in the Federal-Aid Highway Act of 1970. This law mandates FHWA to develop noise standards for mitigating highway traffic noise. The law requires promulgation of traffic noise-level criteria for various land use activities. The law further provides that FHWA not approve the plans and specifications for a federally aided highway project unless the project includes adequate noise abatement assessment in compliance with the standards. The FHWA has developed and implemented regulations for the mitigation of highway traffic noise in federally-aided highway projects, contained in 23 Code of Federal Regulation Part 772. Included in this regulation is language on Construction Noise.</i></p> <p><i>In 1995 the U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, Noise and Air Quality Branch provided guidance on project related construction noise in their Highway Traffic Noise Analysis And Abatement Policy And Guidance Report. Language within this document clearly states that "calculation of construction noise levels is usually</i></p>
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Airmont Questions and Concerns as to 301 Project

APRIL 4, 2013

not necessary for traffic noise analyses” and “potential impacts of highway construction noise should be addressed in a general manner for traffic noise analyses.

In the US 301 Project’s Technical Noise Analysis Report, dated November 2006, Section VII addressed the temporary nature of construction noise, noted the typical source of construction noise as well as potential measures to minimize noise disturbances. Likewise, in the US 301 Final Environmental Impact Statement, dated November 2007, Section III, Item D.3. and Item I.3., construction noise was addressed. For both documents, the issue of construction noise was addressed in the manner acceptable and in accordance to FHWA guidelines.

Additionally, DelDOT included language in Section III, Item I.3. of the FEIS, which was reiterated in the Record of Decision, that noted “to limit the effects” of construction noise, “construction activity would typically be limited to weekday daylight hours in accordance with local ordinances.” However, understanding the nature of construction activity is why the commitment used the terminology, “typically”. DelDOT understands that there may be periods of construction activity for which only nighttime activity can occur to complete the operation without significant impact to the traveling public or delay to the project.

DelDOT’s Contract Documents require their contractors to investigate and strictly comply with, all Federal, State, or county laws and regulations, and city or town ordinances and regulations. This includes the New Castle County noise ordinance. For reference, the following is a summary of noise control provisions in Section 22.02.007 of the New Castle County Code. Please refer to the official code for complete details and information.

Construction Noise – may be considered a noise disturbance:

- *Between the hours of 9:00 p.m. and 7:00 a.m. the following day on weekdays;*
- *Between the hours of 10:00 p.m. on Friday and Saturday evening and 9:00 a.m. on Saturday and Sunday mornings; or*
- *Between the hours of 10:00 p.m. the day before and 9:00 a.m. the day of a legal holiday.*

The New Castle County ordinances are the provisions under which the road construction will be performed. DelDOT does not intend to seek a Noise Waiver from New Castle County for the US 301 construction in the area from Jamison Corner Road to Scott Run. The contractor for this section of US 301 could apply for a waiver.

Question 8

Supporting Documentation

8-A

Table III-47: Summary of Noise Impact Reduction from Visual Screening Berms

Community	Number of Noise Impacts Preferred Alternative		Aesthetic Berm Description
	without Berms	with Visual Berms	
Airmont	0	0	6' x 1670' aesthetic berm
Boyd's Corner @ US 301	2	2	None - aesthetic berm not feasible
Chesapeake Meadow	11	0	11' x 1600' berm reduces all increases to 8 dBA or less.
Midland Farms	9	9	None - aesthetic berm not feasible
Middletown Village	15	0	16' x 2000' berm reduces all noise increases
Southridge	75	14	10' x 2,840' berm prevents impacts to all but 14 residences at southern end
Springmill	0	0	6' x 2200' aesthetic berm
Summit Bridge Farms	12	12	None - berm not feasible on North side
Additional Individual Residences	9	9	None
TOTAL IMPACTS	133	46	

Noise mitigation for the remaining impacted residences/communities was found to not meet DelDOT's criteria for cost-effectiveness, which is no more than \$20,000 per benefited residence, or was found to be not feasible due to either lack of right-of-way (if an earthen berm) or traffic noise influence from nearby or surrounding roadways.

3. Construction Noise

Temporary noise impacts may occur from construction activity. Areas around the construction zone will experience varied periods and degrees of noise that differ from that of surrounding ambient community noise levels. Temporary Construction noise impacts are discussed in *Section III.1.3*.

E. Hazardous Materials Sites

1. Existing Conditions

Two environmental databases maintained by DNREC, the Site Investigation and Restoration Branch Environmental Navigator and the Tank Management Branch Environmental Information System, were reviewed in order to identify known contaminated sites that are located adjacent to or within the vicinity of the project area. The DNREC databases include coverage of sites with contaminant releases that have been listed by EPA under CERCLA and RCRA. The potential risk of subsurface contamination to the project area was evaluated based upon information derived from the database review.

Sites identified as sources of contamination consisted of a combination of commercial, railroad and state-owned properties. Property uses in the vicinity of the project area included gasoline stations; industrial, commercial, and retail facilities; an airport; auto and farm equipment repair

I. Temporary Construction Impacts

There would be no temporary construction impacts from the No-Build Alternative. Each of the build alternatives, including the Preferred Alternative, would have temporary impacts on resources, residences, businesses and travelers within the immediate vicinity of the project due to construction activities. These impacts would include traffic detours, potential air and fugitive dust emissions, increased noise levels, impacts to socioeconomic and natural resources, and impacts to visual quality.

1. Traffic Detours and Maintenance of Traffic

Traffic detours and road closures during construction of any build alternative (including the Preferred Alternative), would create temporary inconveniences for residents, business owners and travelers. Maintenance of traffic plans will be developed during final design of a build alternative to mitigate access impacts and minimize traffic delays throughout the construction zones. These plans would include appropriate signs, pavement markings, worker safety barriers, and media announcements. Access to all businesses and residences would be maintained throughout the scheduled construction periods.

2. Air Emissions

The operation of heavy equipment would have minor, temporary impacts on air quality during the construction of the Preferred Alternative or other build alternative. The primary impact would be windblown soil and dust in active construction zones, and the second source of air emissions would be from increased levels of machinery exhaust pollutants.

Measures would be taken to reduce levels of fugitive dust and windblown soil generated during construction by wetting disturbed soils, staging soil disturbing activities, and prompt revegetation of disturbed areas. The contractors, in accordance with state and federal regulations, would control emissions from construction equipment.

3. Construction Noise

Temporary noise impacts would occur in the project area during construction of the Preferred Alternative or other build alternative. Sources of noise would include earth-moving equipment, vibratory rollers, pavers, trucks, pile-drivers, jackhammers, and compressors.

In most cases, the effect of increased noise levels associated with construction equipment is limited to within 300 feet of the source. To limit the effects, construction activities would typically be limited to weekday daylight hours in accordance with local ordinances. Some mitigation measures that may be employed to minimize the temporary construction noise include adjustments to equipment, provision of temporary noise barriers, distribution of noise events, good communication with the public, and monetary incentives to contractors. These measures could be examined during final design to minimize annoyances from temporary noise impacts.

Question 8

Supporting Documentation

8-B

Attachment A

Compensatory Mitigation Package

Item	Description of Mitigation
Wetland Mitigation Sites	
MW-1	Wetland creation west of proposed Levels Road interchange (Parcel No. 1302100013) – 90-acre site will provide a minimum of 58 acres of permanently saturated forested wetland with some open water and emergent areas
MW-2	Wetland creation east of Norfolk Southern Railroad and south of Old School House Road (Parcel No. 1301200121) – 29-acre site will provide between 8 and 16 acres of seasonally saturated forested wetland
MW-3	Wetland enhancement by converting approximately 7 acres of farmed emergent wetland to a forested wetland in the Scott Run watershed
MW-4	Wetland conservation of approximately 20 acres of high quality forested wetlands in the Scott Run watershed
MW-5	Wetland conservation of approximately 3.5 acres of medium quality forested wetland in the Strawberry Lane area
Reforestation Sites	
MR-1	East of Choptank Road and north of Bunker Hill Road, at Middletown Village, approximately 5 acres adjacent to existing forest
MR-2	North of Boyds Corner Road and east of Ratledge Road, west of the preferred alternative, approximately 2 acres adjacent to existing forest and emergent wetland
MR-3	North of Boyds Corner Road and east of Ratledge Road, east of the preferred alternative, approximately 6 acres adjacent to existing forest
MR-4	Between Ratledge Road and Jamison Corner Road, approximately 17 acres adjacent to existing forest
MR-5	Summit Bridge Farms and the proposed alternative, approximately 16 acres
MR-6	Jamison Corner Road interchange and Airmont community, approximately 22 acres
Riparian Buffer Enhancement	
MRB-1	East of Choptank Road and west of Summit Bridge Road, at Springmill, approximately 48 acres in the Dove Nest Branch headwaters
MRB-2	East of Norfolk Southern Railroad and north of Marl Pit Road, approximately 21 acres in the Spring Mill Branch headwaters
MRB-3	South of Boyds Corner Road and west of Cedar Lane Road, east of the preferred alternative, approximately 14 acres in the Drawyer Creek headwaters
MRB-4	South of Boyds Corner Road and west of Cedar Lane Road, west of the preferred alternative, approximately 33 acres in the Drawyer Creek headwaters
MRB-5	North of Hyetts Corner Road and west of SR 1 west of the preferred alternative, pursue approximately 46 acres in the Scott Run Watershed
Other Environmental Mitigation Measures	
MRB-1	Stream restoration of approximately 55 linear feet on Scott Run south of Hyetts Corner Road
MRB-2	Forest preservation at Strawberry Lane, approximately 3 acres

Attachment A
Compensatory Mitigation Package (continued)

Item	Description of Mitigation
	Wetland Minimization / Wildlife Passage
MMP-1	US 301 Mainline Bridges (2) over wetlands and Sandy Branch Tributary (STA 264+00)
MMP-2	Levels Road Interchange Ramp Bridge over wetlands and Sandy Branch Tributary (STA 265+00 Lt.)
MMP-3	Levels Road Interchange Ramp Bridge over wetlands and Sandy Branch Tributary (STA 273+00 Lt.)
MMP-4	US 301 Mainline Bridges (2) over wetlands and Sandy Branch Tributary (STA 273+00)
MMP-5	US 301 Mainline Bridges (2) over wetlands and Drawyer Creek (STA 497+00)
MMP-6	Wildlife passage (deer or large mammal) east of Ratledge Road and north of Boyds Corner Road (STA 555+00)
MMP-7	US 301 Mainline Bridges (2) over wetlands and Scott Run (STA 669+00)
MMP-8	Hyetts Corner Road over wetlands and Scott Run (STA 670+00 Lt.)
MMP-9	US 301 Mainline Bridges (2) over wetlands and Scott Run (STA 689+00)
MMP-10	SR 1 Interchange Ramp Bridge over Scott Run (STA 774+00)
MMP-11	US 301 Mainline Bridges (2) over wetlands and Back Creek (STA 205+50)
MMP-12	US 301 Mainline Bridges (2) over wetlands and Back Creek (STA 230+00)

Attachment B
US 301 Commitments Identified
in the Final EIS and Resulting from FEIS Comments

	Item	FEIS Reference Page
C-1	No direct impact to Wooleyhan & Emerson Farms parcels.	II-4-5
C-2	Visual screening berm for Middletown Veterinary Hospital 6' x 900'	II-5
C-3	Roadway connection between Strawberry Lane and existing US 301 – Alignment Option 1 Modified	II-5
C-4	Evaluate and utilize Low Impact Development (LID) technologies for SWM wherever possible;	II-6
C-5	SWM facilities will be properly designed to prevent groundwater contamination in shallow aquifers and to manage stormwater runoff in accordance with Delaware's Sediment & Stormwater Regulations	III-132, 138
C-6	Proposed retaining walls along SB ramp from SR 1 to US 301 to minimize impacts to Scott Run wetlands identified as potential bog turtle habitat	II-6
C-7	Churchtown Road overpass shifted slightly north to minimize stream and wetlands impacts to minimize residential impacts and provide access for Tidewater Utilities	II-6
C-8	MOT concepts to allow crossroads to remain open during overpass construction (Old Schoolhouse Road, Churchtown Road, Bohemia Mill Road, Bunker Hill Road, Jamison Corner Road, Hyetts Corner Road)	II-6
C-9	Refinements to avoid or minimize community, property and natural resources impacts will continue during final design.	II-6
C-10	Avoid direct impacts to Middletown Baptist Church and parking lot	II-27
C-11	Continue to consult with developers regarding the impacts of US 301 on planned developments.	III-20
C-12	Fair compensation for farmland acquired; also compensation provided for remainder portions left unsuitable or inaccessible for farming.	III-25
C-13	Fair compensation and relocation assistance for residential and business displacements	III-30
C-14	Provide visual screening earth berms for Southridge, Middletown Village, Springmill, Chesapeake Meadow, and Airmont communities	III-35

Attachment B (continued)
US 301 Commitments Identified
in the Final EIS and Resulting from FEIS Comments

	Item	FEIS Reference Page
C-15	Develop visual screening landscaping where practicable for affected communities, adjacent to new US 301 and the Spur Road, during final design, implement during construction	III-35
C-16	Design new US 301 roadway to accommodate the proposed Scott Run Greenway to provide full connectivity of the greenway paths	III-35
C-17	Construct visual berms and other landscape screening prior to roadway construction, if practicable	III-46
C-18	Design roadway lighting wherever practicable to focus on roadway and away from communities and surrounding landscape to minimize effects.	III-46
C-19	Provide visual and/or noise mitigation for historic properties as determined in consultation with SHPO and other consulting parties, as practicable.	III-46, 67; MOA
C-20	Conduct Phase I/II archaeological testing of LOD prior to commencement of construction, using the predictive model as a tool to determine levels of testing required, in accordance with stipulations in the Memorandum of Agreement.	III-67; MOA
C-21	Include project in regional air quality conformity analysis through construction and operation.	III-73
C-22	Lessen impacts to soils through BMPs (erosion & sediment control, comprehensive grading plans, sediment & soil stabilization techniques) and a comprehensive re-vegetation effort during construction to quickly reestablish vegetative cover for erosion control and to reestablish long-term tree & shrub re-vegetation.	III-128
C-23	Bridge surface water features and wetlands to minimize impacts to waters and wetlands and adjacent resources	III-139; III-181; ROD Attachment C
C-24	Riparian buffer restoration and enhancement (riparian vegetation plantings) along stream corridors and/or adjacent to existing vegetation buffers	III-139
C-25	Continued coordinated review by the regulatory agencies of the project through final design	III-147
C-26	Evaluate retaining walls and alignment changes to further reduce impacts to wetlands/Waters of the US during final design	III-157

Attachment B (continued)
US 301 Commitments Identified
in the Final EIS and Resulting from FEIS Comments

	Item	FEIS Reference Page
C-27	Provide a minimum of 58 acres of wetland mitigation (creation) including forested and emergent areas, some of which must be permanently saturated and some seasonally saturated, on two selected sites (Levels Road site and Pleasanton site). Concept plans will include site specific water budgets and hydrogeomorphic modeling.	III-157 – 161
C-28	Provide an additional seven acres of wetland enhancement and 20 acres of wetland conservation in the Scott Run watershed	III-157 - 161
C-29	Provide approximately 55 linear feet of stream restoration (on Scott Run where Hyetts Corner Road crosses Scott Run) and create approximately 50 acres of new riparian buffer along the northern & southern tributaries of Drawyers Creek	III-157 - 161
C-30	All construction within the 100-year floodplain will comply with FEMA-approved local floodplain construction requirements	III-165
C-31	Provide forest mitigation in accordance with Delaware Forest Conservation Act – approximately 67 acres of forest to be planted on six selected sites	III-173-174
C-32	Provide forest replacement for impacts in Maryland according to the Maryland Reforestation Law and Roadside Tree Law in coordination with Maryland state agencies	III-174
C-33	Minimize impacts to aquatic biota through BMPs & design modifications in sensitive areas; eliminate/reduce non-native species; re-establish native populations in areas where they are removed for construction	III-177
C-34	Obtain a Coastal Zone Consistency Statement before conducting federally permitted activities.	III-185
C-35	Continue coordination with DNREC to avoid, minimize or mitigate impacts to “unique and sensitive areas” such as State Resource Areas and Natural Areas.	III-189
C-36	Coordination between MDSHA and DE DOT to provide a traffic monitoring program to include traffic counts before and after the opening of each of the US 301 weigh stations (in MD at US 301/MD 299 intersection and in DE on northbound US 301 just north of the state line).	III-208

Attachment B (continued)
US 301 Commitments Identified
in the Final EIS and Resulting from FEIS Comments

	Item	FEIS Reference Page
C-37	Continued evaluation of traffic toll diversions, including: <ul style="list-style-type: none"> • evaluation and implementation of truck restrictions and enhanced enforcement efforts on local MD and DE roads • provision of virtual weigh stations on roadways identified as having potential truck diversions due to weigh & inspection stations. • consideration of truck length restrictions on MD 213 • consideration of engineering measures on MD 282 to address excessive speed • consideration of Sassafrass Road/US 301 median closure 	III-208-210
C-38	Limitations of construction activities to weekday daylight hours in accordance with local ordinances; control emissions from construction equipment in accordance with state & federal regulations	III-211
C-39	Continue to adjust and refine the alignment to avoid and/or minimize impacts to individual properties and communities	Section IV response to comments
C-40	Examine the design/length of the earth berm at Airmont to determine whether extending the length of the berm would be feasible/cost effective	Section IV response to comments
C-41	Optimize the design of all berms during final design.	Section IV response to comments
C-42	Continue outreach to affected parties during final design of landscaping and other mitigations where feasible; landscaping to be included in final design	Section IV response to comments
C-43	Do not take the row of trees behind Woodline Drive in Middletown Village	Section IV response to comments
C-44	Do not alter existing pond in Middletown Village near Woodline Drive	Section IV response to comments
C-45	Schedule the advanced acquisition reviews in a more timely manner to address advanced acquisition requests	Section IV response to comments

Attachment B (continued)
US 301 Commitments Identified
in the Final EIS and Resulting from FEIS Comments

	Item	ROD Reference Page
C-46	Provide an early contract to improve the sharp curve south of the Summit Bridge	ROD Page 16
C-47	Undertake a study of the Spur Road design speed	ROD Page 16
C-48	Undertake an evaluation of the Spur Road median width	ROD Page 16
C-49	The construction of mitigation (berms and landscaping) will be an early activity in the roadway construction contracts.	ROD Page 16
C-50	Evaluate the Spur Road alignment in the vicinity of the Steele farm property (encumbered by perpetual agricultural easement), north of the Chesapeake Meadow community, in an effort to reduce impacts.	ROD Page 19
C-51	Minimize grubbing under bridges to the minimum necessary for construction	ROD Page 21
C-52	Contract specifications regarding idling and/or low-sulfur fuels	ROD Page 22
C-53	Use clean fill to construct berms	ROD Attachment I Page 21
C-54	Provide an additional one acre of wetland creation and preserve approximately 6.5 acres of habitat (approximately 3.0 acres of forest and 3.5 acres of wetland) in the vicinity of the Strawberry Lane connector to mitigate impacts of Option 1 Modified	ROD Page 61

Question 8

Supporting Documentation

8-C

Definitions. The following words, terms and phrases, when used in this Section, shall have the meanings ascribed to them in this subsection, except where the context clearly indicates a different meaning; all terminology used in this Section, not defined in this subsection, shall be in conformance with applicable publications of the American National Standards Institute (ANSI) or its successor body:

*Ambient **noise** level* means the all-encompassing background **noise** associated with a given environment without the sound contribution of the specific source in question.

*Animal **noise control** agency* means a State or County administrative agency, a humane society, or other entity which is authorized by statute, ordinance or contract to enforce any animal **noise control** laws or regulations of the State or County.

Decibel means a standard unit for measuring the sound pressure level. It is equal to twenty (20) times the logarithm to the base 10 of the ratio of the pressure of the sound measured to a reference pressure which is twenty (20) micropascals denoted as dB.

Emergency means any occurrence or set of circumstances involving actual or imminent physical trauma or property damage which demands immediate action.

Emergency vehicle means a motor vehicle used in response to public calamity or to protect persons or property from imminent danger.

Motor vehicle means the same as defined in 21 *Del. C.* § 101 (Motor Vehicle Code) or any vehicles which are propelled or drawn by mechanical equipment, such as but not limited to passenger cars, trucks, truck trailers, semitrailers, campers, motorcycles, minibikes, go-carts, snowmobiles, mopeds, amphibious craft on land, dune buggies or racing vehicles.

Noise means any sound which is unwanted or which causes or tends to cause any adverse physiological or psychological effect on human beings.

***Noise** disturbance* means any sound which:

1. Endangers or injures the safety or health of humans or animals;
2. Any sound that recklessly or willfully disturbs any neighborhood, business, or a reasonable person of normal sensibilities within the County by making loud and unseemly **noises**.
3. Jeopardizes the value of property and erodes the integrity of the environment; or
4. Is in excess of the allowable **noise** levels established in Subsection E.

Noise, *plainly audible* means any **noise** for which the information content of that **noise** is unambiguously communicated to the listener, such as but not limited to spoken speech or musical rhythms.

Powered model vehicles means any powered vehicles, either airborne, waterborne or landborne, which are designed not to carry persons or property, such as but not limited to model airplanes, boats, cars, rockets, which can be propelled by mechanical means.

Property boundary means an imaginary line which separates the real property owned or possessed by one (1) person or governmental entity from that owned or possessed by another person or governmental entity.

Pure tone means any sound which can be distinctly heard as a single pitch or set of single pitches. For the purpose of this Section, a pure tone shall exist if the one-third (1/3) octave band sound pressure level and the band with the tone exceeds the arithmetic average of the sound pressure level of the two (2) contiguous one-third (1/3) octave bands by fifteen (15) dB for bands with center frequencies less than one hundred sixty (160) Hz, eight (8) dB for bands with center frequencies of one hundred sixty (160) Hz to four hundred (400) Hz and by five (5) dB for bands with center frequencies greater than four hundred (400) Hz.

Sound means a temporal and spatial oscillation in pressure or other physical quantity, in a medium with internal forces that causes compression and rarefaction of that medium and which propagates at finite speed to distant points.

Weekday means any Monday, Tuesday, Wednesday, Thursday or Friday which is not legally designated a holiday.

B.

Noise *disturbances prohibited.*

1. *General prohibition.* It shall be unlawful for any person to make, continue or cause to be made or continued **noise** disturbance within the County.

a. A **noise** disturbance can be prosecuted without the use of a **noise** meter so long as the **noise** disturbance:

- i. Endangers or injures the safety or health of humans or animals;
- ii. Recklessly or willfully disturbs any neighborhood, business, or a reasonable person of normal sensibilities within the County by making loud or unseemly **noises**; or
- iii. Jeopardizes the value of property.

2. *Specific prohibitions.* It shall be unlawful for any person to make, continue or cause to be made or continued any **noise** disturbances in the County in any of the following manners:

a. Motor vehicles, horns and motor vehicle signaling devices.

i. It shall be unlawful for any person within any residential district to repair, rebuild, test, race or gun any motor vehicle between the hours of 9:00 p.m. and 8:00 a.m. of the following day in such a manner that would create a **noise** disturbance.

ii. All vehicles operating within the boundaries of the County shall comply with the applicable State regulations pursuant to 21 *Del. C. §* 101 et seq. (Motor Vehicle Code).

iii. All aircraft and railroads operating within the County shall comply with all applicable federal and State **noise** restrictions.

b. Radios, televisions sets, phonographs and similar devices.

i. Operating or permitting the use or operation of any radio receiving set, musical instrument, television, phonograph, drum, speaker or loudspeaker or other device for the production or reproduction of sound in such a manner as to cause a **noise** disturbance.

ii. Operating any such device, as listed in Subsection B.2.b.i between the hours of 9:00 p.m. and the following 8:00 a.m. in such a manner as to be:

(a) Plainly audible through partitions common to two (2) parties within a building; or

(b) Across real property boundaries as to create a **noise** disturbance.

c. Radios, compact disc players, tape players and other similar devices located within or on a motor vehicle.

i. It shall be unlawful for any vehicle operator or person in charge or **control** of a motor vehicle to permit the operation of any radio, tape player, music speaker, loudspeaker, compact disc player or other similar device in or on a vehicle in such a manner as to be plainly audible on a public street, public right-of-way, or public space at fifty (50) feet or more from the vehicle.

ii. It shall be unlawful to play such devices in such a manner that the operator of the vehicle cannot hear or comprehend emergency signals or devices.

d. Animals. Owning, possessing, harboring or **controlling** any animal or bird which causes a **noise** disturbance by barking, baying, crying, squawking or by making any other **noise** continuously or incessantly for a period of ten (10) minutes or which makes such **noises** intermittently for one-half (½) hour or more; provided, however, that at the time the animal or bird is making such **noise** no person is trespassing or threatening to trespass upon private property in or upon which the animal or bird is situated or that no person other than the owner, **controller** or possessor of the animal was teasing or

provoking the animal or bird at the time it made such **noise**. For purposes of this Section the term "animals and birds" shall not include livestock or poultry which are raised or kept as part of a farm operation which is actively devoted to the production for sale of plants and animals useful to people.

e. *Loading operations*. Loading, unloading, opening or otherwise handling boxes, crates, containers or other similar objects between the hours of 10:00 p.m. and 7:00 a.m. the following day, in such manner as to create a **noise** disturbance within a residential district, except during an emergency.

f. *Construction noise*. Operating or causing to be operated any equipment used in commercial construction, repair, alteration or demolition work on buildings, structures, streets, alleys or appurtenances thereto in the following manner:

i. With sound **control** devices that have been tampered with.

ii. In violation of any regulation of the United States Environmental Protection Agency.

iii. Between the hours of 9:00 p.m. and 7:00 a.m. the following day on weekdays and between 10:00 p.m. on Friday and Saturday evening and 9:00 a.m. on Saturday and Sunday mornings or between 10:00 p.m. the day before and 9:00 a.m. the day of a legal holiday which creates a **noise** disturbance, except as provided in this Section.

g. *Explosives, firearms and similar devices*. The use or firing of explosives, firearms or similar devices as to cause a **noise** disturbance within a residential district or public right-of-way.

h. *Powered model vehicles*. Operating or permitting the operation of powered model vehicles between the hours of 9:00 p.m. and 7:00 a.m. the following morning. Maximum sound pressure levels during the permitted period of operation shall conform to those set forth in subsection E of this Section and shall be measured at the property line of the source or at a distance of one hundred (100) feet if it is operated in a public place.

i. *Refuse compacting vehicles*. Operating or permitting to be operated any motor vehicle which can compact refuse and which creates, during the compacting cycle, a sound pressure level in excess of ninety-four (94) dB(A) when measured at fifty (50) feet from any point of the vehicle or between the hours of 8:30 p.m. and 6:00 a.m. the following day in residential districts.

j. *Power equipment*. Operating or permitting to be operated any power saw, sander, drill, grinder, garden equipment or tools of a similar nature outdoors in residential districts between the hours of 9:00 p.m. and 7:00 a.m. the following day, in such a manner as to create a **noise** disturbance.

k. *Stationary emergency signaling devices*.

i. Testing of only the electrical mechanical functioning of a stationary emergency signaling device shall occur at the same time each day

that a test is performed, but not before 8:00 a.m. or after 8:00 p.m. Any such testing shall only use the minimum cycle test time. In no case shall such test time exceed ten (10) seconds.

ii. Testing of the complete emergency signaling system, including the electromechanical functioning of the signaling device and the personnel response to the signal, shall not occur more than once each calendar month. Such testing shall not occur before 8:00 a.m. or after 8:00 p.m. The ten (10) second time limit on the electromechanical functioning of the signaling device shall not apply to such system testing.

iii. Stationary emergency signaling devices shall be used only for testing in compliance with applicable subsections of this Section and for emergency purposes where personnel and equipment are mobilized.

iv. For the purpose of the enforcement of this Section, **noise** levels shall be measured with a sound meter that meets or exceeds the requirements of American National Standards Institute specification for sound level meters (ANSI S1.4-1971), approved April 27, 1971, and issued by the American National Standards Institute, for types I, II or S sound level meters. A sound level calibration instrument of the coupler type shall be used to calibrate the sound level meter in decibel units, and such instrument shall produce a calibration sound pressure level.

I. Electronic insect or bug killing devices.

i. Operating or permitting the use or operation of any electronic insect or bug killing devices for the elimination, **control** or extermination of flying insects or bugs in such a manner as to create a **noise** disturbance.

ii. Operating any such device, as listed in Subsection B.2.I.i., between the hours of 10:00 p.m. and the following 7:00 a.m. in such a manner as to be plainly audible across real property boundaries.

C. Enforcement and penalties.

1. Except as otherwise specified in this Section, any person who fails to comply with the regulations as established in this Section shall be subject to the penalties provided in [Section 1.01.009](#)

2. Enforcement. This Section shall be enforced by the Police Department, provided, however, that the provisions of Subsection B.2.d may also be enforced by an animal **noise control** agency as defined in this Section. The County Executive may appoint the animal **noise control** officers, contingent on funds available, responsible for the enforcement of this section as code enforcement constables or officers for the limited purpose of issuing summons for violations of this Chapter. An animal **noise control**

agency other than a State or County administrative agency, authorized by ordinance to enforce this Section, shall be designated an instrumentality of the County created pursuant to 9 *Del. C. § 101 et seq. (Counties)*, only for purposes of the immunities conferred on such agency and its employees pursuant to 10 *Del. C. § 4001 et seq. (Tort Claims Act)*, unless otherwise provided by such authorizing ordinance. The County shall not be obliged to indemnify, hold harmless, defend or insure such agency if the immunity is ever determined to be inapplicable.

3. **Noise** Disturbance and Animal **Noise** Penalties. Any person convicted of a violation of Subsection B.1, B.2.d or Subsection E, which shall be classified a misdemeanor, shall pay a fine for each offense as follows:

a. A fine of not less than two hundred fifty dollars (\$250.00) nor more than one thousand dollars (\$1,000.00) for the first offense, and a fine of not less than five hundred dollars (\$500.00) nor more than two thousand five hundred dollars (\$2,500.00) for the second offense, and a fine of not less than one thousand dollars (\$1,000.00) nor more than five thousand dollars (\$5,000.00) for each subsequent offense.

b. Each day any violation of such subsection shall continue shall constitute a separate offense for which a separate conviction may be obtained and a separate penalty for each day shall be imposed.

c. Any summons issued for any violation of Subsection B.2.d may provide that in lieu of appearing in court, the offender may remit a voluntary assessment of up to two hundred dollars (\$200.00) for each offense. The summons may provide that each day any violation shall continue shall constitute a separate offense.

D. Exceptions and special waivers.

1. *Exceptions.* The following uses of an activity shall be exempt from **noise** level regulations:

a. *Safety signals.* **Noise** of safety signals and warning devices.

b. *Authorized emergency vehicles.* **Noises** resulting from any authorized vehicle, when responding to an emergency.

c. *Municipal services.* **Noises** resulting from the provision of municipal services.

d. *Temporary activities.* Any **noise** resulting from activities of a temporary duration permitted by law or for which a waiver has been granted by the Department of Land Use.

e. *Certain unamplified human voices.* The unamplified human voice and unamplified crowd **noises** resulting from activities such as those planned by day care centers, schools, governmental and community groups, except as specified in Subsection B.2.i.

f. *Parades.* Parades and public gathering for which a special waiver has been issued.

g. *Religious chimes, bells, carillons.* Bells, chimes, carillons while being used for religious purposes or in conjunction with religious services or for national celebrations or public holidays and those bells, chimes, carillons that are installed and in use for any purpose.

h. *Shooting activities at duly sanctioned shooting organizations.* Shooting activity between the hours of 8:00 a.m. and 10:00 p.m. at the outdoor or partially enclosed shooting ranges of organizations which are affiliated with or recognized by the State or a national sport shooting organization.

2. *Exemptions for time to comply.* Upon good cause shown by the owner or responsible party for any **noise** source, the Department of Land Use shall have the power to grant an exemption from the requirements of this Section in order to allow sufficient time for installation of needed **control** equipment, facilities or modifications to achieve compliance, not to exceed ten (10) days, provided that such exemption may be renewed as necessary, but only if satisfactory progress toward compliance is shown. A request for exemption shall be filed in writing with the Department of Land Use on forms provided by the Department of Land Use.

3. *Special waivers.*

a. *Authority.* The Department of Land Use shall have the authority, consistent with this Section, to grant special waivers.

b. *Application.* Any person seeking a special waiver pursuant to this Section shall file a written application with the Department of Land Use. The written application shall contain information which demonstrates that bringing the source of sound or activity for which the special waiver is sought into compliance with this Section would constitute an unreasonable hardship on the applicant or the community or for another purpose.

c. *Issuance or denial.* In determining whether to grant or deny the application, the Department of Land Use shall balance the hardship to the applicant, the community and other persons of not granting the special waiver against the adverse impact on the health, safety and welfare of persons affected, the adverse impact of property affected and any other adverse impacts of granting the special waiver.

d. *Special waivers.* Special waivers shall be granted by notice to the applicant and may include all necessary conditions, including the time limits on the permitted activity. The special waiver shall not become effective until all conditions are agreed to by the applicants. Noncompliance with any condition of the special waiver shall terminate it and subject the person holding it to the regulations and punishment of this Section.

e. *Guidelines.* The Department of Land Use may issue guidelines defining the procedures to be followed in applying for special waivers and the criteria to be considered in deciding whether to grant a special waiver.

E. **Allowable noise levels.** Unless a person has been granted a special waiver in accordance with this Section, it shall be unlawful for any person to create a **noise** disturbance. Any one (1) or combination of the following shall constitute **noise** disturbances:

1. A **noise** which exceeds the ambient **noise** level by ten (10) dBA, at the point of complaint origination within the receiving property, except as otherwise regulated in this Section.

2. Any stationary source of sound which emits a pure tone, cyclically varying sound or repetitive impulsive sound shall be considered a **noise** disturbance if the sound exceeds the ambient **noise** level by five (5) dBA.

3. **Noise** which is described as "plainly audible" in subsections of this Section, including but not limited to Subsections B.2.b, B.2.c and B.2.i.

(Ord. No. 98-050, § 1(22-32), 5-26-1998; Ord. No. 05-056, § 3, 7-12-2005; Ord. No. 06-113, § 1, 9-12-2006; Ord. No. 10-113, § 1(Exh. A), 1-18-2011)

Question 8

Supporting Documentation

8-D

1 Section 98. 5310 Program. The Delaware Transit Corporation is authorized to expend up to
2 \$1,329,700 (\$859,200 State; \$470,500 Federal) from the Transit System classification (73/00) appropriated
3 in this Act for the 5310 Program, administered by the Federal Transit Authority.

4 Section 99. DelDOT Work Impacts on Private Property and its Owners. When the Department
5 and/or any of its contractors determines that it would be in the best interests of the State to undertake
6 construction/reconstruction work past 9:00 p.m. or before 7:00 a.m., and such work is to be conducted
7 immediately adjacent to a residential neighborhood.

8 (a) The Department shall first ensure that residents of the neighborhood are notified in a timely
9 fashion of the Department's desire to undertake such work. It must explain the benefits and costs to the
10 State and the neighborhood of working under regular hours and the proposed extended hour schedule. Such
11 notifications shall include a description of the proposed work to be conducted, the proposed use of any
12 equipment that may cause noise, vibration or odor disruptions to the neighborhood, and an estimate of the
13 time required to complete the project. The Department may proceed with its extended hours of work if it
14 does not receive a significant number of objections from the notified residents. Pursuant to the provisions
15 of the Delaware Code, it shall offer temporary relocation to any residents who request such relocation.

16 (b) The Department may proceed with its extended hours of work so long as jack hammering or
17 other high noise activities do not impose an excessive nuisance to residents within the designated work
18 zone.

19 (c) If the Department determines that the proposed work (regardless of its scheduled time) will
20 produce noise that exceeds the applicable noise ordinances of the appropriate jurisdiction, the Department
21 shall ensure that it seeks and receives a waiver from that jurisdiction before commencing the work.

22 (d) If the Department determines that the proposed work may cause any vibration or other damage
23 to neighboring property, it shall complete a pre-work survey of the potentially affected properties to
24 determine the base-line condition of those properties. It shall monitor the properties during construction to
25 insure that any vibration or other damage is minimized. If any damage does occur, the Department must
26 reimburse the private property owners pursuant to the provisions of the Delaware Code. The Secretary of

1 the Department may waive the provisions of this section if he/she determines that any such work is
2 necessary in order to respond effectively to an emergency caused by a natural disaster, an accident, or a
3 failure of a transportation investment.

4 Section 100. McMullen Farm. The General Assembly has previously authorized the Department to
5 enter into contracts with the owners of property located in Bear, Delaware known as the McMullen Farm in
6 order to promote improved transportation access and circulation, to promote healthy economic growth, and
7 to preserve and enhance critical open space. The Department is authorized to continue its negotiations for
8 the improvements to Routes 7 and 40, to the system of roads connecting to these arteries, and to the lands
9 adjacent between the bounds of Route 273 and Route 40, Route 1 and Salem Church Road. All previous
10 authorizations to the Department, and other affected State agencies, shall remain in force and effect, and the
11 Secretary of the Department shall report to the Governor and the General Assembly on progress toward the
12 completion of the transportation improvements, development of the excess lands, and creation and
13 improvement of the community parkland no later than May 1, 2012.

14 Section 101. Indian River Inlet Bridge. State funds authorized in this and previous Acts of the
15 General Assembly for the design and construction of a new bridge at the Indian River Inlet and the
16 construction of new park amenities, access and circulation roads, and other transportation and recreation
17 improvements shall be used, to the maximum extent possible, to match federal funds previously available,
18 or to become available in the future. In keeping with the strong sense of community involvement and sense
19 of ownership, the Department shall continue to provide periodic progress updates through such media as it
20 determines to best address the community's needs. And finally, because in order to accomplish this project
21 in an efficient and cost-effective manner, the Department and its contractors will have to occupy portions of
22 the State's adjacent campground and marina facilities, the General Assembly authorizes and directs the
23 Secretary of the Department to enter into reimbursement agreements with the Secretary of DNREC. Such
24 agreements will insure that during the period of construction of the bridge and other necessary
25 improvements, DNREC shall be equitably indemnified from the loss of critical tourist revenues, which are
26 necessary to fund the operations of all of the State's outdoor recreational facilities.

Airmont Questions and Concerns as to 301 Project

APRIL 4, 2013

9. Relocation Policy(ies)/ Procedures During Construction	<p>– DelDOT needs to explain to Airmont their relocation policy(ies)/procedures during construction time period.</p> <p><i>DelDOT's Contract Documents require their contractors to investigate and strictly comply with, all Federal, State, or county laws and regulations, and city or town ordinances and regulations. This includes the New Castle County noise ordinance.</i></p>
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Airmont Questions and Concerns as to 301 Project

APRIL 4, 2013

10. Relocation of NB Rt. 13 Ramp To Rt. 1 Bridge 10-A: US 13/Port Penn Rd/Toll Free Ramp Intersection Plan	<ul style="list-style-type: none">- Confirm that this relocated entry point will be toll free. <p><i>Yes, the relocated ramp from US 13 to northbound SR 1 will be toll free (see attached plan). The proposed relocation is addressed in the November 2011 Design Refinements Report and was presented at the September 2011 Public Workshop.</i></p> <p><u>Background:</u></p> <ul style="list-style-type: none">- Proposed Relocation of NB Rt. 13 ramp to Rt. 1 bridge to Port Penn Road.
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Question 10

Supporting Documentation

10-A



Airmont Questions and Concerns as to 301 Project

APRIL 4, 2013

<p>11. Refinement to location of 301:</p> <p>Choosing Bogg Turtle Over Health and Safety of Airmont's Residents (NEPA Issue)</p> <p>11-A: ROD, p. 99-100</p> <p>11-B: FEIS, p. II-21 and II-22</p> <p>11-C: US 301 Green _ Spur Alternative_Jan 07 Public Hearing</p> <p>11-D: US 301 Environmental Impact Matrix_11-01-06</p>	<ul style="list-style-type: none"> - DelDOT chose the <i>sacred</i> Bogg Turtles over the <i>safety</i> and <i>health</i> of Airmont's residents. - DelDOT failed to adequately incorporate the required information for the legislators and Federal Gov't to make an objective and sound decision. (see other NEPA issues referenced herein) - The location of 301 is entirely too close to Airmont's impacted residents. - Due to lack of information provided by DelDOT in their reports, the <u>legislators</u> chose a path that provides a safe habitat for the Bogg Turtles, but at the expense of the health and safety of Airmont's residents (as well as the children at the impacted schools). - If the planning was performed correctly, both of these goals could have been easily satisfied. - 301 needs to be pushed out further away from the neighborhood to ensure the health and safety of Airmont's residents (as well as the children at the impacted schools). <p><i>Roadway alignments that would shift the US 301 alignment south, further from the Airmont community, similar to the Green South Alternative, were evaluated during the NEPA process. The rationale for not selecting the Green South alternative is noted on page 99 to 100 of the ROD and on pages II-21 and II-22 of the FEIS. The comparison of the impacts are noted in Section III of the DEIS and the FEIS and page 78 of the ROD. This material was also included on Display Board 6 of the January 2007 public hearing (the display boards were 11 x 17 handouts at the public hearing) and the public hearing handout titled, "Environmental Resources – Alternatives Impact Matrix – November 2006".</i></p> <p><i>As noted in the <u>FEIS</u> and ROD, the Green + Spur Road Alternative South Option and alignments in this area were not selected because although the impacts to resources are similar to those of the selected North Option, the South Option required two crossings of Scott Run, while the North Option required 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. 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 DEIS and FEIS. A summary of impacts and the rationale for not selecting it are located in the Final EIS, Section II.B.5.b and the ROD.</i></p> <p><i>The landscaped visual earth berm extending the full length of the community was added to the project to mitigate the visual effects of the project on the Airmont community.</i></p>
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Question 11

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11-A

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.

Question 11
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tying into SR 1 north of the Biddles Corner Toll Plaza. Near Armstrong Corner Road, a two-lane, limited access Spur Road would continue north on new location along the ridge route and interchange with SR 15/SR 896 south of Summit Bridge and the C&D Canal.

The Green Alternative South Option measures a total length of 17.3 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 with North and South Options is shown in *Appendix A*. The Green Alternative, South Option was shown in detail in the *DEIS in Appendix B*.

a. Detailed Description of the Green Alternative South Option

State Line to Armstrong Corner Road Area

The alignment of the Green Alternative South Option would be identical to the Preferred Green Alternative North Option and Purple Alternatives for this portion of the roadway.

Mainline - Armstrong Corner Road Area to SR 1

East of the Norfolk Southern Railroad overpass, the Green Alternative South Option alignment would continue in a northeasterly direction to pass over SR 896 (Boyd's Corner Road). North of Boyd's Corner Road, the South Option would continue on new location in a northeasterly direction toward SR 1, passing over Jamison Corner Road. The alignment would then cross over Scott Run and under a reconstructed Hyetts Corner Road, continuing on the same alignment as the North Option from east of Hyetts Corner Road.

Armstrong Corner Road Area to Summit Bridge - Spur Road

The alignment of the Green Alternative Spur Road would be identical to the Preferred and Purple Alternatives Spur Road for this portion of the roadway.

b. Why the Green Alternative South Option is not Preferred

For the Green South Alternative, effects on the natural environment (wetlands, streams and habitat areas) would be generally comparable to those for the Purple, Brown and Green North Alternatives. When comparing the natural impacts of the two Green Alternatives, the Green South option had slightly greater impacts to wetlands (N = 26.2; S = 28.3 acres), waters of the US (N = 15,515; S = 16,326 linear feet) and forests (N = 34.1; S = 36.8 acres). For both the Green North and Green South Alternatives, community impacts were fewer than for the other alternatives retained for detailed evaluation and had the greatest potential for mitigation. The

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Green South Alternative ranked equally with the Green North Alternative in meeting the purpose and need for the project, based on the analysis of future traffic.

The Green Alternative South Option is *not preferred* because, although the impacts to resources are similar to those of the preferred 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 Alternative would impact the family-owned and operated Emerson Farm and the potential future high school parcel 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 Option 4B Modified), it is likely that this would have increased the length of the second crossing of Scott Run, further increasing the amount of the impact to this sensitive watershed. Because of the additional Scott Run crossing and the greater impacts to wetlands and waters of the US of the South Option when compared to the North Option, DNREC preferred the Green North Option.

6. Preliminary Comparison of Engineering Features

Each of the Alternatives Retained for Detailed Evaluation was compared on the basis of its engineering features and on its ability to meet the project's Purpose and Need. A comparison of the engineering and design features and estimated costs, as reported in the DEIS, is summarized in *Table II-1*.

Table II-1: Comparison of Engineering Features and Costs

Features	Yellow Alternative	Purple Alternative	Brown Alternative North Option	Brown Alternative South Option	Green Alternative North Option	Green Alternative South Option
Alignment Description	On alignment US 301 plus E/W SR 896	Ridge route plus on alignment E/W SR 896 (with spur)	Ridge route plus new northern E/W alignment	Ridge route plus new northern E/W alignment	Ridge route plus new E/W alignment (with spur)	Ridge route plus new E/W alignment (with spur)
Alignment Length, miles	19.4	16.9	17.5	15.9	17.5	17.3
Total Area of LOD, acres	870	902	896	894	897	876
Number of Properties Impacted	301	164	114	121	142	139
# of Interchanges	4	5	5	5	6	6
Interchange Locations	<ul style="list-style-type: none"> • Levels Road • 301 north of Middletown • SR1 at Boyds Corner Rd • SR 15/SR 896 	<ul style="list-style-type: none"> • Levels Road • Armstrong Corner Rd • SR1 at Boyds Corner Rd • Bethel Church Rd • SR 15/SR 896 	<ul style="list-style-type: none"> • Levels Road • SR896/Summit Bridge • SR896/Summit Airpark • Jamisons Corner Rd • SR1 north of Toll Plaza 	<ul style="list-style-type: none"> • Levels Road • SR896/Summit Bridge • SR896/Summit Airpark • Jamisons Corner Rd • SR1 north of Toll Plaza 	<ul style="list-style-type: none"> • Levels Road • Armstrong Corner Rd • Jamisons Corner Rd • SR1 north of Toll Plaza • Bethel Church Rd • SR 15/SR 896 	<ul style="list-style-type: none"> • Levels Road • Armstrong Corner Rd • Jamisons Corner Rd • SR1 north of Toll Plaza • Bethel Church Rd • SR 15/SR 896

Question 11

Supporting Documentation

11-C

GREEN + SPUR ALTERNATIVE



4 LANES - LIMITED ACCESS - ON NEW LOCATION

The Green + Spur Alternative would provide a four-lane, limited access tolled highway constructed on new location, extending north from the Delaware/Maryland state line to north of Armstrong Corner Road, north of Middletown, then continue generally northeast to tie into SR 1 north of the Biddles Corner Toll Plaza. A two-lane, limited access spur roadway would extend from south of Armstrong Corner Road to just south of the Summit Bridge. The North Option extends north-northeast passing over Boyds Corner Road, about 550 feet east of the intersection of Boyds Corner Road and Ratledge Road and continues north-northeast before curving east, south of the Airmont community and tying into SR 1. The South Option extends in a northeast direction passing approximately 600 feet west of Cedar Lane School then passes over Boyds Corner Road and between the proposed Village of Bayberry and Scott Run Business Park at Whitehall before tying into SR 1. Interchanges would be provided at Levels road, existing US 301 / Armstrong Corner Road and Jamison Corner Road. The Spur Road would provide interchanges at SR 896 / SR 15, south of Summit Bridge and an interchange or intersection at the Spur Road / Bethel Church Road Extended, serving traffic to and from the north.

Note: The Green North Alternative has been shifted to the west, east of Ratledge Road to reduce impacts on a large wetland area. A visual earth berm is proposed between new US 301 and the residences along Ratledge Road and the Crystal Run Farm community

Engineering / Traffic / Safety / Community Comments:

Advantages

- Low impact on existing and proposed communities (within 600 feet)
- Greater potential to minimize effects on adjacent communities since alternative passes under many local roads
- Lowest impacts on traffic during construction
- Improves safety by separating local from through traffic, including truck traffic
- Mid-range number of properties directly impacted
- Significant reduction in traffic on existing US 301, Boyds Corner Road, Cedar Lane Road, Choptank Road and SR 299
- Highest volume of traffic using new US 301
- Lower cost alternative
- Mid-range residential noise impacts
- Green South reduces indirect effects on the Airmont community (Scott Run Business Park would provide a buffer) and St. George's Vo-Tech High School

Disadvantages

- Skewed (angled) crossing of Scott Run (environmental impacts) – South Option
- Proximity to Cedar Lane Schools – South Option
- Potential indirect effect on the Airmont community and St. George's Vo-Tech High School – North Option

Note: Visual earth berms would be provided between new US 301 and Airmont community

Environmental / Cultural Comments:

Advantages

- Mid-range wetland impacts
- Mid-range high quality wetlands impacts
- Mid-range waters of the US impacts
- Low forestland impacts
- Mid-range impacts to Species Habitat Areas (wildlife & plants)
- Low floodplain impacts

Disadvantages

- High Agricultural District impacts
- South Option impacts one of the last three operating dairy farms (Emerson Farm) in New Castle County. Difficulty in implementing Nutrient Management Plan with reduced acreage

Note: Visual earth berms would be provided between new US 301 and Southridge, Middletown Village, Springmill, Chesapeake Meadow, Ratledge Road and Airmont communities

Public Comments from Prior Workshops:

Advantages

- More direct route, keeps traffic out of Middletown, doesn't cut the town in half, lessens congestion
- Will save fuel and time
- Gets traffic out of business district
- This alternative has a lot of public support
- Moderate construction cost
- Less impact on existing and proposed residences and businesses and on the environment
- Good solution to traffic problems, less disruption during construction, handles trucks better
- Fewer overall negative impacts
- Changes can be made to proposed developments to accommodate the new road
- Meets goals and objectives of the project

Disadvantages

- Impacts to Airmont community
- Impacts on Vo-Tech and new Appoquinimink High School
- Farmland impacts
- Negative impacts on individuals' properties and specific communities
- Negative impact on open land

INTERCHANGE OPTIONS - SOUTH OF SUMMIT BRIDGE SPUR ROAD

Spur Road and Interchange Options apply to Green + Spur and Purple + Spur Alternatives

OPTION 1

Provides a "full diamond" interchange with free traffic flow from Summit Bridge to the Spur

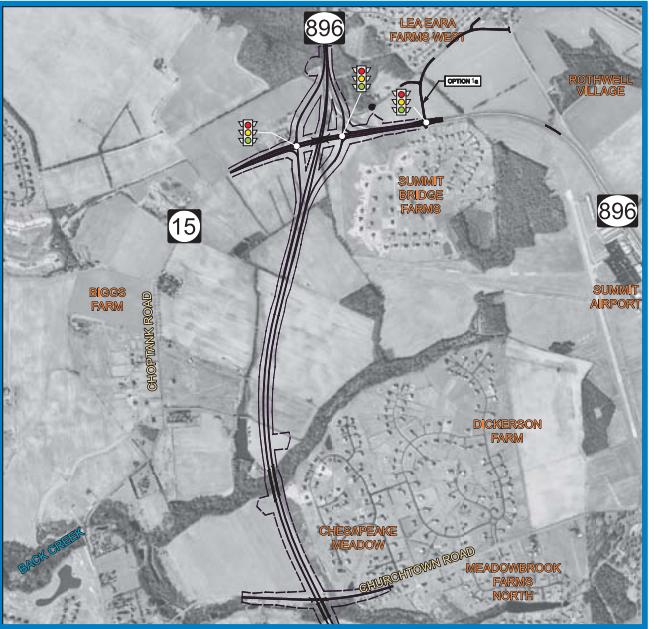
Advantages

- Eliminates the existing SR 896 sharp curve and traffic signal
- Diamond interchange ramp would act as buffer between Spur Road and Summit Bridge Farms
- Provides full vehicular access in all directions for local communities

Disadvantages

- Requires heaviest local traffic movements (SB & NB SR 896) to use signalized intersections
- Interchange is adjacent to Summit Bridge Farms community

NOTE: Natural environmental impacts are generally similar for Options 1,2,2A,3,3B & 4, except that Option 4 has less Waters of the US impacts, because of at-grade intersections (Option 4) versus local roads being grade separated over Spur Road (Options 1,2,3&3B)



OPTION 2 & 2A

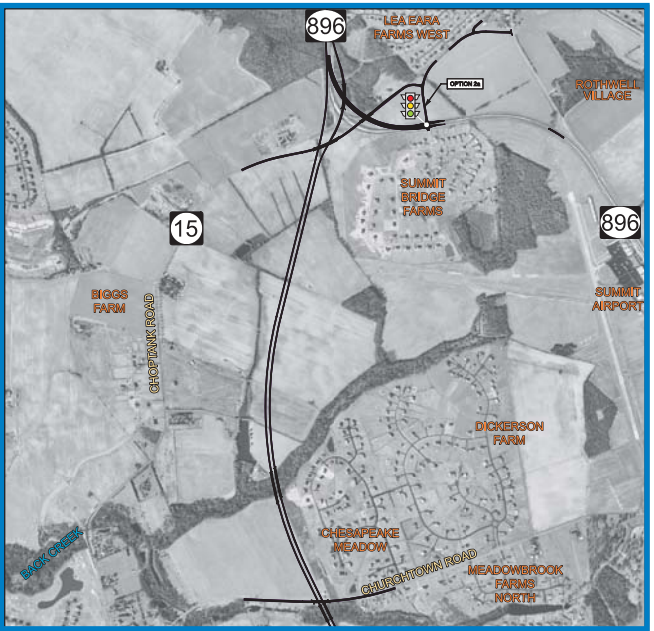
- Provides a directional "Y" interchange between SR 896 and Spur.
- Grade separates SR 15 over the Spur Road and SR 896. Improves the sharp curve on SR 896 to current design standards and eliminates the traffic signal on the curve.
- **Option 2A** would relocate the existing traffic signal at Old Summit Bridge Road to the entrance at Summit Bridge Farms and relocated Bethel Church Road.

Advantages

- Improves the existing SR 896 sharp curve and removes the traffic signal on the curve
- Maintains free flow of heaviest local traffic movements (NB + SB SR 896) at the interchange
- Directional "Y" interchange is farther away from Summit Bridge Farms than Option 1
- **Option 2A** provides signalized access to / from Summit Bridge Farms
- **Option 2A** provides a less circuitous route for traffic using Choptank Road
- **Option 2A** provides less impacts to Lea Eara Farms

Disadvantages

- Creates circuitous access for SR 15 traffic west of SR 896 (Choptank Road) seeking access to SR 896 (via Bethel Church Road (adjacent to Lea Eara Farms) and Old Summit Bridge Road)
- Results in 6,200 and 6,900 vehicles per day on Bethel Church Road and Old Summit Bridge Road (east of existing US 301/SR 896)
- Requires modification of existing SR 896 / Old Summit Bridge Road intersection
- Increased construction costs (number of structures)
- The northbound Spur Road is elevated, adjacent to Summit Bridge Farms and Lea Eara Farms communities
- **Option 2A** moves traffic signal closer to curve on SR 896
- **Option 2A** increases delay at signal by adding a 4th leg (Summit Bridge Farms)
- **Option 2A** creates two closely spaced intersections (not desirable) - relocated Old Summit Bridge Road / SR 896 and Relocated Old Summit Bridge Road / Bethel Church Road, impacting Summit Bridge Farms and Lea Eara Farms communities




NOTE: Options 1, 2 & 2A, 3 & 3B & 4 south of Summit Bridge also apply to Purple + Spur Alternative

Question 11

Supporting Documentation

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	YELLOW	PURPLE with SPUR	BROWN		GREEN with SPUR		ENVIRONMENTAL RESOURCES ALTERNATIVES IMPACT MATRIX NOVEMBER 2006
	Boyd's Corner Road Option 4 Spur Option 2	Boyd's Corner Road Option 4 Armstrong Corner Road Option 2A Spur Option 3B	NORTH	SOUTH	NORTH	SOUTH	
Total Length of Alternative (miles)	19.4	16.9	17.5	15.9	17.5	17.3	Total Length of Alternative (miles)
Total Area of Limit of Construction (acres)	870.5	901.9	895.9	894.3	897.4	876.3	Total Area of Limit of Construction (acres)
Potential Wetland/Waters of the US Impacts							Potential Wetland/Waters of the US Impacts
Total Area of Potential ACOE Wetlands ¹ (acres)	50.5	24.9	23.9	18.5	26.2	28.3	Total Area of Potential ACOE Wetlands ¹ (acres)
High Quality	8.6	7.6	11.5	9.9	9.0	9.6	High Quality
Palustrian Forested	1.4	3.7	5.6	5.4	4.5	4.0	Palustrian Forested
Palustrian Emergent	3.0	2.9	4.4	2.7	2.9	2.9	Palustrian Emergent
Palustrian Shrub-Scrub	0	0	0	0	0	0	Palustrian Shrub-Scrub
Palustrian Mixed	4.2	1.0	1.6	1.8	1.5	2.7	Palustrian Mixed
Medium Quality	30.6	13.2	4.2	7.3	13.2	13.6	Medium Quality
Palustrian Forested	18	3.9	1.9	5.0	4.1	3.8	Palustrian Forested
Palustrian Emergent	1.5	7.6	0.8	0.8	7.6	7.6	Palustrian Emergent
Palustrian Shrub-Scrub	0	0	0	0	0	0	Palustrian Shrub-Scrub
Palustrian Mixed	10.7	1.7	1.5	1.5	1.5	2.2	Palustrian Mixed
Low Quality	11.2	4.2	8.2	1.3	4.0	5.1	Low Quality
Palustrian Forested	0.5	1.3	0.9	0.7	1.3	1.3	Palustrian Forested
Palustrian Emergent	5.6	2.8	7.3	0.6	2.7	3.8	Palustrian Emergent
Palustrian Shrub-Scrub	0	0	0	0	0	0	Palustrian Shrub-Scrub
Palustrian Mixed	5.2	0	0	0	0	0	Palustrian Mixed
Other Wetlands							Other Wetlands
Type and/or quality undetermined to date	0	0	0	0	0	0	Type and/or quality undetermined to date
Number of Wetlands Impacted	33	45	39	35	43	40	Number of Wetlands Impacted
Number of Wetland Crossings	4	9	10	8	8	8	Number of Wetland Crossings
Number of Wetlands with Complete Fragmentation	7	6	3	4	6	7	Number of Wetlands with Complete Fragmentation
Waters of the US (non-wetland) ²	20,708	16,257	15,158	14,278	15,515	16,326	Waters of the US (non-wetland) ²
Streams (linear feet)	215	260	921	1,895	327	521	Streams (linear feet)
Ditches (linear feet)	20,492	15,997	14,237	12,383	15,188	15,805	Ditches (linear feet)
Open Waters (ponds, SWM) (acres)	3.4	3.2	3.2	5.8	3.2	3.2	Open Waters (ponds, SWM) (acres)
DNREC Sub-Aqueous Lands (linear feet)	7,167	6,461	7,885	8,232	8,162	8,481	DNREC Sub-Aqueous Lands (linear feet)
Area of DNREC State of Delaware Tidal Wetlands ¹ (acres)	0.4	0.4	0.4	0.4	0.4	0.4	Area of DNREC State of Delaware Tidal Wetlands ¹ (acres)
Recharge Areas (acres)	614	563	494	486	486	501	Recharge Areas (acres)
Tax Ditches (linear feet)	81	1,511	0	192	1,511	1,511	Tax Ditches (linear feet)
Tax Ditch Watershed area (acres)	12	67	28	56	67	67	Tax Ditch Watershed area (acres)
Area of Hydric Soils (acres)	158	147	119	115	146	145	Area of Hydric Soils (acres)
Potential Floodplain Impacts - FEMA							Potential Floodplain Impacts - FEMA
Area of 100-Year Floodplain (acres)	1.5	1.5	1.0	1.0	1.0	1.0	Area of 100-Year Floodplain (acres)
Potential Agricultural Impacts							Potential Agricultural Impacts
Agricultural Districts - Ten-Year (number)	1	1	1	1	1	1	Agricultural Districts - Ten-Year (number)
Area (acres)	14.1	32.6	32.6	32.6	32.6	32.6	Area (acres)
Number of Agricultural Districts within 3 miles of Alternative	9	7	6	6	6	6	Number of Agricultural Districts within 3 miles of Alternative
Agricultural Preservation Easements - Permanent (number)	0	1	1	1	1	1	Agricultural Preservation Easements - Permanent (number)
Area (acres)	0	6.0	9.4	12.4	6.0	6.0	Area (acres)
Number of Agricultural Easements within 3 miles of Alternative	3	3	2	2	2	2	Number of Agricultural Easements within 3 miles of Alternative
Agricultural Suitability (Land Evaluation Site Assessment Model) ³							Agricultural Suitability (Land Evaluation Site Assessment Model) ³
Total LESA Model (score)	192	203	198	202	210	204	Total LESA Model (score)
LESA Model without existing and planned development (score)	212	218	202	209	218	213	LESA Model without existing and planned development (score)
Prime Farmland Soil Area (acres)	203	415	412	424	437	398	Prime Farmland Soil Area (acres)
Ratio of prime farmland to total prime farmland in New Castle County (percent) (74,454 acres total)	0.27	0.56	0.55	0.57	0.59	0.53	Ratio of prime farmland to total prime farmland in New Castle County (percent)
Potential Hazardous Waste Impacts							Potential Hazardous Waste Impacts
Number of EPA Sites	0	0	0	0	0	0	Number of EPA Sites
Number of Sites identified as potential sources of contamination	9	9	8	8	6	6	Number of Sites identified as potential sources of contamination
Number of NPDES Locations	0	0	0	0	0	0	Number of NPDES Locations
Potential Natural Resource Impacts							Potential Natural Resource Impacts
Natural Areas Inventory (acres)	0.3	0.3	0	0	0	0	Natural Areas Inventory (acres)
State Resource Areas ⁴	0.8	2.3	2	1	2	2	State Resource Areas ⁴
Protected (acres)	0.8	2.3	1.9	1.2	2.0	2.0	Protected (acres)
Green Infrastructure (acres)	0	0	0	0	0	0	Green Infrastructure (acres)
Forestland: 2002 Land Use	36.9	39.9	37.4	51.0	34.1	36.8	Forestland: 2002 Land Use
Deciduous (acres)	21.4	39.2	35.8	46.6	33.4	36.1	Deciduous (acres)
Evergreen (acres)	9.2	0	1.0	3.7	0	0	Evergreen (acres)
Mixed (acres)	6.3	0.7	0.7	0.7	0.7	0.7	Mixed (acres)
State Forest Lands							State Forest Lands
State-Owned State Forest Properties (acres)	0	0	0	0	0	0	State-Owned State Forest Properties (acres)
Conservation Easement Properties (acres)	0	0	0	0	0	0	Conservation Easement Properties (acres)
Habitat Areas (Wildlife & Plant) (acres) ⁵	42.3	54.9	67.5	57.6	54.6	49.4	Habitat Areas (Rare and Common Species) (acres) ⁵
Potential Section 4(f) Properties							Potential Section 4(f) Properties
Number of Publicly-Owned Parks and Recreation Areas ⁶	0	0	0	0	0	0	Number of Publicly-Owned Parks and Recreation Areas ⁶
Acres of Publicly-Owned Parks and Recreation Areas	0	0	0	0	0	0	Acres of Publicly-Owned Parks and Recreation Areas
Federally Owned	0	0	0	0	0	0	Federally Owned
State Owned	0	0	0	0	0	0	State Owned
County Owned	0	0	0	0	0	0	County Owned
Municipal Owned	0	0	0	0	0	0	Municipal Owned
Number of Publicly-Owned Wildlife and Waterfowl Refuges	0	0	0	0	0	0	Number of Publicly-Owned Wildlife and Waterfowl Refuges
Number of Historic Properties ⁷	4	0	0	0	0	0	Number of Historic Properties ⁷
Date of Alternative Design Update	09/20/06	09/20/06	09/20/06	09/20/06	09/20/06	09/20/06	Date of Alternative Design Update
Date of Impacts Update	09/26/06	09/26/06	09/26/06	09/26/06	09/26/06	09/26/06	Date of Impacts Update

Work in Progress. Impacts DO NOT include portions of the alternatives in Maryland, except wetlands.

Note 1: Total Potential ACOE Wetlands equals total of high, medium, low and other quality wetlands.

ACOE and DNREC Tidal Wetlands should not be added together.

Wetlands are based on field delineations, updated on February 10, 2006.

Field delineations were done using Global Positioning System (GPS) and verified by ACOE. Field delineations extend length of alternative, including Maryland.

Some impacts may include a small percentage of 2002 Land Use data (instead of field delineations) where the alternative has been revised to extend beyond the fieldwork area.

The number of wetlands impacted is the number of unique wetland features within the limit of disturbance (LOD) for the alternative.

The number of crossings is the number of unique wetland features spanned by structures included in the alternative.

Delaware's Tidal Wetlands were identified using DNREC's delineation maps.

Note 2: Includes GPS'd, field delineated streams, ditches, ponds and SWMs. Does not include stream segments within wetlands. Some ditches are also included in the Tax Ditch impacts.

Note 3: The Land Evaluation Site Assessment (LESA) Model is a State and Federally approved land analysis system, this 300 point-based rating system identifies farm parcels that are most suitable for long-term agricultural practices.

The Land Evaluation (LE) factor is determined by using a land use dependent soil productivity index, the Site Assessment (SA) factor is derived from non-soil factors many of which are non-agricultural.

A higher LESA score indicates high agricultural suitability for a particular parcel.

The LESA score for each parcel impacted by each alternative was calculated, that LESA score was multiplied by amount of land within the parcel impacted by each alternative to obtain the acre-weighted total score for the specific segment of land impacted.

The same math was applied to each parcel affected; the acre-weighted total score for each segment of a parcel affected was then added and divided by the number of acres impacted by each alternative. The result was the acre-weighted score for each corresponding alternative.

Note 4: State Resource Areas include State Parks and Forests. Properties listed include protected and proposed designations.

Note 5: Anticipated impacts to Rare, Threatened and Endangered Species based on coordination to date with DNREC. Detailed evaluation and coordination with DNREC and US Fish and Wildlife Service is continuing.

The data represented in the Potential Rare, Threatened and Endangered (RTE) Species Areas row are not exhaustive.

These data represent known occurrences of RTE Species, not potential habitat for RTE Species. Many habitats that may be impacted by the US 301 project have never been surveyed for RTE's and;

that these yet to be surveyed areas may well harbor RTE's that would not be represented in the ratings given to them in the matrix.

The habitats represented encompass both upland and wetland terrestrial habitats.

Note 6: From DNREC's Outdoor Recreation Inventory and New Castle County Parks files.

Note 7: Same as total of Historic Properties. Assumes that Archeological Sites are generally exempted from Section 4(f) protection.

Airmont Questions and Concerns as to 301 Project

APRIL 4, 2013

12. Total Estimated Cost for Entire 301 Project	<p>– Provide estimated total cost for 301 project</p> <p><i>The estimated cost of the US 301 project (Mainline + Spur Road) is \$683.77 million in year of expenditure dollars (YOE \$'s). Only the new US 301 Mainline is moving toward construction at this time. The total cost of the US 301 mainline is \$576.67 million, which includes \$11.13 million for planning; \$72.16 million for design engineering; \$105.58 million for right-of-way and \$387.80 million for construction.</i></p>
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Airmont Questions and Concerns as to 301 Project

APRIL 4, 2013

<p>13. Air Quality (lung ailments/Airmont) (NEPA Issue)</p> <p>13-A: DEIS, pgs. III-51 to III-64</p> <p>13-B: FEIS, pgs. III-67 to III-80 and III-233 to III-241</p> <p>13-C: FEIS, pgs. 6 & 8 of 37</p> <p>13-D: FEIS, Air Quality Letter – EPA Comments on DEIS (Chapter IV pages 33-36)</p> <p>13-E: Public Hearing Display Board #6</p> <p>13-F: Public Hearing Display Board #8</p> <p>13-G: Public Hearing Transcript</p>	<p>– Research has found that residents within close proximity to proposed highways have 40% chance of developing lung ailments.</p> <p><i>The air quality analyses for any highway project that is Federally funded, reviewed or approved must be completed in conformance with the National Environmental Policy Act (NEPA) and the Clean Air Act and the Clean Air Act Amendments of 1990 (CAA90). The Clean Air Act, the Clean Air Act (CAA) Amendments of 1990 and the Final Transportation Conformity Rule [40 CFR Parts 51 and 93] direct the U.S. Environmental Protection Agency (EPA) to implement environmental policies and regulations that will ensure <u>acceptable levels</u> of air quality. Federal and state agencies agree that pollution, including pollution from vehicles, affects the health of individuals. The EPA states on their website, “With more than 35 million people in the United States living within 300’ of a major road, there is growing concern about the potential health impacts from the air pollutants associated with the cars, trucks and other vehicles. Studies have shown that people who live, work, or attend school near major roads have an increased incidence and severity of health problems that <u>may</u> be related to air pollution from roadway traffic. Health effects potentially linked to near roadway exposures include reduced lung function and impaired lung development in children, asthma, cardiovascular disease, low birth weight, pre-term newborns, and premature death. Additional research is needed to learn more about pollutants near roadways, how and to what extent people are exposed to them, and the type and severity of associated health effects.” Compliance with NEPA ensures that federal agencies will consider significant environmental impacts including air quality impacts of federal action, make available the relevant information, and open to public scrutiny their decision making process. CAA requires the Environmental Protection Agency (“EPA”) to establish national ambient air quality standards (“NAAQS”) for certain pollutants, know as criteria pollutants, <u>to protect public health and welfare</u>. To date, the EPA has established NAAQS for six criteria pollutants: ozone (O3), carbon monoxide (CO), sulfur dioxide (SO2), nitrogen dioxide (NO2), particulate matter (PM), and lead based on significant federally funded research. To satisfy the requirements of the CAA, an air quality analysis must be completed to demonstrate that the project will not cause a new violation of the NAAQS or lead to an increase in an existing violation. Of these criteria pollutants only two, CO and PM, are required to be analyzed at the project level by the project sponsors. The remaining criteria pollutants act over a wider area than the project study area and are analyzed by the local Metropolitan Planning Organization; in this case WILMAPCO. In addition to the criteria pollutants, the EPA also regulates air toxics. Toxic air pollutants are those pollutants known or suspected to cause cancer or other serious health effects. Most air toxics originate from human-made sources including on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners), and stationary sources (e.g., factories or refineries). The Clean Air Act (CAA) identified 188 air toxics. In 2001 EPA identified a list of 21 Mobile Source Air Toxics (MSAT), and highlighted six of these MSATs as “priority” MSAT. Although EPA regulates MSAT emissions, NAAQS have not yet been set for these because of the vast number of detailed studies still underway to determine the modes of transport and the exact affects on health of these pollutants.</i></p> <p>– DelDOT’s reports fail to advise of impacts.</p> <p><i>To address the requirements discussed above, detailed air quality analyses were performed for the project to determine and advise decision makers of potential project impacts to air quality; the results of which are included in the Air Quality Technical Report [2006], Draft Environmental Impact Statement [DEIS, 2006], the Final Environmental Impact Statement [FEIS, 2007], the Record of Decision [ROD, 2009], and the US 301 Design Refinement Study [2011]. Pages III-68 though III-69 of the FEIS provide a</i></p>
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Airmont Questions and Concerns as to 301 Project

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<p>13-H: ROD, pg. 22 and pgs. 105 to 110</p>	<p><i>detailed description of the criteria pollutants, including their effects on health. The NAAQS are set by EPA at levels that provide public health protection, including protecting the health of "sensitive" populations such as asthmatics, children, and the elderly.</i></p>
<p>13-I: ROD, Attachment F - EPA FEIS Concurrence Letter</p>	<p><i>The NAAQS also provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings. The air quality studies conducted for the US 301 Project were completed in conformance with applicable regulations and guidance to demonstrate that the CO and PM2.5 NAAQS will not be exceeded at communities adjacent to the project corridor and that the project conforms to the requirements of the CAA and CAAA90. Per EPA and FHWA guidance, a quantitative analysis of CO was done at 25 individual sites along the US 301 corridor and at two intersections. This analysis as presented on pages III-73 through III-79 of the FEIS demonstrates that in all cases the CO concentrations are significantly less than the CO NAAQS. The qualitative analysis of PM2.5 as discussed on pages 106 and 107 of the ROD demonstrates that the project conforms to the CAA regarding the PM NAAQS and will not cause a violation of NAAQS or increase an existing violation. As previously stated EPA has not yet promulgated NAAQS for Mobile Source Air Toxics [MSAT]. In order to comply with the CAA and NEPA requirements, a qualitative assessment of MSAT is provided on pages III-233 through III-241 of the FEIS. This analysis was completed in conformance with FHWA guidance as approved by EPA, and includes an analysis of the US 301 Project as a "Project of Low MSAT Potential" per the guidance. The analysis included a discussion that included: a description of MSAT, traffic data, a discussion of information that is currently unavailable including incomplete data on health effects, a summary of credible scientific evidence, and the relevance of the unavailable or incomplete information. Also provided is a discussion of project specific information including the projected reduction of MSAT over time resulting from the requirements of the CAA and other regulations. The FEIS also includes a discussion of near-road sensitive receptors on pages III-240 and III-241. The conclusion of the MSAT analysis in the FEIS is that although there may be a slight increase in MSAT emissions in the immediate area of the project, "[any potential increase in MSAT emissions associated with the build alternatives would be further reduced by the 2030 design year due to EPA's MSAT reduction program.]"</i></p>
<p>13-J: ROD, Comment M-16 on Attachment I – pg. 16 of 33</p>	
<p>13-K: ROD, Air Quality Comments on Attachment J – pgs. 4 & 5 of 18</p>	
<p>13-L: DRR, pgs xxii to xxiii and pg. 36</p>	
<p>13-M: May 21, 2012 Email from Bill Weller to Bethany Hall-Long</p>	<p><i>The MSAT Reduction Programs include a Fuel Program, a Vehicle Program, and a Portable Fuel Container Program. (EPA420-F07-017). The Fuel program required that refiners must meet an <u>annual</u> average gasoline benzene content standard of 0.62 percent by volume (vol%) on all their gasoline beginning in 2011, a <u>maximum</u> average benzene standard of 1.3 vol% beginning in 2012. For the Vehicle Program, EPA has adopted new standards to reduce non-methane hydrocarbons (NMHC). The standards phase in between 2010 and 2013 for the lighter vehicles, and between 2012 and 2015 for the heavier vehicles. The Portable Fuel Container Program established standards that will limit hydrocarbon emissions that evaporate from or permeate through portable fuel containers such as gas cans. Page III-73 of the FEIS and page 106 of the ROD both reference the Delaware State Implementation Plan (SIP). The State Implementation Plan is a state plan that identifies how that State will attain and maintain air quality that conforms to each primary and secondary National Ambient Air Quality Standard ("NAAQS"). The SIP consists of narrative, rules, technical documentation, and agreements that an individual state will use to clean up polluted areas. The SIP also includes pollution budgets. A Conformity Determination was prepared for New Castle County which considered all stationary sources, off-road sources and existing and proposed highways, including the US 301 project. The Conformity Determination included projections of current and future year traffic for use in the analysis. As stated on page 106 of the ROD, "DNREC provided their concurrence on April 10, 2008 that the 2030 WILMAPCO RTP and 2009-2012 TIP, <u>amended to include the US 301 project, are in conformity with</u></i></p>
<p>13-N: Jan 16, 2013 Email from Bill Weller to Mark Tudor</p>	

Airmont Questions and Concerns as to 301 Project

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<p>13-O: FHWA MSAT Guidance</p> <p>13-P: US 301 Draft Air Quality Conformance Paper, including ICC court decision</p>	<p><i>Delaware's SIP."</i></p> <ul style="list-style-type: none"> – DelDOT's reports fail to even acknowledge this risk. <p><i>See response on previous page and the following which discuss the risk and limitations of current air quality analysis procedures: Page III-337 of the FEIS states: "shortcomings in current techniques for exposure assessment and risk analysis preclude us from reaching meaningful conclusions about project-specific health impacts. Exposure assessments are difficult because it is difficult to accurately calculate annual concentrations of MSATs near roadways, and to determine the portion of a year that people are actually exposed to those concentrations at a specific location. These difficulties are magnified for 70-year cancer assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over a 70-year period. There are also considerable uncertainties associated with the existing estimates of toxicity of the various MSATs, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population. Because of these shortcomings, any calculated difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with calculating the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against other project impacts that are better suited for quantitative analysis". In addition, page III-238 of the FEIS states "Because of the uncertainties outlined above, a quantitative assessment of the effects of air toxic emissions impacts on human health cannot be made at the project level. While available tools do allow us to reasonably predict relative emissions changes between alternatives for larger projects, the amount of MSAT emissions from each of the project alternatives and MSAT concentrations or exposures created by each of the project alternatives cannot be predicted with enough accuracy to be useful in estimating health impacts. ... Therefore, the relevance of the unavailable or incomplete information is that it is not possible to make a determination of whether any of the alternatives would have "significant adverse impacts on the human environment."</i></p> <ul style="list-style-type: none"> – DelDOT has a duty to adequately explain any and all risks to the residents of Delaware, especially those that are directly impacted. Only with this disclosure, will it allow the residents and legislators to make an informed decision as to certain aspects of the 301 project, and the project in general. – For example, for almost the entire 301 proposed route, as to air quality, DelDOT reports no impacts. <p><i>Known risks have been discussed and a discussion of unknown or incomplete information has been presented in the referenced documents in conformance with current guidance and regulations, such as 40CFR150.22(b). The project conforms to the Clean Air Act in that it will not create a new violation for the criteria pollutants or cause an increase in an existing violation. The project documents also meet all requirements for analysis of MSAT. All analyses and reports were presented to the public, agencies and decision-makers over numerous updates and all comments were addressed in accordance with NEPA.</i></p>
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- DelDOT's will need to update reports to adequately explain all known risks, and related mitigation efforts to impacted residents and legislators.
- DelDOT will need to prepare and file a supplemental EIS.

The Clean Air Act and other regulations have given the EPA and other Federal agencies, such as FHWA, the responsibility to determine the rules and methods used in the air quality analysis. All air quality studies for the US 301 project have been completed in conformance with The Clean Air Act, NEPA, and all required regulations and guidance. The project conforms to the Clean Air Act in that it will not create a new violation for the criteria pollutants or cause an increase in an existing violation. The project documents also meet all requirements for analysis of MSAT. All analyses and reports were presented to the public, agencies and decision-makers over numerous updates (DEIS, FEIS, ROD, Design Refinement Study), and all comments were addressed in accordance with NEPA.

NEPA requires, to the fullest extent possible, that the policies, regulations, and laws of the Federal Government be interpreted and administered in accordance with its environmental protection goals. NEPA also requires Federal agencies to use an interdisciplinary approach in planning and decision making for any action that adversely impacts the environment. 23 CFR 771 prescribes the policies and procedures of the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) for implementing the National Environmental Policy Act of 1969 as amended (NEPA), and supplements the NEPA regulation of the Council on Environmental Quality (CEQ),

NEPA requires and FHWA is committed to the examination and avoidance of potential impacts to the social and natural environment when considering approval of proposed transportation projects. In addition to evaluating the potential environmental effects, FHWA also takes into account the transportation needs of the public in reaching a decision that is in the best overall public interest. The FHWA NEPA project development process is an approach to balanced transportation decision making that takes into account the potential impacts on the human and natural environment and the public's need for safe and efficient transportation.

Refer to 23 CFR 771.129 and 23 CFR 771.130 for FHWA requirements guidance on Re-evaluations and Supplemental EISs, respectively. Excerpts that apply to US 301 are summarized below:

§ 771.129 Reevaluations

In accordance with FHWA policy, a written evaluation of the final EIS will be required before further approvals may be granted if major steps to advance the action (e.g., authority to undertake final design, authority to acquire a significant portion of the right-of-way, or approval of the plans, specifications and estimates) have not occurred within three years after the approval of the final EIS, final EIS supplement, or the last major Administration approval or grant. This is not the case for the Delaware US 301 project as progress has occurred since NEPA approval.

§ 771.130 Supplemental environmental impact statements.

A draft EIS, final EIS, or supplemental EIS may be supplemented at any time. An EIS shall be supplemented whenever the

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	<p><i>Administration determines that:</i></p> <ul style="list-style-type: none">• <i>Changes to the proposed action would result in significant environmental impacts that were not evaluated in the EIS; or</i>• <i>New information or circumstances relevant to environmental concerns and bearing on the proposed action or</i>• <i>Its impacts would result in significant environmental impacts not evaluated in the EIS.</i> <p><i>Based on review of the comments raised by the Airmont community and DelDOT responses, FHWA DelMar is of an opinion a Supplemental EIS is not warranted as the proposed changes would not result in significant impacts not evaluated in the EIS; and, the new information and circumstances relevant to environmental concerns and bearing on the proposed action, would not result in significant environmental impacts. Furthermore, DelMar finds the 2008 FEIS addressed 23 CFR 771 requirements at the time and the 2008 ROD remains valid.</i></p> <p><i>The Airmont Community Association (Ms. Wanda James and Mr. Chuck Ott) was provided a copy of the FEIS in November 2007 (see Sections VI, pages VI-5 and VI-6, respectively).</i></p>
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Question 13

Supporting Documentation

13-A

Table III-24: Archeological Potential of the Alternatives within the Limit of Disturbance

Archeological Potential	Yellow acres %¹	Purple acres %¹	Brown North acres %¹	Brown South acres %¹	Green North acres %¹	Green South acres %¹
Prehistoric-Era Archeological Predictive Model						
Area in High Sensitivity Zone	16 1.8%	24 2.7%	26 2.9%	28 3.0%	26 2.8%	28 3.1%
Area in Moderate Sensitivity Zone	106 12.1%	212 23.1%	287 31.5%	272 29.9%	238 26.1%	292 32.8%
Area in Low Sensitivity Zone	528 60.3%	552 60.3%	496 54.4%	483 53.1%	558 61.3%	482 54.1%
Area in Nil Sensitivity Zone	225 25.7%	128 14.0%	101 11.1%	127 14.0%	89 9.7%	88 9.9%
Historic-Era Archeological Predictive Model²						
Area in High Sensitivity Zone	91 10.4%	35 3.8%	30 3.3%	31 3.4%	34 3.7%	32 3.6%
Area in Moderate Sensitivity Zone	272 31.0%	187 20.4%	186 20.4%	182 20.0%	177 19.4%	177 19.8%
Area in Low Sensitivity Zone	513 58.6%	694 75.7%	694 76.3%	696 76.5%	700 76.8%	682 76.6%

¹ Indicates percent of total acres within the limit of disturbance.

² The historic-era model does not have a nil sensitivity zone.

DelDOT is continuing to consult with FHWA, the SHPO and New Castle County regarding the appropriate steps to further identify archeological resources and the potential effects of the project on those resources. As will be discussed in the MOA, DelDOT will conduct appropriate Phase I and/or Phase II testing to identify archeological resources along the Selected Alternative. If resources are discovered which are eligible for the National Register, DelDOT and FHWA will consult with the SHPO to determine if the sites will be adversely affected, and if so, will look for ways to avoid impacts or minimize impacts. If appropriate, DelDOT will investigate using Phase III data recovery prior to impacting significant resources.

An MOA, identifying mitigation of any effects on architectural and archeological resources, would be included in the FEIS and the Record of Decision for the project. DelDOT will also continue to consult with the Maryland SHPO (Maryland Historical Trust) on potential effects to cultural resources within the Maryland portion of the project area. The Maryland SHPO will also be consulted on potential secondary and cumulative effects that may result from traffic and truck diversions (see **Chapter III, Section G**).

C. Air Quality

The purpose of this air quality section is to describe the regulatory framework for air quality considerations, the pollutants of concern, ambient air quality standards, existing conditions in the project area, predicted changes in air quality that may result from implementation of the project, and possible mitigation efforts where adverse effects are projected.

Transportation projects involving highway systems improvements are typically subject to two types of air quality analyses. These are referred to as transportation conformity analysis (mesoscale analysis) and project level emissions analysis (microscale analysis).

Transportation conformity refers to the extent to which highway and transit expansion projects add to or subtract from regional emission levels. These analyses typically are performed at the system level, which means the particular improvement or sets of improvements are included in a regional travel demand model from which the total emissions for a county are estimated. The product of these analyses is an estimate referring to the total emissions generated from highway and transit systems, and a determination of whether those estimates, at the regional level, follow mandated Federal reductions in regional emissions as reported in State Implementation Plans (SIPs).

Project level emissions analyses refer to the extent to which highway and transit expansion projects add or subtract to project area emission levels. These studies are typically performed within the area directly adjacent to a proposed improvement, and are often within several hundred feet of those projects. These studies do not consider regional air quality levels, but are concerned with what affect proposed projects may have on air quality levels adjacent to or in the immediate vicinity of a particular area.

1. Relevant Pollutants

“Air Pollution” is a general term that refers to one or more chemical substances that degrade the quality of the atmosphere. Individual air pollutants degrade the atmosphere by reducing visibility, damaging property, reducing the productivity or vigor of crops or natural vegetation, or by adversely affecting human or animal health.

Eight air pollutants have been identified by the U.S. Environmental Protection Agency (EPA) as being of concern nationwide: carbon monoxide (CO), sulfur oxides (SO_x), hydrocarbons (HC), nitrogen oxides (NO_x), ozone (O₃), lead (Pb), particulate matter with a size of 10 microns or less (PM₁₀), and particulate matter with a size of 2.5 microns or less (PM_{2.5}). These pollutants, with the exception of HC, are collectively referred to as “criteria” pollutants.

The sources of these pollutants, their effects on human health and the nation's welfare, and their final deposition in the atmosphere vary considerably. In the project corridor, ambient concentrations of CO, O₃ and Pb are primarily influenced by motor vehicle activity. Emissions of sulfur oxides are associated mainly with various stationary sources such as power plants and refineries. Emissions of nitrogen oxides and particulate matter come from both mobile and stationary sources.

Carbon monoxide is a colorless and odorless gas, which in the urban environment is associated primarily with the incomplete combustion of fossil fuels in motor vehicles. CO combines with hemoglobin in the bloodstream and reduces the amount of oxygen that can be circulated through the body. High CO concentrations can lead to headaches, aggravation of cardiovascular disease and impairment of central nervous system functions. CO concentrations can vary greatly over comparatively short distances. Relatively high concentrations are typically found near crowded

intersections and along heavily used roadways carrying slow-moving traffic. Even under the most severe meteorological and traffic conditions, high concentrations of carbon monoxide are limited to locations within a relatively short distance, 300 to 600 feet, of heavily traveled roadways. Consequently, it is appropriate to evaluate concentrations of CO on a regional and on a localized or microscale basis. In general, CO emissions have been decreasing as a result of the State and Federal Motor Vehicle Control Program, which has mandated increasingly lower emission levels for vehicles manufactured since 1973.

Sulfur oxides (SO_x) constitute a class of compounds of which sulfur dioxide (SO_2) and sulfur trioxide (SO_3) are of great importance. The health effects of SO_x include respiratory illness, damage to the respiratory tract, and bronchioconstriction. Relatively little SO_x is emitted from motor vehicles.

Hydrocarbons (HC) include a wide variety of volatile organic compounds (VOC) emitted principally from the storage, handling and use of fossil fuels. Though hydrocarbons can cause eye irritation and breathing difficulty, their principal health affects are related to their role in the formation of O_3 .

Nitrogen oxides (NO_x) are of concern because of their role as precursors in the formation of O_3 . Most of the NO_x emitted by motor vehicles or construction combustion equipment is in the form of nitric oxide (NO), which is not directly harmful to human health. Only a small percentage is emitted as nitrogen dioxide (NO_2), which can cause lung irritation and decrease the capacity of lungs. High levels of NO_2 have been shown to increase the risk of asthma in children living near freeways. Once emitted, NO reacts slowly in the presence of sunlight with O_3 to form NO_2 . Since the reactions are slow and occur as the pollutants are diffusing downwind, elevated NO_2 and O_3 levels are often found many miles from their sources. For that reason, the affects of hydrocarbons and nitrogen oxide emissions are generally examined on a regional basis, and not at a localized level.

Ozone is the principal component of photochemical smog. O_3 is a principal cause of lung and eye irritation in the urban environment. It is formed in the atmosphere through a series of reactions involving hydrocarbons and nitrogen oxides in the presence of sunlight. High O_3 concentrations normally occur only in the summer, when insulation is greatest and temperatures are high.

Particulate matter includes both liquid and solid particles of a wide range of sizes and composition. Of particular concern are those particles that are smaller than or equal to 10 microns or 2.5 microns in size (PM_{10} and $\text{PM}_{2.5}$, respectively). The data collected through several nationwide studies indicate that most PM_{10} is the product of fugitive dust, wind erosion and agricultural and forestry sources, while a small portion is the product of fuel combustion processes. Conversely, the combustion of fossil fuels accounts for a significant portion of $\text{PM}_{2.5}$. The main health affects of air-borne particulate matter are on the respiratory system.

Lead is a stable compound, which persists and accumulates both in the environment and in animals. In people it affects the blood-forming (hematopoietic) system, the nervous system and the renal system. In addition, lead has been shown to affect the normal functions of the

reproductive, endocrine, hepatic, cardiovascular, immunologic and gastrointestinal systems. There is significant individual variability in response to lead exposure. The lead used in gasoline anti-knock additives historically represented a major source of lead emissions to the atmosphere. However, lead emissions have significantly decreased due to the mandated elimination of leaded gasoline, and the replacement of vehicles that burn leaded gasoline with those that cannot. In general, an analysis of lead is only performed for projects that emit significant quantities of the pollutant (e.g., lead smelters) or are near such projects.

In conclusion, of the eight criteria pollutants identified by the EPA as being of nationwide concern, CO is the only pollutant whose localized effects currently require a detailed, microscale mobile source impact evaluation for roadway projects at the EIS level. The regional effects of the project on O₃ levels are considered in the regional CO, NO_x and HC emissions analysis performed by the Wilmington Area Planning Council (WILMAPCO) as part of the Transportation Improvement Plan (TIP) for the region.

In accordance with the recent (*Federal Register*, Volume 71, Number 47, March 10, 2006) regulations, the referenced final rule requires a qualitative PM_{2.5} hot-spot analysis only for projects of air quality concern, *i.e.*, those that involve significant levels of diesel vehicle traffic. Although the 2030 percentage of total truck traffic (including diesel trucks) on new US 301 is projected to exceed the eight percent guidance maximum (7-9 percent on most segments of the roadway; 20 percent at the state line), the average vehicles per day is less than half the maximum 125,000 AADT recommended for the analysis (the highest ADT is projected at 56,700). Because the new US 301 does not encourage new diesel truck traffic, but merely shifts the diesel truck traffic from existing US 301 to the new roadway, it does not represent a significant increase in diesel truck traffic. A PM_{2.5} analysis is not included for the project.

2. National and State Ambient Air Quality Standards

As required by the Clean Air Act Amendments of 1970 (P.L. 91-064, December 31, 1970) and the Clean Air Act Amendment of 1977 (P.L. 95-95, August 7, 1977), the EPA has established National Ambient Air Quality Standards (NAAQS) for the following air pollutants: O₃, CO, NO₂, SO_x, PM₁₀, PM_{2.5}, and Pb. Delaware has also promulgated ambient air quality standards for the same pollutants. Applicable state and federal standards are shown in **Table III-25**. The Primary Standards have been established to protect the public health with an adequate margin of safety. The Secondary Standards are intended to protect the nation's welfare and account for air-pollutant affects on soil, water, visibility, vegetation and other aspects of the general welfare.

3. Air Quality Regulations and Status of the Project Area

Air quality is regulated at the federal level under the Clean Air Act (CAA) and EPA's Final Conformity Rule (40 CFR Parts 51 and 93). Section 107 of the 1977 Clean Air Act Amendment requires the EPA to publish a list of all geographic areas in compliance with the NAAQS, as well as those not attaining the NAAQS. Areas not in compliance with NAAQS are deemed non-attainment areas. Areas which were previously deemed non-attainment areas, but which recently achieved compliance with the NAAQS, are deemed maintenance areas. The designation of an

area is based on the data collected by the state-monitoring network on a pollutant-by-pollutant basis.

Table III-25: National and State Ambient Air Quality Standards

Pollutant	Averaging Period	National and State Standards	
		Primary	Secondary
Ozone (O ₃)	1 Hour ^a	0.12 ppm (235 µg/m ³)	Same as Primary Standard
	8 Hour ^b	0.08 ppm (157 µg/m ³)	
Carbon Monoxide (CO)	1 Hour ^c	35 ppm (40 mg/m ³)	---
	8 Hour ^c	9 ppm (10 mg/m ³)	---
Nitrogen Dioxide (NO ₂)	Annual Average	0.053 ppm (100 µg/m ³)	Same as Primary Standard
Sulfur Dioxide (SO ₂)	Annual Average	0.03 ppm (80 µg/m ³)	---
	24 Hour ^c	0.14 ppm (365 µg/m ³)	---
	3 Hour ^c	---	0.5 ppm (1300 µg/m ³)
Suspended Particle Matter (PM ₁₀)	Annual Arithmetic Mean	50 µg/m ³	Same as Primary Standard
	24 Hour ^d	150 µg/m ³	Same as Primary Standard
Suspended Fine Particle Matter (PM _{2.5})	Annual Arithmetic Mean	15 µg/m ³	Same as Primary Standard
	24 Hour ^e	65 µg/m ³	Same as Primary Standard
Lead (Pb)	Calendar Quarter	1.5 µg/m ³	Same as Primary Standard
Total Suspended Particle (TSP)	Annual Geometric Mean	75 µg/m ³	60 µg/m ³
	24-Hour ^c	260 µg/m ³	150 µg/m ³

Source: Delaware Air Quality Management Section, Division of Air and Waste Management, Department of Natural Resources and Environmental Control, "Delaware Annual Air Quality Report 2003" Delaware Air Quality Management Section, "Ambient Air Quality Standards (Regulation 3.)"

Notes: a. Based on a 3-year average of annual averages
b. 3-year average of the 4th highest 8-hour concentration may not exceed 0.08 ppm
c. Not to be exceeded more than once a year
d. Based on a 3-year average of annual 99th percentile values
e. Based on a 3-year average of annual 98th percentile values
ppm: parts per million; µg/m³: micrograms per cubic meter; mg/m³: milligrams per cubic meter

a. Monitored Air Quality

Air pollutant levels throughout Delaware are monitored by a network of sampling stations operated under the supervision of DNREC's Division of Air and Waste Management.

The closest monitoring stations to the project corridor are located in New Castle County at the Brandywine (O₃), Bellefonte (PM_{2.5}), Wilmington (CO, NO₂, PM₁₀, O₃, SO₂, PM_{2.5}), Summit Bridge (O₃, SO₂, PM_{2.5}), and Delaware City (CO, SO₂,) Monitoring Sites. The monitoring of PM_{2.5} began in 1999 at the Bellefonte, Wilmington, and Summit Bridge monitoring sites and at a new monitoring site in Newark. However, the results of the PM_{2.5} monitoring are in the process of being validated.

The highest levels reported for the Brandywine, Wilmington, Summit Bridge and Delaware City stations in 2004 are reported in **Table III-26**. The levels do not exceed the S/NAAQS for all pollutants monitored, with the exception of O₃, which exceeded the 8-hour standard at the

Brandywine and Wilmington sites. There is no data for the monitoring of lead or TSP in Delaware.

**Table III-26: Air Quality Summary for the Project Corridor
Delaware Air Quality Monitoring Sites Highest Recorded Levels During 2004**

Pollutant	Brandywine	Wilmington	Summit Bridge	Delaware City
Carbon Monoxide (CO)				
1-Hour Maximum	---	3.6 ppm	---	1.8 ppm
Concentrations > 35 ppm	---	0	---	0
8-Hour Maximum	---	2.4 ppm	---	1.3 ppm
Concentrations > 9 ppm	---	0	---	0
Nitrogen Dioxide (NO₂)				
Annual Arithmetic Mean	---	0.019 ppm	---	---
Annual Mean > 0.05 ppm	---	0	---	---
Particulate Matter < 10 micrometers (PM₁₀)				
24-Hour Average	---	70 µg /m ³	---	---
Concentrations > 150 µg/m ³	---	0	---	---
Annual Arithmetic Mean	---	20 µg /m ³	---	---
Annual Mean > 50 µg /m ³	---	0	---	---
Ozone (O₃)				
1-Hour Maximum	0.110 ppm	0.109 ppm	0.085 ppm	---
Concentrations > 0.12 ppm	0	0	0	---
8-Hour Maximum	0.094 ppm	0.094 ppm	0.075 ppm	---
Concentrations > 0.08 ppm	3	1	0	---
3-Year Average of 4 th Daily Maximum Eight-Hour Average	0.089 ppm	0.086 ppm	0.084 ppm	
Sulfur Dioxide (SO₂)				
24-Hour Maximum	---	0.021 ppm	0.013 ppm	0.057 ppm
Concentrations > 0.14 ppm	---	0	0	0
3-Hour Maximum	---	0.049 ppm	0.037 ppm	0.127 ppm
Concentrations > 0.50 ppm	---	0	0	0
Annual Arithmetic Mean	---	0.005 ppm	0.004 ppm	0.006 ppm
Annual Mean > 0.03 ppm	---	0	0	0

Source: EPA AIRS Data Website: <http://www.epa.gov/air/data/index.html>

The project corridor is located in southern New Castle County, Delaware. The County is designated as in-attainment for carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), lead (Pb) and particulate matter (PM₁₀). However, New Castle County is designated as a non-attainment area for ozone (O₃) and fine particulate matter (PM_{2.5}). Since the project area is designated non-attainment for ozone, the region is subject to transportation control measures such as the Vehicle Emissions Inspections Program.

b. Conformance with Air Quality Standards

Under the requirements of the CAA, the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), and the Safe, Accountable, Flexible, Efficient Transportation Equity Act of 2005 (SAFETEA-LU), proposed transportation projects must be derived from a Constrained Long Range Transportation Plan (CLRP) that conforms with a state's air quality plans as outlined in a State Implementation Plan (SIP). The SIP sets forth an area's strategies for achieving and maintaining air quality standards.

The most recent air quality analysis applicable for the US 301 project was completed as part of the WILMAPCO *Year 2025 Regional Transportation Plan* (RTP) and its component air quality conformity analysis, as adopted by WILMAPCO's Council on March 6, 2003. A list of improvements to the US 301 corridor was included in and assumed to be in-service for the RTP's planning horizon years of 2005, 2015, and 2025.

The WILMAPCO Year 2025 RTP demonstrated conformity with the *State of Delaware 2005 State Implementation Plan* air quality budgets that were applicable at the time the RTP was adopted. These applicable budgets and the WILMAPCO RTP conformity analysis of March 2003 were developed and completed under the so-called "one-hour air quality standards" using EPA's MOBILE 5b emissions model. Note that the applicable budgets have since been updated under the "eight-hour air quality standards" using EPA's MOBILE 6.2 emissions model; subsequent air quality conformity analyses conducted in the Spring of 2005 for WILMAPCO's short range Transportation Improvement Program (TIP) indicated total emissions for New Castle County still conform to the Delaware SIP.

DelDOT is currently working with DNREC, WILMAPCO, FHWA, Federal Transit Administration (FTA), and EPA to address broader regional air quality issues for both ozone precursors and PM_{2.5}. WILMAPCO is scheduled to complete its next TIP conformity analyses and submit them for Federal agency review in late December 2006. WILMAPCO is scheduled to complete its next RTP conformity analyses and submit them for Federal agency review no later than March 2007. Following alternative selection, the project will need to be included in the conformity analysis, and programming of any funds for design, right-of-way or construction will be based on the results of that analysis.

In order for this project to conform to the SIP on a localized (or microscale) basis, an air quality analysis must be conducted that demonstrates that the project will not cause or exacerbate localized violations of the NAAQS. As stated previously, CO is the only criteria pollutant whose localized effects require a detailed impact evaluation.

4. Project Level Emissions Analysis (Microscale Analysis)

A detailed microscale air quality analysis has been performed to determine the local CO impact of the proposed project, as indicated in Section III.C.1. The analysis considered the impact of the No-Build, Yellow, Purple, Brown (North and South) and Green (North and South) Alternatives at 25 air quality receptors located throughout the project area and at two signalized intersections, each having 20 air quality receptors. The locations of air quality sensitive

receptors used in the analysis are shown on **Figure III-9** and listed in **Table III-27**. The results of the CO concentration analysis are summarized in the following sections.

Table III-27: Air Quality Receptor Locations

Receptor	Address/Location
R1	323 Jessica Drive
R2	318 John Randal Drive
R3	236 Oak Drive
R4	108 Laks Drive
R5	117 Delaware Canal Court East
R6	26 Meadow Lane
R7	523 Creek Lane East
R8	Victoria Drive Entrance
R9	1000 Jamison Corner Road
R10	864 Bullen Drive
R11	203 Milford Drive
R12	West of 404 Emerson Road
R13	Boyds Corner Road at Cedar Lane Road
R14	562 Boyds Corner Road
R15	US 301at Boyds Corner Road
R16	US 301at Old School House Road
R17	116 Saddle Drive
R18	Across from 830 Old School House Road
R19	US 301at Marl Pit Road
R20	US 301at Spring Mill
R21	US 301at Middletown Village
R22	828 Woodline Drive
R23	Across from 1106 Bunker Hill Road
R24	South of 1022 Bunker Hill Road
R25	1963 Middle Neck Road
299-1 thru 299-20	US 301at SR 299 Intersection
896-1 thru 896-20	US 301at SR 896 (Mount Pleasant) Intersection

a. Description of Impacts

The air quality analysis indicates that the carbon monoxide impact from the No-Build Alternative results in no violations of the State/National Ambient Air Quality Standards (S/NAAQS) 1-hour concentration or the 8-hour concentration at any air quality receptor location in any analysis year. The air quality analysis also indicates that carbon monoxide impacts resulting from the implementation of any of the build alternatives would not result in a violation of the 1-hour concentration or the 8-hour concentration, at any air quality receptor location, in any analysis year. The results of these analyses are presented in **Tables III-28, III-29, and III-30**.

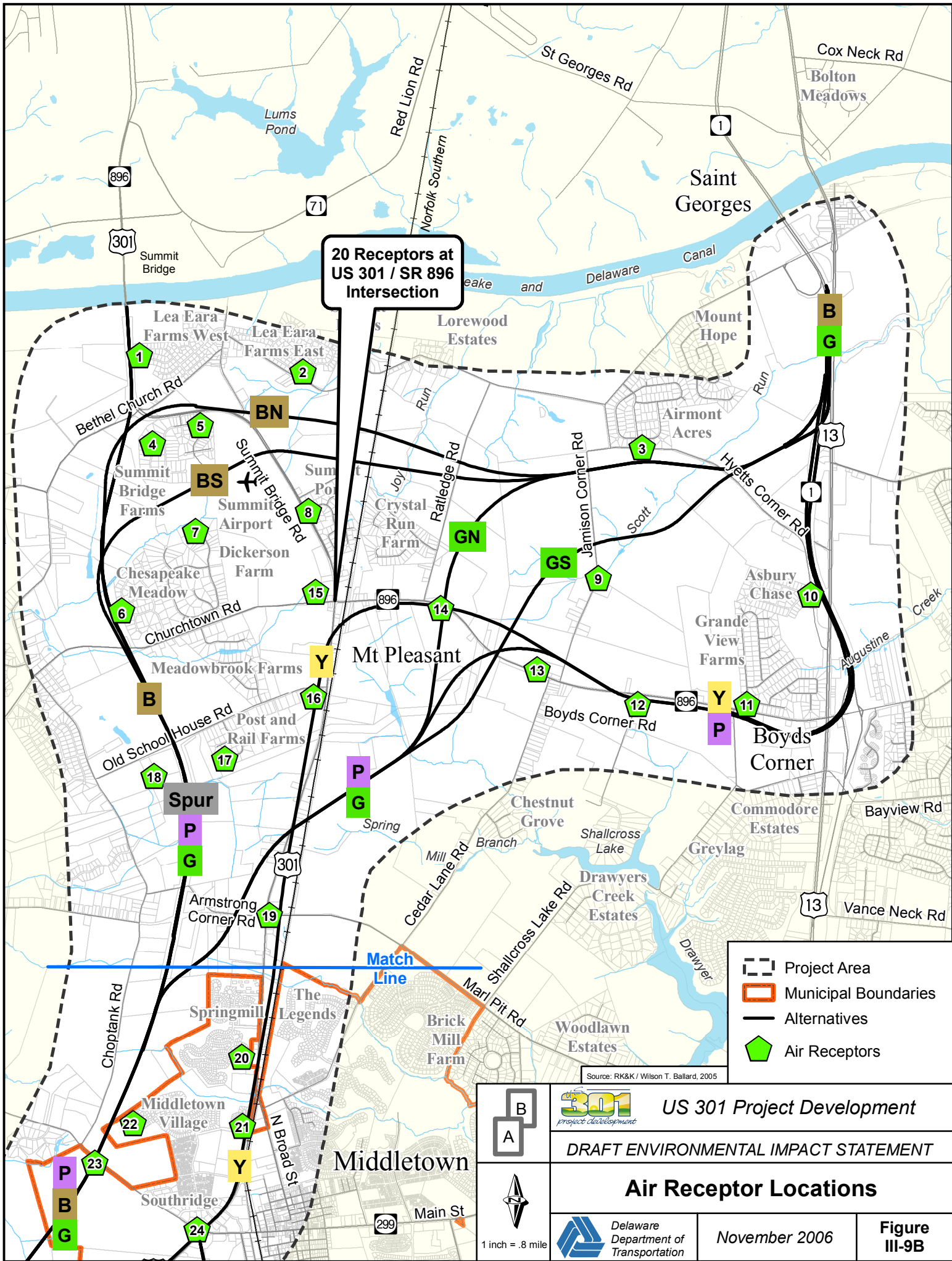


Table III-28: Predicted CO Concentration, 2010

Receptor Number	No-Build		Yellow		Purple		Brown				Green			
							North		South		North		South	
	1-hr.	8-hr.	1-hr.	8-hr.	1-hr.	8-hr.	1-hr.	8-hr.	1-hr.	8-hr.	1-hr.	8-hr.	1-hr.	8-hr.
R1	3.2	1.9	2.9	1.8	3.2	1.8	3.2	1.8	3.2	1.8	3.0	1.8	3.0	1.8
R2	2.3	1.5	2.3	1.4	2.2	1.4	2.4	1.5	2.3	1.5	2.2	1.4	2.2	1.4
R3	2.0	1.3	2.0	1.3	2.0	1.3	2.4	1.5	2.4	1.5	2.5	1.6	2.2	1.4
R4	3.1	1.9	2.9	1.8	3.0	1.9	3.1	1.9	3.0	1.9	3.0	1.8	3.0	1.8
R5	2.6	1.7	2.4	1.6	2.6	1.7	2.9	1.8	2.7	1.7	2.5	1.6	2.5	1.6
R6	2.2	1.4	2.1	1.4	2.2	1.4	2.8	1.7	2.8	1.7	2.1	1.4	2.1	1.4
R7	2.3	1.5	2.2	1.4	2.3	1.5	2.4	1.5	2.4	1.5	2.2	1.4	2.2	1.4
R8	3.6	2.0	3.7	2.1	3.2	1.9	3.2	1.9	3.2	1.9	3.1	1.9	3.1	1.9
R9	2.0	1.3	2.0	1.3	2.2	1.3	2.1	1.3	2.1	1.3	2.2	1.4	2.3	1.5
R10	4.8	2.7	4.5	2.4	4.5	2.4	4.4	2.4	4.4	2.4	4.4	2.4	4.4	2.4
R11	2.6	1.6	2.4	1.6	2.4	1.5	2.4	1.6	2.4	1.6	2.3	1.5	2.3	1.5
R12	2.6	1.6	3.2	1.9	3.4	2.0	2.4	1.6	2.4	1.6	2.4	1.5	2.4	1.5
R13	3.3	1.9	3.3	1.9	3.0	1.9	3.0	1.7	3.0	1.7	2.8	1.7	2.8	1.7
R14	2.9	1.7	3.5	2.1	2.6	1.6	2.5	1.5	2.5	1.5	2.7	1.6	2.6	1.6
R15	4.6	2.7	5.1	2.9	4.6	2.7	4.7	2.7	4.7	2.7	4.4	2.5	4.4	2.5
R16	3.7	2.1	3.9	2.2	2.8	1.8	2.7	1.7	2.7	1.7	2.7	1.7	2.7	1.7
R17	2.0	1.3	2.1	1.3	3.3	1.9	2.7	1.6	2.7	1.6	3.4	1.9	3.4	1.9
R18	2.0	1.3	2.0	1.3	2.3	1.4	2.3	1.5	2.3	1.5	2.3	1.5	2.3	1.5
R19	2.5	1.6	2.6	1.6	2.3	1.5	2.2	1.5	2.2	1.5	2.3	1.5	2.3	1.5
R20	2.3	1.5	2.3	1.5	2.1	1.3	2.2	1.4	2.2	1.4	2.1	1.3	2.1	1.3
R21	3.3	1.9	2.9	1.7	2.3	1.5	2.3	1.5	2.3	1.5	2.3	1.5	2.3	1.5
R22	2.0	1.3	1.9	1.3	2.9	1.7	3.0	1.7	3.0	1.7	2.9	1.8	2.9	1.8
R23	1.9	1.3	1.9	1.3	6.1	3.3	6.3	3.4	6.3	3.4	6.3	3.5	6.3	3.5
R24	2.9	1.8	2.7	1.7	2.3	1.5	2.3	1.5	2.3	1.5	2.3	1.5	2.3	1.5
R25	2.5	1.6	2.5	1.6	2.6	1.7	2.7	1.7	2.7	1.7	2.7	1.7	2.7	1.7

*Notes: Maximum 1-hr. CO concentrations include 1.7 ppm background level. Worst-case (AM or PM) shown.
Maximum 8-hr. CO concentrations include 1.2 ppm background level.
The S/NAAQS for the maximum 1-hr. CO concentration is 35.0 ppm.
The S/NAAQS for the maximum 8-hr. average CO concentration is 9.0 ppm.*

Indicated background levels (1.7 ppm and 1.2 ppm for 1-hour and 8-hour concentrations, respectively) represent those levels listed on the EPA AIRS website that are closest and most representative of ambient conditions for the project area and were derived from the Delaware City monitoring site.

Table III-29: Predicted CO Concentration, 2030

Receptor Number	No-Build		Yellow		Purple		Brown				Green			
							North		South		North		South	
	1-hr.	8-hr.	1-hr.	8-hr.	1-hr.	8-hr.	1-hr.	8-hr.	1-hr.	8-hr.	1-hr.	8-hr.	1-hr.	8-hr.
R1	2.7	1.7	2.5	1.6	2.7	1.6	2.7	1.7	2.7	1.6	2.5	1.6	2.5	1.6
R2	2.1	1.4	2.1	1.4	2.1	1.4	2.2	1.4	2.1	1.4	2.1	1.4	2.1	1.4
R3	2.0	1.3	1.9	1.3	1.9	1.3	2.3	1.4	2.3	1.4	2.4	1.5	2.1	1.3
R4	2.7	1.7	2.6	1.6	2.6	1.7	2.7	1.7	2.6	1.7	2.6	1.6	2.6	1.6
R5	2.3	1.5	2.2	1.5	2.3	1.5	2.4	1.6	2.3	1.5	2.2	1.5	2.2	1.5
R6	2.1	1.4	2.0	1.3	2.1	1.4	2.6	1.6	2.6	1.5	2.0	1.3	2.0	1.3
R7	2.2	1.4	2.1	1.4	2.2	1.4	2.2	1.4	2.3	1.4	2.1	1.4	2.1	1.4
R8	3.1	1.8	3.1	1.8	2.9	1.7	2.9	1.7	2.9	1.7	2.7	1.7	2.7	1.7
R9	2.0	1.3	1.9	1.3	1.9	1.3	2.0	1.3	2.0	1.3	2.0	1.3	2.2	1.4
R10	4.0	2.3	3.7	2.1	3.7	2.1	3.7	2.1	3.7	2.1	3.6	2.1	3.6	2.1
R11	2.3	1.5	2.2	1.5	2.2	1.4	2.3	1.5	2.3	1.5	2.2	1.5	2.2	1.5
R12	2.4	1.5	2.9	1.8	2.9	1.8	2.4	1.5	2.4	1.5	2.1	1.4	2.1	1.4
R13	2.9	1.7	2.9	1.7	2.8	1.7	2.7	1.6	2.7	1.6	2.6	1.5	2.6	1.5
R14	2.5	1.6	3.0	1.9	2.3	1.5	2.2	1.5	2.2	1.5	2.3	1.5	2.3	1.5
R15	3.8	2.3	4.2	2.5	3.8	2.3	3.9	2.3	3.9	2.3	3.7	2.2	3.7	2.2
R16	3.0	1.8	3.2	2.0	2.5	1.6	2.5	1.6	2.5	1.6	2.5	1.6	2.5	1.6
R17	1.9	1.3	1.9	1.3	2.7	1.7	2.4	1.5	2.4	1.5	2.8	1.7	2.8	1.7
R18	1.8	1.3	1.8	1.3	2.1	1.4	2.1	1.4	2.1	1.4	2.1	1.4	2.1	1.4
R19	2.3	1.5	2.4	1.5	2.2	1.4	2.1	1.4	2.1	1.4	2.2	1.4	2.2	1.4
R20	2.1	1.4	2.0	1.4	1.9	1.3	2.0	1.3	2.0	1.3	2.0	1.3	2.0	1.3
R21	2.6	1.7	2.5	1.5	2.2	1.4	2.2	1.4	2.2	1.4	2.1	1.4	2.1	1.4
R22	1.8	1.2	1.8	1.2	2.4	1.6	2.5	1.6	2.5	1.6	2.5	1.6	2.5	1.6
R23	1.9	1.2	1.8	1.2	5.0	2.8	5.2	2.9	5.2	2.9	5.2	2.9	5.2	2.9
R24	2.6	1.7	2.4	1.6	2.1	1.4	2.1	1.4	2.1	1.4	2.1	1.4	2.1	1.4
R25	2.5	1.5	2.2	1.5	2.4	1.5	2.4	1.5	2.4	1.5	2.4	1.6	2.4	1.6

Maximum 1-hr. CO concentrations include 1.7 ppm background level. Worst-case (AM or PM) shown.

Maximum 8-hr. CO concentrations include 1.2 ppm background level.

The S/NAAQS for the maximum 1-hr. CO concentration is 35.0 ppm.

The S/NAAQS for the maximum 8-hr. average CO concentration is 9.0 ppm.

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Table III-30: CO Concentration at Signalized Intersections (ppm)

US 301 at SR 299										US 301 at SR 896							
Receptor Number	2010				2030				Receptor Number	2010				2030			
	No-Build		Build		No-Build		Build			No-Build		Build		No-Build		Build	
	1-hr.	8-hr.	1-hr.	8-hr.	1-hr.	8-hr.	1-hr.	8-hr.		1-hr.	8-hr.	1-hr.	8-hr.	1-hr.	8-hr.	1-hr.	8-hr.
299-1	4.8	3.1	3.5	2.4	4.1	2.6	3.0	2.0	896-1	4.8	2.7	4.2	2.4	3.9	2.3	3.4	2.1
299-2	5.1	3.1	3.5	2.1	4.2	2.6	3.0	1.9	896-2	4.8	2.8	4.2	2.5	3.9	2.3	3.5	2.1
299-3	5.1	3.2	3.9	2.5	4.1	2.7	3.3	2.1	896-3	5.4	3.0	5.0	2.5	4.3	2.6	4.1	2.2
299-4	5.0	3.2	4.0	2.6	4.2	2.7	3.5	2.2	896-4	5.2	3.0	4.6	2.6	4.3	2.6	3.8	2.2
299-5	4.5	2.8	3.0	1.9	3.8	2.4	2.9	1.7	896-5	5.5	3.1	5.1	2.6	4.4	2.6	4.1	2.2
299-6	4.6	2.9	3.3	2.1	3.9	2.5	2.9	1.8	896-6	5.3	3.1	4.8	2.6	4.4	2.6	4.0	2.3
299-7	3.7	2.2	2.8	1.7	3.1	2.0	2.5	1.6	896-7	4.8	2.8	4.4	2.5	4.0	2.4	3.7	2.1
299-8	3.6	2.3	2.9	1.8	3.1	2.0	2.5	1.7	896-8	5.3	2.9	4.6	2.6	4.2	2.5	3.8	2.2
299-9	4.1	2.4	3.0	1.8	3.4	2.0	2.7	1.6	896-9	5.1	2.7	4.6	2.2	4.1	2.3	3.8	1.9
299-10	4.4	2.7	3.3	2.1	3.5	2.3	2.9	1.9	896-10	4.7	2.5	4.1	2.0	4.0	2.2	3.6	1.8
299-11	4.2	2.9	3.5	2.1	3.5	2.4	2.9	1.9	896-11	4.8	2.6	4.2	2.1	3.9	2.2	3.5	1.8
299-12	4.0	2.5	3.1	1.9	3.4	2.1	2.8	1.7	896-12	5.1	2.8	4.6	2.3	4.0	2.3	3.7	1.9
299-13	3.8	2.6	3.1	2.0	3.3	2.2	2.7	1.8	896-13	4.6	2.8	4.2	2.4	3.8	2.3	3.5	2.1
299-14	4.4	2.7	3.4	2.1	3.8	2.3	2.9	1.8	896-14	4.4	2.7	4.0	2.4	3.7	2.3	3.3	2.1
299-15	4.5	2.9	3.6	2.3	3.7	2.5	3.1	2.0	896-15	4.8	2.8	4.4	2.6	4.1	2.5	3.7	2.2
299-16	4.3	2.9	3.4	2.3	3.6	2.5	3.0	1.9	896-16	5.1	2.9	4.6	2.6	4.2	2.5	3.7	2.2
299-17	5.0	3.0	3.8	2.2	4.2	2.6	3.4	2.0	896-17	4.7	2.6	4.2	2.2	3.9	2.2	3.6	1.9
199-18	4.0	2.4	2.9	1.8	3.4	2.1	2.6	1.7	896-18	4.6	2.5	3.9	2.1	3.8	2.2	3.3	1.9
299-19	4.9	2.8	3.0	1.9	3.8	2.4	2.7	1.7	896-19	4.5	2.6	4.1	2.2	3.7	2.3	3.5	1.9
299-20	4.9	2.9	3.2	2.0	4.2	2.5	2.9	1.8	896-20	4.4	2.5	3.9	2.1	3.8	2.2	3.3	1.8

The worst-case (AM or PM) Build scenario is shown.

Maximum 1-hr. CO concentrations include 1.7 ppm background level.

Maximum 8-hr. CO concentrations include 1.2 ppm background level.

The S/NAAQs for the maximum 1-hr. CO concentration is 35.0 ppm.

The S/NAAQs for the maximum 8-hr. average CO concentration is 9.0 ppm.

b. Consequences and Potential Mitigation

A relative comparison of the No-Build Alternative to the build alternatives shows that CO concentrations generally remain the same. There are slight increases or decreases in CO concentrations that can be attributed to shifts in the roadway alignments and altered traffic patterns on existing and proposed roadways. Increases are typically seen at receptors that are located near a proposed alignment that are currently located away from major roadways. Differences in CO concentrations at receptors range from 0 to 4.4 ppm. Reductions in CO concentration are typically seen at receptors adjacent to existing roadways that are projected to facilitate less traffic volume when the proposed alignment is constructed. Reductions typically range from 0 to 1.9 ppm.

D. Noise

This section details the evaluation of potential noise impacts caused by the US 301 project. Following a discussion of noise/activity relationships, a summary is presented of existing noise conditions and development of projected noise that may result upon implementation of a build alternative. Impacts to noise sensitive receptors are identified, and potential mitigation for impacts is discussed.

The Federal Highway Administration (FHWA) has issued guidelines for noise evaluation as established in Title 23 of the Code of Federal Regulations (CFR) Part 772, *Procedures for Abatement of Highway Traffic Noise and Construction Noise*. Highway traffic noise studies, noise abatement procedures, coordination requirements and design noise levels in CFR Part 772 constitute the noise standards mandated by 23 U.S.C. 109(i). Design noise levels for various types of activity (land use) categories are summarized in the following section.

1. Existing Conditions

a. Criteria for Determining Noise Impacts

To describe noise environments and to assess impact on noise sensitive areas, a frequency weighting measure that simulates human subjective response to noise is customarily selected. A-weighted ratings of noise sources which reflect the human ear's reduced sensitivity to low frequencies have been found to correlate strongly with human perceptions of the annoying aspects of noise, particularly from traffic noise sources. Consequently A-weighted noise levels, described in decibels-A (dBA), are the values cited by FHWA in its noise criteria indicated in ***Table III-31***.

Most environmental noise fluctuates from moment to moment. To correlate noise environments with community annoyance, a single-number noise descriptor called the equivalent sound level (L_{eq}), which characterizes the fluctuating sound, is commonly used. The L_{eq} is the value or level of a steady, non-fluctuating sound that represents the same amount of acoustical energy over the

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3. Mitigation/Memorandum of Agreement

DelDOT is continuing to consult with FHWA, the SHPO and New Castle County regarding the appropriate steps to further identify archaeological resources and the potential effects of the project on those resources. As is discussed in the draft MOA included in **Appendix H**, DelDOT will conduct appropriate Phase I and/or Phase II testing to identify archaeological resources along the Preferred Alternative alignment. If resources are discovered which are determined eligible for the National Register, DelDOT and FHWA will consult with the SHPO to determine if the sites will be adversely affected, and if so, will look for ways to avoid impacts or minimize effects. If the effects cannot be avoided, various means of mitigation will be employed, including, but not limited to, excavations to recover significant data or alternative mitigation strategies as specified in the MOA.

The MOA outlines the process for determining how effects on architectural resources will be mitigated, including consultation with property owners. Potential treatments may include, but are not necessarily limited to, landscaping, plantings, potential visual berms or fencing appropriate to the historic setting of the property affected.

DelDOT will continue to consult with the Maryland SHPO (Maryland Historical Trust (MHT)) on potential effects to cultural resources within the Maryland portion of the project area. The MHT will also be consulted on potential secondary and cumulative effects that may result from traffic and truck diversions (see **Chapter III, Section G**).

C. Air Quality

The purpose of this air quality section is to describe the regulatory framework for air quality considerations, the pollutants of concern, ambient air quality standards, existing conditions in the project area, predicted changes in air quality that may result from implementation of the project, and possible mitigation efforts where adverse effects are projected.

Transportation projects involving highway systems improvements are typically subject to two types of air quality analyses. These are referred to as transportation conformity analysis (mesoscale analysis) and project level emissions analysis (microscale analysis).

Transportation conformity refers to the extent to which highway and transit expansion projects add to or subtract from regional emission levels. These analyses typically are performed at the system level, which means the particular improvement or sets of improvements are included in a regional travel demand model from which the total emissions for a county are estimated. The product of these analyses is an estimate referring to the total emissions generated from highway and transit systems, and a determination of whether those estimates, at the regional level, follow mandated Federal reductions in regional emissions as reported in State Implementation Plans (SIPs).

Project level emissions analyses refer to the extent to which highway and transit expansion projects add or subtract to project area emission levels. These studies are typically performed within the area directly adjacent to a proposed improvement, and are often within several

hundred feet of those projects. These studies do not consider regional air quality levels, but are concerned with what affect proposed projects may have on air quality levels adjacent to or in the immediate vicinity of a particular area.

1. Relevant Pollutants

“Air Pollution” is a general term that refers to one or more chemical substances that degrade the quality of the atmosphere. Individual air pollutants degrade the atmosphere by reducing visibility, damaging property, reducing the productivity or vigor of crops or natural vegetation, or by adversely affecting human or animal health.

Eight air pollutants have been identified by the U.S. Environmental Protection Agency (EPA) as being of concern nationwide: carbon monoxide (CO), sulfur oxides (SO_x), hydrocarbons (HC), nitrogen oxides (NO_x), ozone (O₃), lead (Pb), particulate matter with a size of 10 microns or less (PM₁₀), and particulate matter with a size of 2.5 microns or less (PM_{2.5}). These pollutants, with the exception of HC, are collectively referred to as “criteria” pollutants.

The sources of these pollutants, their effects on human health and the nation's welfare, and their final deposition in the atmosphere vary considerably. In the project corridor, ambient concentrations of CO, O₃ and Pb are primarily influenced by motor vehicle activity. Emissions of sulfur oxides are associated mainly with various stationary sources such as power plants and refineries. Emissions of nitrogen oxides and particulate matter come from both mobile and stationary sources.

Carbon monoxide is a colorless and odorless gas, which in the urban environment is associated primarily with the incomplete combustion of fossil fuels in motor vehicles. CO combines with hemoglobin in the bloodstream and reduces the amount of oxygen that can be circulated through the body. High CO concentrations can lead to headaches, aggravation of cardiovascular disease and impairment of central nervous system functions. CO concentrations can vary greatly over comparatively short distances. Relatively high concentrations are typically found near crowded intersections and along heavily used roadways carrying slow-moving traffic. Even under the most severe meteorological and traffic conditions, high concentrations of carbon monoxide are limited to locations within a relatively short distance, 300 to 600 feet, of heavily traveled roadways. Consequently, it is appropriate to evaluate concentrations of CO on a regional and on a localized or microscale basis. In general, CO emissions have been decreasing as a result of the State and Federal Motor Vehicle Control Program, which has mandated increasingly lower emission levels for vehicles manufactured since 1973.

Sulfur oxides (SO_x) constitute a class of compounds of which sulfur dioxide (SO₂) and sulfur trioxide (SO₃) are of great importance. The health effects of SO_x include respiratory illness, damage to the respiratory tract, and bronchioconstriction. Relatively little SO_x is emitted from motor vehicles.

Hydrocarbons (HC) include a wide variety of volatile organic compounds (VOC) emitted principally from the storage, handling and use of fossil fuels. Though hydrocarbons can cause

eye irritation and breathing difficulty, their principal health affects are related to their role in the formation of O_3 .

Nitrogen oxides (NO_x) are of concern because of their role as precursors in the formation of O_3 . Most of the NO_x emitted by motor vehicles or construction combustion equipment is in the form of nitric oxide (NO), which is not directly harmful to human health. Only a small percentage is emitted as nitrogen dioxide (NO_2), which can cause lung irritation and decrease the capacity of lungs. High levels of NO_2 have been shown to increase the risk of asthma in children living near freeways. Once emitted, NO reacts slowly in the presence of sunlight with O_3 to form NO_2 . Since the reactions are slow and occur as the pollutants are diffusing downwind, elevated NO_2 and O_3 levels are often found many miles from their sources. For that reason, the affects of hydrocarbons and nitrogen oxide emissions are generally examined on a regional basis, and not at a localized level.

Ozone is the principal component of photochemical smog. O_3 is a principal cause of lung and eye irritation in the urban environment. It is formed in the atmosphere through a series of reactions involving hydrocarbons and nitrogen oxides in the presence of sunlight. High O_3 concentrations normally occur only in the summer, when insulation is greatest and temperatures are high.

Particulate matter includes both liquid and solid particles of a wide range of sizes and composition. Of particular concern are those particles that are smaller than or equal to 10 microns or 2.5 microns in size (PM_{10} and $PM_{2.5}$, respectively). The data collected through several nationwide studies indicate that most PM_{10} is the product of fugitive dust, wind erosion and agricultural and forestry sources, while a small portion is the product of fuel combustion processes. Conversely, the combustion of fossil fuels accounts for a significant portion of $PM_{2.5}$. The main health effects of air-borne particulate matter are on the respiratory system.

Lead is a stable compound, which persists and accumulates both in the environment and in animals. In people it affects the blood-forming (hematopoietic) system, the nervous system and the renal system. In addition, lead has been shown to affect the normal functions of the reproductive, endocrine, hepatic, cardiovascular, immunologic and gastrointestinal systems. There is significant individual variability in response to lead exposure. The lead used in gasoline anti-knock additives historically represented a major source of lead emissions to the atmosphere. However, lead emissions have significantly decreased due to the mandated elimination of leaded gasoline, and the replacement of vehicles that burn leaded gasoline with those that cannot. In general, an analysis of lead is only performed for projects that emit significant quantities of the pollutant (e.g., lead smelters) or are near such projects.

In conclusion, of the eight criteria pollutants identified by the EPA as being of nationwide concern, CO is the only pollutant whose localized effects currently require a detailed, microscale mobile source impact evaluation for roadway projects at the EIS level. The regional effects of the project on O_3 levels are considered in the regional CO, NO_x and HC emissions analysis performed by the Wilmington Area Planning Council (WILMAPCO) as part of the Transportation Improvement Plan (TIP) for the region.

In accordance with the recent (*Federal Register*, Volume 71, Number 47, March 10, 2006) regulations, the referenced final rule requires a qualitative PM_{2.5} hot-spot analysis only for projects of air quality concern, *i.e.*, those that involve significant levels of diesel vehicle traffic. Although the 2030 percentage of total truck traffic (including diesel trucks) on new US 301 is projected to exceed the eight percent guidance maximum (7-9 percent on most segments of the roadway; 20 percent at the state line), the average vehicles per day is less than half the maximum 125,000 AADT recommended for the analysis (the highest ADT is projected at 56,700). Because the new US 301 does not encourage new diesel truck traffic, but merely shifts the diesel truck traffic from existing US 301 to the new roadway, it does not represent a significant increase in diesel truck traffic. Therefore, a PM_{2.5} analysis is not included for the project.

2. National and State Ambient Air Quality Standards

As required by the Clean Air Act Amendments of 1970 (P.L. 91-064, December 31, 1970) and the Clean Air Act Amendment of 1977 (P.L. 95-95, August 7, 1977), the EPA has established National Ambient Air Quality Standards (NAAQS) for the following air pollutants: O₃, CO, NO₂, SO_x, PM₁₀, PM_{2.5}, and Pb. Delaware has also promulgated ambient air quality standards for the same pollutants. Applicable state and federal standards are shown in **Table III-30**.

Table III-30: National and State Ambient Air Quality Standards

Pollutant	Averaging Period	National and State Standards	
		Primary	Secondary
Ozone (O ₃)	1 Hour ^a	0.12 ppm (235 µg/m ³)	Same as Primary Standard
	8 Hour ^b	0.08 ppm (157 µg/m ³)	
Carbon Monoxide (CO)	1 Hour ^c	35 ppm (40 mg/m ³)	---
	8 Hour ^c	9 ppm (10 mg/m ³)	---
Nitrogen Dioxide (NO ₂)	Annual Average	0.053 ppm (100 µg/m ³)	Same as Primary Standard
Sulfur Dioxide (SO ₂)	Annual Average	0.03 ppm (80 µg/m ³)	---
	24 Hour ^c	0.14 ppm (365 µg/m ³)	---
	3 Hour ^c	---	0.5 ppm (1300 µg/m ³)
Suspended Particle Matter (PM ₁₀)	Annual Arithmetic Mean	50 µg/m ³	Same as Primary Standard
	24 Hour ^d	150 µg/m ³	Same as Primary Standard
Suspended Fine Particle Matter (PM _{2.5})	Annual Arithmetic Mean	15 µg/m ³	Same as Primary Standard
	24 Hour ^e	65 µg/m ³	Same as Primary Standard
Lead (Pb)	Calendar Quarter	1.5 µg/m ³	Same as Primary Standard
Total Suspended Particle (TSP)	Annual Geometric Mean	75 µg/m ³	60 µg/m ³
	24-Hour ^c	260 µg/m ³	150 µg/m ³

Source: Delaware Air Quality Management Section, Division of Air and Waste Management, Department of Natural Resources and Environmental Control, "Delaware Annual Air Quality Report 2003" Delaware Air Quality Management Section, "Ambient Air Quality Standards (Regulation 3.)"

Notes: a. Based on a 3-year average of annual averages

b. 3-year average of the 4th highest 8-hour concentration may not exceed 0.08 ppm

c. Not to be exceeded more than once a year

d. Based on a 3-year average of annual 99th percentile values

e. Based on a 3-year average of annual 98th percentile values

ppm: parts per million; µg/m³: micrograms per cubic meter; mg/m³: milligrams per cubic meter

The Primary Standards have been established to protect the public health with an adequate margin of safety. The Secondary Standards are intended to protect the nation's welfare and account for air-pollutant affects on soil, water, visibility, vegetation and other aspects of the general welfare.

3. Air Quality Regulations and Status of the Project Area

Air quality is regulated at the federal level under the Clean Air Act (CAA) and EPA's Final Conformity Rule (40 CFR Parts 51 and 93). Section 107 of the 1977 Clean Air Act Amendment requires the EPA to publish a list of all geographic areas in compliance with the NAAQS, as well as those not attaining the NAAQS. Areas not in compliance with NAAQS are deemed non-attainment areas. Areas which were previously deemed non-attainment areas, but which recently achieved compliance with the NAAQS, are deemed maintenance areas. The designation of an area is based on the data collected by the state-monitoring network on a pollutant-by-pollutant basis.

a. *Monitored Air Quality*

Air pollutant levels throughout Delaware are monitored by a network of sampling stations operated under the supervision of DNREC's Division of Air and Waste Management.

The closest monitoring stations to the project corridor are located in New Castle County at the Brandywine (O₃), Bellefonte (PM_{2.5}), Wilmington (CO, NO₂, PM₁₀, O₃, SO₂, PM_{2.5}), Summit Bridge (O₃, SO₂, PM_{2.5}), and Delaware City (CO, SO₂) Monitoring Sites. The monitoring of PM_{2.5} began in 1999 at the Bellefonte, Wilmington, and Summit Bridge monitoring sites and at a new monitoring site in Newark. However, the results of the PM_{2.5} monitoring are in the process of being validated.

The highest levels reported for the Brandywine, Wilmington, Summit Bridge and Delaware City stations in 2006 are reported in **Table III-31**. The levels do not exceed the S/NAAQS for all pollutants monitored, with the exception of O₃, which exceeded the 8-hour standard at the Brandywine, Wilmington and Summit Bridge sites. There is no data for the monitoring of lead or TSP in Delaware.

**Table III-31: Air Quality Summary for the Project Corridor
Delaware Air Quality Monitoring Sites Highest Recorded Levels During 2006**

Pollutant	Brandywine	Wilmington	Summit Bridge	Delaware City
Carbon Monoxide (CO)				
1-Hour Maximum	---	3.0 ppm	---	1.5 ppm
Concentrations > 35 ppm	---	0	---	0
8-Hour Maximum	---	2.2 ppm	---	1.2 ppm
Concentrations > 9 ppm	---	0	---	0
Nitrogen Dioxide (NO₂)				
Annual Arithmetic Mean	---	0.018 ppm	---	---
Annual Mean > 0.05 ppm	---	0	---	---

**Table III-31: Air Quality Summary for the Project Corridor
Delaware Air Quality Monitoring Sites Highest Recorded Levels During 2006**

Pollutant	Brandywine	Wilmington	Summit Bridge	Delaware City
Particulate Matter < 10 micrometers (PM₁₀)				
24-Hour Average	---	81 µg /m ³	---	---
Concentrations > 150 µg/m ³	---	0	---	---
Annual Arithmetic Mean	---	23 µg /m ³	---	---
Annual Mean > 50 µg /m ³	---	0	---	---
Ozone (O₃)				
1-Hour Maximum	0.105 ppm	0.101 ppm	0.113 ppm	---
Concentrations > 0.12 ppm	0	0	0	---
8-Hour Maximum	0.093 ppm	0.085 ppm	0.095 ppm	---
Concentrations > 0.08 ppm	2	1	2	---
3-Year Average of 4 th Daily Maximum Eight-Hour Average	0.082 ppm	0.081 ppm	0.078 ppm	
Sulfur Dioxide (SO₂)				
24-Hour Maximum	---	0.016 ppm	0.015 ppm	0.063 ppm
Concentrations > 0.14 ppm	---	0	0	0
3-Hour Maximum	---	0.039 ppm	0.046 ppm	0.158 ppm
Concentrations > 0.50 ppm	---	0	0	0
Annual Arithmetic Mean	---	0.005 ppm	0.003 ppm	0.007 ppm
Annual Mean > 0.03 ppm	---	0	0	0

Source: EPA AIRS Data Website: <http://www.epa.gov/air/data/index.html>

The project corridor is located in southern New Castle County, Delaware. The County is designated as in-attainment for carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), lead (Pb) and particulate matter (PM₁₀). However, New Castle County is designated as a non-attainment area for ozone (O₃) and fine particulate matter (PM_{2.5}). Since the project area is designated non-attainment for ozone, the region is subject to transportation control measures such as the Vehicle Emissions Inspections Program.

b. Conformance with Air Quality Standards

Under the requirements of the CAA, the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), and the Safe, Accountable, Flexible, Efficient Transportation Equity Act of 2005 (SAFETEA-LU), proposed transportation projects must be derived from a Constrained Long Range Transportation Plan (CLRP) that conforms with a state's air quality plans as outlined in a State Implementation Plan (SIP). The SIP sets forth an area's strategies for achieving and maintaining air quality standards.

The most recent air quality analysis applicable for the US 301 project was completed as part of the WILMAPCO *Regional Transportation Plan 2030 Update* (2030 RTP) and its component air quality conformity analysis, as adopted by WILMAPCO's Council on March 22, 2007. A list of improvements within the US 301 corridor (programmed improvements to the local roadways and improvements associated with the Westown project) was included in and assumed to be in-

service for the RTP's planning horizon years of 2010, 2020, and 2030. The conformity analysis does not yet include the US 301 Project in-service.

The WILMAPCO 2030 RTP demonstrated continued conformity with the *State of Delaware 2005 State Implementation Plan* (SIP) air quality budgets that were applicable at the time the RTP was adopted. (The most recent SIP was submitted to the US Environmental Protection Agency in June 2007.) These applicable budgets and the WILMAPCO RTP conformity analysis of March 2003 were developed and completed under the so-called "one-hour air quality standards" using EPA's MOBILE 5b emissions model. Note that the applicable budgets have since been updated under the "eight-hour air quality standards" using EPA's MOBILE 6.2 emissions model; subsequent air quality conformity analyses conducted in the Spring of 2005 for WILMAPCO's short range Transportation Improvement Program (TIP) indicated total emissions for New Castle County still conform to the Delaware SIP.

DelDOT is currently working with DNREC, WILMAPCO, FHWA, Federal Transit Administration (FTA), and EPA to address broader regional air quality issues for both ozone precursors and PM_{2.5}. WILMAPCO adopted its most recent TIP conformity analyses for FY 2008-2011 on March 22, 2007. Following the Record of Decision, the project will be included in the conformity analysis, and programming of any funds for design, right-of-way or construction will be based on the results of that analysis.

In order for this project to conform to the SIP on a localized (or microscale) basis, an air quality analysis must be conducted that demonstrates that the project will not cause or exacerbate localized violations of the NAAQS. As stated previously, CO is the only criteria pollutant whose localized effects require a detailed impact evaluation.

4. Project Level Emissions Analysis (Microscale Analysis)

A detailed microscale air quality analysis has been performed to determine the local CO impact of the proposed project, as indicated in **Section III.C.1**. The analysis considered the impact of the No-Build, Yellow, Purple, Brown (North and South) and Green (North and South) Alternatives at 25 air quality receptors located throughout the project area and at two signalized intersections, each having 20 air quality receptors. The locations of air quality sensitive receptors used in the analysis are shown on **Figure III-9** and listed in **Table III-32**. The results of the CO concentration analysis are summarized in the following sections.

Table III-32: Air Quality Receptor Locations

Receptor	Address/Location
R1	323 Jessica Drive
R2	318 John Randal Drive
R3	236 Oak Drive
R4	108 Laks Drive
R5	117 Delaware Canal Court East
R6	26 Meadow Lane
R7	523 Creek Lane East

Table III-32: Air Quality Receptor Locations

Receptor	Address/Location
R8	Victoria Drive Entrance
R9	1000 Jamison Corner Road
R10	864 Bullen Drive
R11	203 Milford Drive
R12	West of 404 Emerson Road
R13	Boyds Corner Road at Cedar Lane Road
R14	562 Boyds Corner Road
R15	US 301 at Boyds Corner Road
R16	US 301 at Old School House Road
R17	116 Saddle Drive
R18	Across from 830 Old School House Road
R19	US 301 at Marl Pit Road
R20	US 301 at Spring Mill
R21	US 301 at Middletown Village
R22	828 Woodline Drive
R23	Across from 1106 Bunker Hill Road
R24	South of 1022 Bunker Hill Road
R25	1963 Middle Neck Road
299-1 thru 299-20	US 301 at SR 299 Intersection
896-1 thru 896-20	US 301 at SR 896 (Mount Pleasant) Intersection

a. Description of Impacts

The air quality analysis indicates that the carbon monoxide impact from the No-Build Alternative results in no violations of the State/National Ambient Air Quality Standards (S/NAAQS) 1-hour concentration or the 8-hour concentration at any air quality receptor location in any analysis year. The air quality analysis also indicates that carbon monoxide impacts resulting from the implementation of any of the build alternatives, including the Preferred Alternative, would not result in a violation of the 1-hour concentration or the 8-hour concentration, at any air quality receptor location, in any analysis year. The results for the Preferred Alternative do not differ from those for the Green North Alternative.

The results of the analyses are presented in *Tables III-33, III-34, and III-35*. The results shown in *Table III-35* represent the worst-case build scenarios for the two intersections: the Purple Alternative for the SR 299 intersection and the Yellow Alternative for the SR 896 intersection.

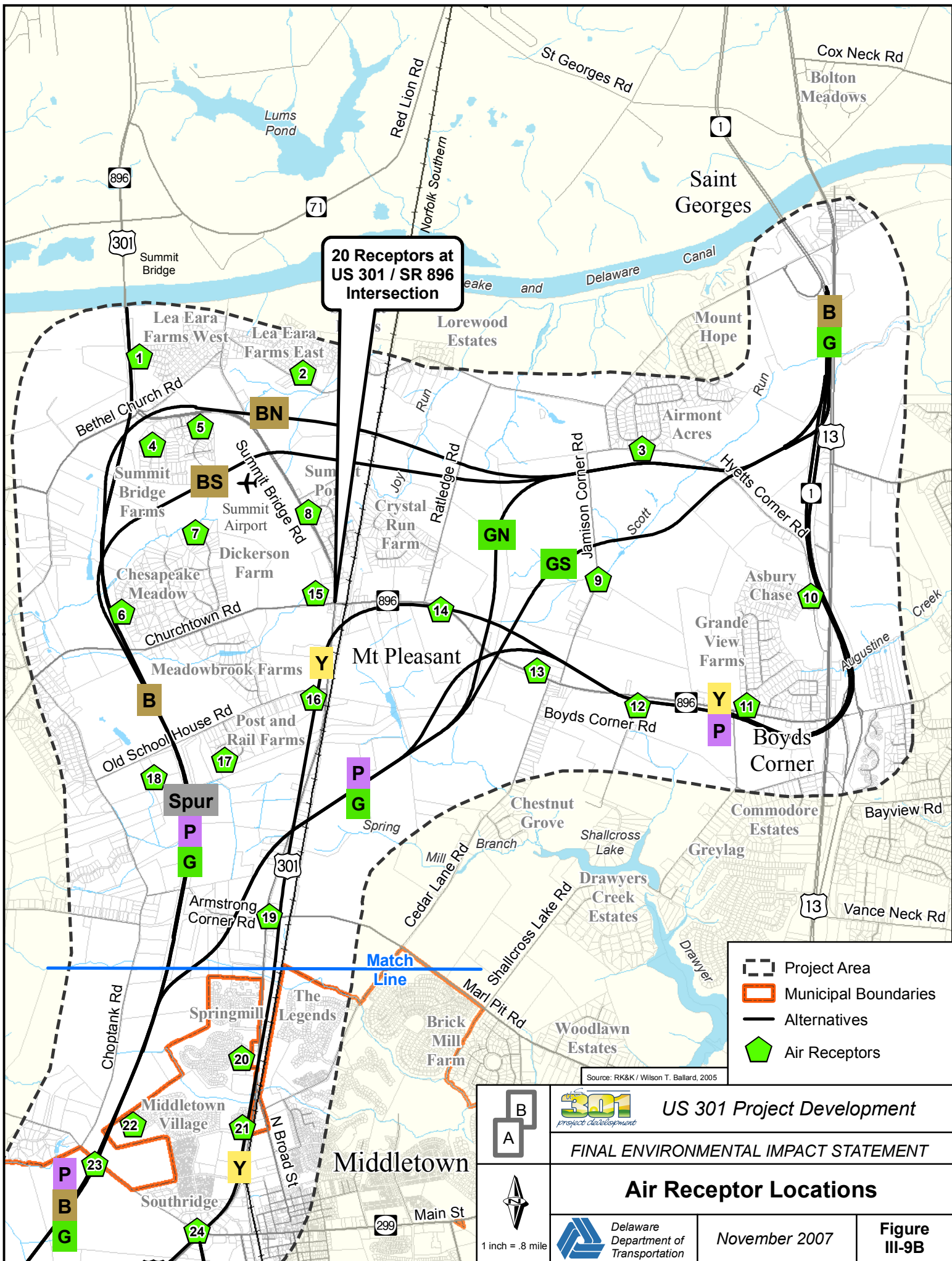


Table III-33: Predicted CO Concentration, 2010

Receptor Number	No-Build		Yellow		Purple		Brown				Green			
							North		South		North (Preferred)		South	
	1-hr.	8-hr.	1-hr.	8-hr.	1-hr.	8-hr.	1-hr.	8-hr.	1-hr.	8-hr.	1-hr.	8-hr.	1-hr.	8-hr.
R1	3.2	1.9	2.9	1.8	3.2	1.8	3.2	1.8	3.2	1.8	3.0	1.8	3.0	1.8
R2	2.3	1.5	2.3	1.4	2.2	1.4	2.4	1.5	2.3	1.5	2.2	1.4	2.2	1.4
R3	2.0	1.3	2.0	1.3	2.0	1.3	2.4	1.5	2.4	1.5	2.5	1.6	2.2	1.4
R4	3.1	1.9	2.9	1.8	3.0	1.9	3.1	1.9	3.0	1.9	3.0	1.8	3.0	1.8
R5	2.6	1.7	2.4	1.6	2.6	1.7	2.9	1.8	2.7	1.7	2.5	1.6	2.5	1.6
R6	2.2	1.4	2.1	1.4	2.2	1.4	2.8	1.7	2.8	1.7	2.1	1.4	2.1	1.4
R7	2.3	1.5	2.2	1.4	2.3	1.5	2.4	1.5	2.4	1.5	2.2	1.4	2.2	1.4
R8	3.6	2.0	3.7	2.1	3.2	1.9	3.2	1.9	3.2	1.9	3.1	1.9	3.1	1.9
R9	2.0	1.3	2.0	1.3	2.2	1.3	2.1	1.3	2.1	1.3	2.2	1.4	2.3	1.5
R10	4.8	2.7	4.5	2.4	4.5	2.4	4.4	2.4	4.4	2.4	4.4	2.4	4.4	2.4
R11	2.6	1.6	2.4	1.6	2.4	1.5	2.4	1.6	2.4	1.6	2.3	1.5	2.3	1.5
R12	2.6	1.6	3.2	1.9	3.4	2.0	2.4	1.6	2.4	1.6	2.4	1.5	2.4	1.5
R13	3.3	1.9	3.3	1.9	3.0	1.9	3.0	1.7	3.0	1.7	2.8	1.7	2.8	1.7
R14	2.9	1.7	3.5	2.1	2.6	1.6	2.5	1.5	2.5	1.5	2.7	1.6	2.6	1.6
R15	4.6	2.7	5.1	2.9	4.6	2.7	4.7	2.7	4.7	2.7	4.4	2.5	4.4	2.5
R16	3.7	2.1	3.9	2.2	2.8	1.8	2.7	1.7	2.7	1.7	2.7	1.7	2.7	1.7
R17	2.0	1.3	2.1	1.3	3.3	1.9	2.7	1.6	2.7	1.6	3.4	1.9	3.4	1.9
R18	2.0	1.3	2.0	1.3	2.3	1.4	2.3	1.5	2.3	1.5	2.3	1.5	2.3	1.5
R19	2.5	1.6	2.6	1.6	2.3	1.5	2.2	1.5	2.2	1.5	2.3	1.5	2.3	1.5
R20	2.3	1.5	2.3	1.5	2.1	1.3	2.2	1.4	2.2	1.4	2.1	1.3	2.1	1.3
R21	3.3	1.9	2.9	1.7	2.3	1.5	2.3	1.5	2.3	1.5	2.3	1.5	2.3	1.5
R22	2.0	1.3	1.9	1.3	2.9	1.7	3.0	1.7	3.0	1.7	2.9	1.8	2.9	1.8
R23	1.9	1.3	1.9	1.3	6.1	3.3	6.3	3.4	6.3	3.4	6.3	3.5	6.3	3.5
R24	2.9	1.8	2.7	1.7	2.3	1.5	2.3	1.5	2.3	1.5	2.3	1.5	2.3	1.5
R25	2.5	1.6	2.5	1.6	2.6	1.7	2.7	1.7	2.7	1.7	2.7	1.7	2.7	1.7

Notes: Maximum 1-hr. CO concentrations include 1.7 ppm background level. Worst-case (AM or PM) shown.
Maximum 8-hr. CO concentrations include 1.2 ppm background level.
The S/NAAQS for the maximum 1-hr. CO concentration is 35.0 ppm.
The S/NAAQS for the maximum 8-hr. average CO concentration is 9.0 ppm.

Indicated background levels (1.7 ppm and 1.2 ppm for 1-hour and 8-hour concentrations, respectively) represent those levels listed on the EPA AIRS website that are closest and most representative of ambient conditions for the project area and were derived from the Delaware City monitoring site.

The CO analysis incorporates the effect of changes/improvements in vehicle emission control system technologies as well as emissions regulations and standards that will be in place in 2030. The result is that vehicles are anticipated to be cleaner in 2030 when compared to 2010, thus reducing the effect on CO. Thus, many of the levels predicted for 2030 will be lower than those predicted for 2010.

Table III-34: Predicted CO Concentration, 2030

Receptor Number	No-Build		Yellow		Purple		Brown				Green			
							North		South		North (Preferred)		South	
	1-hr.	8-hr.	1-hr.	8-hr.	1-hr.	8-hr.	1-hr.	8-hr.	1-hr.	8-hr.	1-hr.	8-hr.	1-hr.	8-hr.
R1	2.7	1.7	2.5	1.6	2.7	1.6	2.7	1.7	2.7	1.6	2.5	1.6	2.5	1.6
R2	2.1	1.4	2.1	1.4	2.1	1.4	2.2	1.4	2.1	1.4	2.1	1.4	2.1	1.4
R3	2.0	1.3	1.9	1.3	1.9	1.3	2.3	1.4	2.3	1.4	2.4	1.5	2.1	1.3
R4	2.7	1.7	2.6	1.6	2.6	1.7	2.7	1.7	2.6	1.7	2.6	1.6	2.6	1.6
R5	2.3	1.5	2.2	1.5	2.3	1.5	2.4	1.6	2.3	1.5	2.2	1.5	2.2	1.5
R6	2.1	1.4	2.0	1.3	2.1	1.4	2.6	1.6	2.6	1.5	2.0	1.3	2.0	1.3
R7	2.2	1.4	2.1	1.4	2.2	1.4	2.2	1.4	2.3	1.4	2.1	1.4	2.1	1.4
R8	3.1	1.8	3.1	1.8	2.9	1.7	2.9	1.7	2.9	1.7	2.7	1.7	2.7	1.7
R9	2.0	1.3	1.9	1.3	1.9	1.3	2.0	1.3	2.0	1.3	2.0	1.3	2.2	1.4
R10	4.0	2.3	3.7	2.1	3.7	2.1	3.7	2.1	3.7	2.1	3.6	2.1	3.6	2.1
R11	2.3	1.5	2.2	1.5	2.2	1.4	2.3	1.5	2.3	1.5	2.2	1.5	2.2	1.5
R12	2.4	1.5	2.9	1.8	2.9	1.8	2.4	1.5	2.4	1.5	2.1	1.4	2.1	1.4
R13	2.9	1.7	2.9	1.7	2.8	1.7	2.7	1.6	2.7	1.6	2.6	1.5	2.6	1.5
R14	2.5	1.6	3.0	1.9	2.3	1.5	2.2	1.5	2.2	1.5	2.3	1.5	2.3	1.5
R15	3.8	2.3	4.2	2.5	3.8	2.3	3.9	2.3	3.9	2.3	3.7	2.2	3.7	2.2
R16	3.0	1.8	3.2	2.0	2.5	1.6	2.5	1.6	2.5	1.6	2.5	1.6	2.5	1.6
R17	1.9	1.3	1.9	1.3	2.7	1.7	2.4	1.5	2.4	1.5	2.8	1.7	2.8	1.7
R18	1.8	1.3	1.8	1.3	2.1	1.4	2.1	1.4	2.1	1.4	2.1	1.4	2.1	1.4
R19	2.3	1.5	2.4	1.5	2.2	1.4	2.1	1.4	2.1	1.4	2.2	1.4	2.2	1.4
R20	2.1	1.4	2.0	1.4	1.9	1.3	2.0	1.3	2.0	1.3	2.0	1.3	2.0	1.3
R21	2.6	1.7	2.5	1.5	2.2	1.4	2.2	1.4	2.2	1.4	2.1	1.4	2.1	1.4
R22	1.8	1.2	1.8	1.2	2.4	1.6	2.5	1.6	2.5	1.6	2.5	1.6	2.5	1.6
R23	1.9	1.2	1.8	1.2	5.0	2.8	5.2	2.9	5.2	2.9	5.2	2.9	5.2	2.9
R24	2.6	1.7	2.4	1.6	2.1	1.4	2.1	1.4	2.1	1.4	2.1	1.4	2.1	1.4
R25	2.5	1.5	2.2	1.5	2.4	1.5	2.4	1.5	2.4	1.5	2.4	1.6	2.4	1.6

Maximum 1-hr. CO concentrations include 1.7 ppm background level. Worst-case (AM or PM) shown.

Maximum 8-hr. CO concentrations include 1.2 ppm background level.

The S/NAAQS for the maximum 1-hr. CO concentration is 35.0 ppm.

The S/NAAQS for the maximum 8-hr. average CO concentration is 9.0 ppm.

Table III-35: CO Concentration at Signalized Intersections (ppm)

US 301 at SR 299										US 301 at SR 896							
Receptor Number	2010				2030				Receptor Number	2010				2030			
	No-Build		Build		No-Build		Build			No-Build		Build		No-Build		Build	
	1-hr.	8-hr.	1-hr.	8-hr.	1-hr.	8-hr.	1-hr.	8-hr.		1-hr.	8-hr.	1-hr.	8-hr.	1-hr.	8-hr.	1-hr.	8-hr.
299-1	4.8	3.1	3.5	2.4	4.1	2.6	3.0	2.0	896-1	4.8	2.7	4.2	2.4	3.9	2.3	3.4	2.1
299-2	5.1	3.1	3.5	2.1	4.2	2.6	3.0	1.9	896-2	4.8	2.8	4.2	2.5	3.9	2.3	3.5	2.1
299-3	5.1	3.2	3.9	2.5	4.1	2.7	3.3	2.1	896-3	5.4	3.0	5.0	2.5	4.3	2.6	4.1	2.2
299-4	5.0	3.2	4.0	2.6	4.2	2.7	3.5	2.2	896-4	5.2	3.0	4.6	2.6	4.3	2.6	3.8	2.2
299-5	4.5	2.8	3.0	1.9	3.8	2.4	2.9	1.7	896-5	5.5	3.1	5.1	2.6	4.4	2.6	4.1	2.2
299-6	4.6	2.9	3.3	2.1	3.9	2.5	2.9	1.8	896-6	5.3	3.1	4.8	2.6	4.4	2.6	4.0	2.3
299-7	3.7	2.2	2.8	1.7	3.1	2.0	2.5	1.6	896-7	4.8	2.8	4.4	2.5	4.0	2.4	3.7	2.1
299-8	3.6	2.3	2.9	1.8	3.1	2.0	2.5	1.7	896-8	5.3	2.9	4.6	2.6	4.2	2.5	3.8	2.2
299-9	4.1	2.4	3.0	1.8	3.4	2.0	2.7	1.6	896-9	5.1	2.7	4.6	2.2	4.1	2.3	3.8	1.9
299-10	4.4	2.7	3.3	2.1	3.5	2.3	2.9	1.9	896-10	4.7	2.5	4.1	2.0	4.0	2.2	3.6	1.8
299-11	4.2	2.9	3.5	2.1	3.5	2.4	2.9	1.9	896-11	4.8	2.6	4.2	2.1	3.9	2.2	3.5	1.8
299-12	4.0	2.5	3.1	1.9	3.4	2.1	2.8	1.7	896-12	5.1	2.8	4.6	2.3	4.0	2.3	3.7	1.9
299-13	3.8	2.6	3.1	2.0	3.3	2.2	2.7	1.8	896-13	4.6	2.8	4.2	2.4	3.8	2.3	3.5	2.1
299-14	4.4	2.7	3.4	2.1	3.8	2.3	2.9	1.8	896-14	4.4	2.7	4.0	2.4	3.7	2.3	3.3	2.1
299-15	4.5	2.9	3.6	2.3	3.7	2.5	3.1	2.0	896-15	4.8	2.8	4.4	2.6	4.1	2.5	3.7	2.2
299-16	4.3	2.9	3.4	2.3	3.6	2.5	3.0	1.9	896-16	5.1	2.9	4.6	2.6	4.2	2.5	3.7	2.2
299-17	5.0	3.0	3.8	2.2	4.2	2.6	3.4	2.0	896-17	4.7	2.6	4.2	2.2	3.9	2.2	3.6	1.9
299-18	4.0	2.4	2.9	1.8	3.4	2.1	2.6	1.7	896-18	4.6	2.5	3.9	2.1	3.8	2.2	3.3	1.9
299-19	4.9	2.8	3.0	1.9	3.8	2.4	2.7	1.7	896-19	4.5	2.6	4.1	2.2	3.7	2.3	3.5	1.9
299-20	4.9	2.9	3.2	2.0	4.2	2.5	2.9	1.8	896-20	4.4	2.5	3.9	2.1	3.8	2.2	3.3	1.8

The worst-case (AM or PM) Build scenario is shown.

Maximum 1-hr. CO concentrations include 1.7 ppm background level.

Maximum 8-hr. CO concentrations include 1.2 ppm background level.

The S/NAAQS for the maximum 1-hr. CO concentration is 35.0 ppm.

The S/NAAQS for the maximum 8-hr. average CO concentration is 9.0 ppm.

b. Consequences and Potential Mitigation

The slight increases or decreases in relative CO concentrations under the Preferred Alternative are not considered an impact at any location analyzed. Therefore, no mitigation is required. A relative comparison of the No-Build Alternative to the build alternatives shows that CO concentrations generally remain the same. There are slight increases or decreases in CO concentrations that can be attributed to shifts in the roadway alignments and altered traffic patterns on existing and proposed roadways. Increases are typically seen at receptors that are located near a proposed alignment that are currently located away from major roadways. Differences in CO concentrations at receptors range from 0 to 4.4 ppm. Reductions in CO concentration are typically seen at receptors adjacent to existing roadways that are projected to facilitate less traffic volume when the proposed alignment is constructed. Reductions typically range from 0 to 1.9 ppm.

5. Mobile Source Air Toxics (MSATs)

In accordance with the USDOT FHWA Memorandum *INFORMATION: Interim Guidance on Air Toxic Analysis in NEPA Documents* (February 3, 2006), this document also considers the potential increases of Mobile Source Air Toxics (MSATs) within the project area as a result of a build alternative, when compared to the No-Build Alternative. A qualitative discussion of localized MSAT impacts is provided in *Chapter III.K*.

D. Noise

This section details the evaluation of potential noise impacts caused by the US 301 project. Following a discussion of noise/activity relationships, a summary is presented of existing noise conditions and development of projected noise that may result upon implementation of a build alternative. Impacts to noise sensitive receptors are identified, and potential mitigation for impacts is discussed.

The Federal Highway Administration (FHWA) has issued guidelines for noise evaluation as established in Title 23 of the Code of Federal Regulations (CFR) Part 772, *Procedures for Abatement of Highway Traffic Noise and Construction Noise*. Highway traffic noise studies, noise abatement procedures, coordination requirements and design noise levels in CFR Part 772 constitute the noise standards mandated by 23 U.S.C. 109(i). Design noise levels for various types of activity (land use) categories are summarized in the following section.

1. Existing Conditions

a. Criteria for Determining Noise Impacts

To describe noise environments and to assess impact on noise sensitive areas, a frequency weighting measure that simulates human subjective response to noise is customarily selected. A-weighted ratings of noise sources which reflect the human ear's reduced sensitivity to low

development is projected to continue, putting pressure on farmland protection efforts and on resource land..."

In New Castle County, Delaware, adequate land zoned for development, protection strategies included in the UDC and the *State Strategies for Policies and Spending* ordinance will continue to provide some protection from development pressures in areas not designated for growth that may be felt as a result of the completion of a build alternative.

K. Mobile Source Air Toxics (MSATs)

In addition to the criteria air pollutants for which there are National Ambient Air Quality Standards (NAAQS), EPA also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners) and stationary sources (e.g., factories or refineries).

Mobile Source Air Toxics (MSATs) are a subset of the 188 air toxics defined by the Clean Air Act. The MSATs are compounds emitted from highway vehicles and non-road equipment. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear or from impurities in oil or gasoline.

The EPA is the lead Federal Agency for administering the Clean Air Act and has certain responsibilities regarding the health effects of MSATs. The EPA has issued two MSAT Rules under Section 202 of the Clean Air Act. In these rules, EPA examined the impacts of existing and newly promulgated mobile source control programs, including its reformulated gasoline (RFG) program, its national low emission vehicle (NLEV) standards, its Tier 2 motor vehicle emissions standards and gasoline sulfur control requirements, and its proposed heavy duty engine and vehicle standards and on-highway diesel fuel sulfur control requirements. Between 2000 and 2020, FHWA projects that even with a 64 percent increase in VMT, these programs will reduce on-highway emissions of benzene, formaldehyde, 1,3-butadiene, and acetaldehyde by 57 percent to 65 percent, and will reduce on-highway diesel PM emissions by 87 percent, as shown in *Figure III-29*.

EPA has made some changes regarding vehicle emissions and fuel standards, which will continue the significant reduction of vehicle emissions as outlined in the MSAT Rule released February 26, 2007 (FR8428).

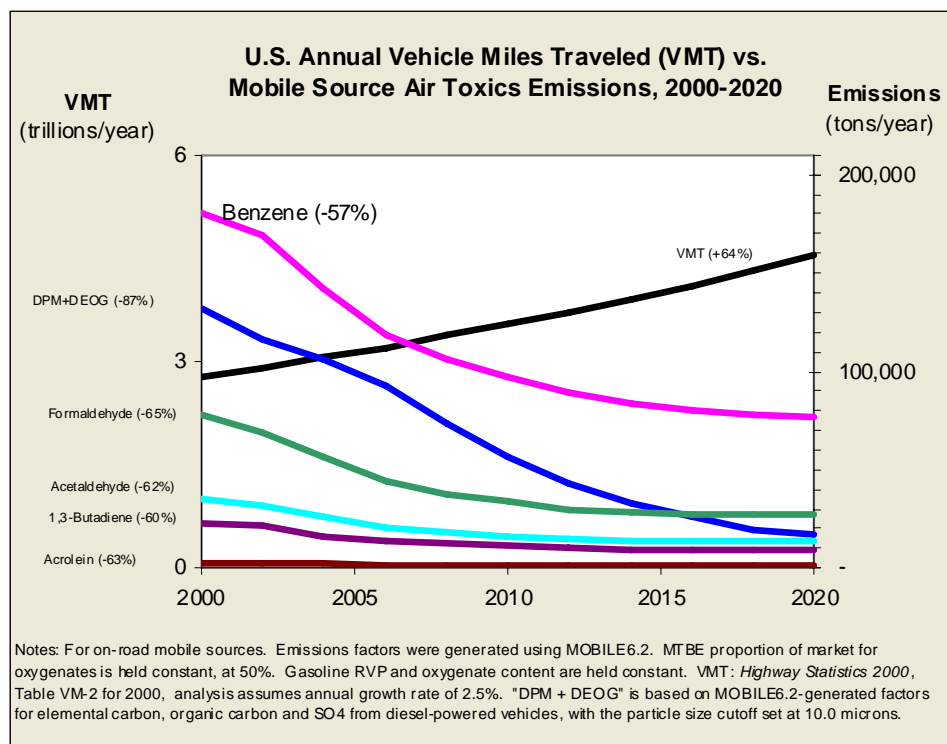


Figure III-29: U.S. Annual Vehicle Miles Traveled vs. Mobile Source Air Toxics Emissions, 2000 – 2020

1. Level of Project Specific MSAT Impact Analysis

The US 301 improvements will provide a new controlled-access, grade separated freeway that will carry a projected design year traffic volume of approximately 57,000 vehicles per day at the location with the highest projected volume (north of the Levels Road interchange, prior to the Spur Road split). This volume is considerably lower than FHWA's Level 3 threshold of 140,000 to 150,000 vehicles per day. Furthermore, the primary impact of the US 301 improvements will be to *shift* traffic, especially large, diesel trucks, 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, and which have traffic control devices (signals and stop signs) resulting in the need to accelerate and decelerate, and will place those vehicles on a higher speed facility with consistent travel speeds.

Table III-77 below provides a comparison of projected 2030 Average Annual Daily Traffic (AADT) volumes for a cross section (screenline) of roadways north of Middletown, Delaware for all of the Alternatives.

Table III-77: Projected 2030 Average Annual Daily Traffic (AADT) on Roadways North of Middletown

Screenline – North of Middletown	No-Build	Yellow	Purple	Brown	Green
Choptank Road	15,200	12,800	5,300	5,100	5,100
Existing US 301	38,900	32,900	23,100	24,000	21,300
Cedar Lane Road	9,700	6,100	5,600	5,500	4,500
SR 1	63,000	54,600	53,000	53,100	51,300
US 13	42,600	39,400	39,400	39,200	37,700
New US 301		37,600	53,700	56,000	56,700
TOTAL	169,400	183,400	180,100	182,900	176,600
% Increase from No-Build		8%	6%	8%	4%

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, as well as the complete length of the new US 301 alignments. A summary of the VMT is provided in **Table III-78**.

Table III-78: Summary of Projected (2030) Vehicle Miles Traveled (VMT)

Alternative	2030 VMT on Existing Roads	2030 VMT on New US 301	Total	Total Change in VMT	Reduction in VMT on Existing Roads
No-Build	1,359,000		1,359,000	0%	
Yellow	1,132,000	428,000	1,560,000	15%	-17%
Purple	1,030,000	516,000	1,546,000	14%	-24%
Brown	1,006,000	570,000	1,576,000	16%	-26%
Green	978,000	523,000	1,501,000	10%	-28%

While the Build Alternatives are all projected to result in a small increase in total VMT (10% to 16%), those increases would be at least partially mitigated by the shift in total VMT away from existing, often congested roads, and onto an uncongested higher speed roadway with consistent travel speeds.

The preceding data indicates that there would only be minimal differences in the regional MSAT emissions for the US 301 Project Alternatives. Therefore, in accordance with FHWA *Interim Guidance on Air Toxic Analysis in NEPA Documents* (February 3, 2006), 11/5/07US 301 MSATthe US 301 project is one “... that serve[s] to improve operations of highway...without adding substantial new capacity or creating a facility that is likely to meaningfully increase emissions.” and the project would be considered a “Project with Low Potential MSAT Effects” and subject to a qualitative discussion of localized MSAT impacts.

2. Unavailable Information for Project Specific MSAT Impact Analysis

This FEIS includes a basic analysis of the likely MSAT emission impacts of this project. However, available technical tools do not enable us to predict the project-specific health impacts of the emission changes associated with the alternatives in this FEIS. Due to these limitations,

the following discussion is included in accordance with CEQ regulations (40 CFR 1502.22(b)) regarding incomplete or unavailable information.

a. Information that is Unavailable or Incomplete

Evaluating the environmental and health impacts from MSATs on a proposed highway project would involve several key elements, including emissions modeling, dispersion modeling in order to estimate ambient concentrations resulting from the estimated emissions, exposure modeling in order to estimate human exposure to the estimated concentrations, and then final determination of health impacts based on the estimated exposure. Each of these steps is encumbered by technical shortcomings or uncertain science that prevents a more complete determination of the MSAT health impacts of this project.

- **Emissions:** The EPA tools to estimate MSAT emissions from motor vehicles are not sensitive to key variables determining emissions of MSATs in the context of highway projects. While MOBILE 6.2 is used to predict emissions at a regional level, it has limited applicability at the project level. MOBILE 6.2 is a trip-based model - emission factors are projected based on a typical trip of 7.5 miles, and on average speeds for this typical trip. This means that MOBILE 6.2 does not have the ability to predict emission factors for a specific vehicle operating condition at a specific location at a specific time. Because of this limitation, MOBILE 6.2 can only approximate the operating speeds and levels of congestion likely to be present on the largest-scale projects and cannot adequately capture emissions effects of smaller projects. For particulate matter the model results are not sensitive to average trip speed, although the other MSAT emission rates do change with changes in trip speed. Also, the emissions rates used MOBILE 6.2 for both particulate matter and MSATs are based on a limited number of tests of mostly older-technology vehicles. Lastly, in its discussions of PM under the conformity rule, EPA has identified problems with MOBILE 6.2 as an obstacle to quantitative analysis.

These deficiencies compromise the capability of MOBILE 6.2 to estimate MSAT emissions. MOBILE 6.2 is an adequate tool for projecting emissions trends, and performing relative analyses between alternatives for very large projects, but it is not sensitive enough to capture the effects of travel changes tied to smaller projects or to predict emissions near specific roadside locations.

- **Dispersion.** The tools to predict how MSATs disperse are also limited. The EPA's current regulatory models, CALINE3 and CAL3QHC, were developed and validated more than a decade ago for the purpose of predicting episodic concentrations of carbon monoxide to determine compliance with the NAAQS. The performance of dispersion models is more accurate for predicting maximum concentrations that can occur at some time at some location within a geographic area. This limitation makes it difficult to predict accurate exposure patterns at specific times at specific highway project locations across an urban area to assess potential health risk. The NCHRP is conducting research on best practices in applying models and other technical methods in the analysis of

MSATs. This work also will focus on identifying appropriate methods of documenting and communicating MSAT impacts in the NEPA process and to the general public. Along with these general limitations of dispersion models, FHWA is also faced with a lack of monitoring data in most areas for use in establishing project-specific MSAT background concentrations.

- **Exposure Levels and Health Effects.** Finally, even if emission levels and concentrations of MSATs could be accurately predicted, shortcomings in current techniques for exposure assessment and risk analysis preclude us from reaching meaningful conclusions about project-specific health impacts. Exposure assessments are difficult because it is difficult to accurately calculate annual concentrations of MSATs near roadways, and to determine the portion of a year that people are actually exposed to those concentrations at a specific location. These difficulties are magnified for 70-year cancer assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over a 70-year period. There are also considerable uncertainties associated with the existing estimates of toxicity of the various MSATs, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population. Because of these shortcomings, any calculated difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with calculating the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against other project impacts that are better suited for quantitative analysis.

b. Summary of Existing Credible Scientific Evidence Relevant to Evaluating the Impacts of MSATs

Research into the health impacts of MSATs is ongoing. For different emission types, there are a variety of studies that show that some either are statistically associated with adverse health outcomes through epidemiological studies (frequently based on emissions levels found in occupational settings) or that animals demonstrate adverse health outcomes when exposed to large doses.

Exposure to toxics has been a focus of a number of EPA efforts. Most notably, the agency conducted the National Air Toxics Assessment (NATA) in 1996 to evaluate modeled estimates of human exposure applicable to the county level. While not intended for use as a measure of or benchmark for local exposure, the modeled estimates in the NATA database best illustrate the levels of various toxics when aggregated to a national or State level.

The EPA is in the process of assessing the risks of various kinds of exposures to these pollutants. The EPA Integrated Risk Information System (IRIS) is a database of human health effects that may result from exposure to various substances found in the environment. The IRIS database is located at <http://www.epa.gov/iris>. The following toxicity information for the six prioritized MSATs was taken from the IRIS database Weight of Evidence Characterization summaries.

This information is taken verbatim from EPA's IRIS database and represents the Agency's most current evaluations of the potential hazards and toxicology of these chemicals or mixtures.

- **Benzene** is characterized as a known human carcinogen.
- The potential carcinogenicity of **acrolein** cannot be determined because the existing data are inadequate for an assessment of human carcinogenic potential for either the oral or inhalation route of exposure.
- **Formaldehyde** is a probable human carcinogen, based on limited evidence in humans, and sufficient evidence in animals.
- **1,3-butadiene** is characterized as carcinogenic to humans by inhalation.
- **Acetaldehyde** is a probable human carcinogen based on increased incidence of nasal tumors in male and female rats and laryngeal tumors in male and female hamsters after inhalation exposure.
- **Diesel exhaust** (DE) is likely to be carcinogenic to humans by inhalation from environmental exposures. Diesel exhaust as reviewed in this document is the combination of diesel particulate matter and diesel exhaust organic gases.
- **Diesel exhaust** also represents chronic respiratory effects, possibly the primary noncancer hazard from MSATs. Prolonged exposures may impair pulmonary function and could produce symptoms, such as cough, phlegm, and chronic bronchitis. Exposure relationships have not been developed from these studies.

There have been other studies that address MSAT health impacts in proximity to roadways. The Health Effects Institute, a non-profit organization funded by EPA, FHWA, and industry, has undertaken a major series of studies to research near-roadway MSAT hot spots, the health implications of the entire mix of mobile source pollutants, and other topics. The final summary of the series is not expected for several years.

Some recent studies have reported that proximity to roadways is related to adverse health outcomes - particularly respiratory problems¹. Much of this research is not specific to MSATs, instead surveying the full spectrum of both criteria and other pollutants. The FHWA cannot evaluate the validity of these studies, but more importantly, they do not provide information that would be useful to alleviate the uncertainties listed above and enable us to perform a more comprehensive evaluation of the health impacts specific to this project.

¹ South Coast Air Quality Management District, Multiple Air Toxic Exposure Study-II (2000); Highway Health Hazards, The Sierra Club (2004) summarizing 24 Studies on the relationship between health and air quality); NEPA's Uncertainty in the Federal Legal Scheme Controlling Air Pollution from Motor Vehicles, Environmental Law Institute, 35 ELR 10273 (2005) with health studies cited therein.

c. Relevance of Unavailable or Incomplete Information to Evaluating Reasonably Foreseeable Significant Adverse Impacts on the Environment, and Evaluation of Impacts based upon Theoretical Approaches or Research Methods Generally Accepted in the Scientific Community

Because of the uncertainties outlined above, a quantitative assessment of the effects of air toxic emissions impacts on human health cannot be made at the project level. While available tools do allow us to reasonably predict relative emissions changes between alternatives for larger projects, the amount of MSAT emissions from each of the project alternatives and MSAT concentrations or exposures created by each of the project alternatives cannot be predicted with enough accuracy to be useful in estimating health impacts. (As noted above, the current emissions model is not capable of serving as a meaningful emissions analysis tool for smaller projects.) Therefore, the relevance of the unavailable or incomplete information is that it is not possible to make a determination of whether any of the alternatives would have "significant adverse impacts on the human environment."

In this document, DelDOT has provided a qualitative analysis of MSAT emissions relative to the various alternatives, and has acknowledged that all of the project alternatives may result in increased exposure to MSAT emissions in certain locations, although the concentrations and duration of exposures are uncertain, and because of this uncertainty, the health effects from these emissions cannot be estimated.

3. Project Specific MSAT Information

As discussed above, technical shortcomings of emissions and dispersion models and uncertain science with respect to health effects prevent meaningful or reliable estimates of MSAT emissions and effects of this project. However, even though reliable methods do not exist to accurately estimate the health impacts of MSATs at the project level, it is possible to qualitatively assess the levels of future MSAT emissions under the project. Although a qualitative analysis cannot identify and measure health impacts from MSATs, it can give a basis for identifying and comparing the potential differences among MSAT emissions, if any, from the various alternatives. The qualitative assessment presented below is derived in part from a study conducted by the FHWA entitled *A Methodology for Evaluating Mobile Source Air Toxic Emissions among Transportation Project Alternatives*, found at:

www.fhwa.dot.gov/environment/airtoxic/msatcompare/msatemissions.htm

For each alternative in this FEIS, the amount of MSATs emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables such as fleet mix are the same for each alternative. While the Build Alternatives are all projected to result in a small increase in total VMT relative to the No-Build throughout the project area (10 percent to 16 percent increase in VMT), those increases would be at least partially mitigated by the shift in total VMT away from existing, often congested roads, and onto an uncongested higher speed roadway with consistent travel speeds (17 percent to 28 percent decrease in VMT), shown previously in **Table III-78**.

In addition, because the estimated VMT under each of the Build Alternatives are nearly the same, varying by less than five percent, it is expected there would be no appreciable difference in overall MSAT emissions among the various alternatives. Regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce MSAT emissions by 57 to 87 percent from 2000 to 2020. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in virtually all locations.

Because of the specific characteristics of the project alternatives (i.e. new connector roadways), there may be localized areas under each alternative where VMT would increase, and other areas where VMT would decrease. Therefore, it is possible that localized increases and decreases in MSAT emissions may occur. The localized increases in MSAT emissions would likely be most pronounced along the new US 301 alignments. However, even if these increases do occur, they too will be substantially reduced in the future due to implementation of EPA's vehicle and fuel regulations. Furthermore, MSAT emissions should be reduced, compared to the No-build, on several existing roads in the project area which are closer in proximity to numerous homes, businesses and schools than the proposed US 301 alignments.

Sensitive receptors include those facilities most likely to contain large concentrations of the more sensitive population. These include hospitals, schools, licensed day cares, and elder care facilities. Dispersion studies have shown that the "roadway" air toxics start to drop off at about 100 meters (328 feet). By 300 meters (984 feet), most studies have found it very difficult to distinguish the roadway from background toxic concentrations in any given area. There are three (3) sensitive receptors within 100 meters of the proposed US 301 Preferred Alignment, and there are also three (3) sensitive receptors within 300 meters of the road. These sensitive receptors are listed in **Table III-79**. However, as noted previously, MSAT emissions should be reduced, compared to the No-Build Alternative, on many of the existing roads in the project area, including Cedar Lane Road, Bunker Hill Road, Summit Bridge Road (existing US 301) and Hyetts Corner Road, which are immediately adjacent to these sensitive receptors.

**Table III-79: Sensitive Receptor Locations
within the US 301 Project Area**

Within 100 Meters of Preferred Alternative	
1.	Appoquinimink High School - Opening 2008 (Bunker Hill Road)
2.	Children at Work Day Care (4922 Summit Bridge Road)
3.	St. George's Technical High School (Hyetts Corner Road)
Within 300 Meters of the Preferred Alternative	
1.	Cedar Lane Early Childhood Center (1221 Cedar Lane Road)
2.	Cedar Lane Elementary School (1259 Cedar Lane Road)
3.	Alfred G. Waters Middle School (1259 Cedar Lane Road)

In sum, under all build alternatives in the design year it is expected there would be only minor increases in MSAT emissions in the immediate area of the project, relative to the No-Build Alternative, due to the reduced VMT on the existing, congested roadway network, which helps to offset the increase in VMT associated with the build alternatives. Any potential increase in MSAT emissions associated with the build alternatives would be further reduced by the 2030 design year due to EPA's MSAT reduction programs.

In comparing various project alternatives, MSAT levels could be higher in some locations than others, but current tools and science are not adequate to quantify them. However, on a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be significantly lower than today.

L. Relationship between Local Short-Term Uses of Man's Environment and the Maintenance of Enhancement of Long-Term Productivity

The expected short-term impacts, due to construction of the Preferred Alternative or other build alternatives, include localized noise and air pollution during construction and temporary traffic delays. With the implementation of proper controls, these short-term impacts would not have a lasting effect on the environment.

The long-term benefits of the build alternatives would include increased safety, decreased congestion, and improved mobility. The project would be completed in accordance with the goals and objectives in the *New Castle County 2002 Comprehensive Development Plan Update*, which considers the need for present and future traffic demand within the context of existing and future land use and development. The local short-term impacts and use of resources by the implementation of the proposed action are consistent with the long term goals and objectives of the plan for future continued mobility, productivity and economic growth.

M. Irreversible and Irretrievable Commitment of Resources

The construction of the Preferred Alternative or other build alternative would require the irreversible and irretrievable commitment of natural, human and fiscal resources. The build alternatives would require the commitment of land for the construction of the highway, which is considered an irreversible commitment during the time period the land is used for a highway facility. If a greater need for the land should arise, or the highway no longer be needed, the land could be converted to another use; however, this scenario is not anticipated.

Fossil fuels, labor, highway construction materials, and natural resources will be expended during the construction of a build alternative. The materials used in highway construction are irretrievable; however, these materials are not in short supply and their use should not have long term impacts on continued availability of these materials. The build alternatives would require an irretrievable use of federal and state funds for the purchase of right of way, construction materials, and construction labor. Upon completion, funds would be required for routine

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US 301 Project Development Final Environmental Impact Statement



State of Delaware Historical and Cultural Affairs

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HUMMEL, KLEPPER & KAHL, LLP

February 14, 2007

Mr. Robert Kleinburd
Division Program Manager
Federal Highway Administration
J. Allen Frear Federal Building
300 South New Street
Dover, DE 19904-6726

RE: US 301 Corridor Study/Project Development; Draft Environmental Impact Statement

Dear Mr. Kleinburd:

Thank you for the opportunity to comment on the US 301 Draft Environmental Impact Statement (DEIS), prepared for compliance with the National Environmental Policy Act. The DEIS describes DelDOT's detailed analysis of those alternatives retained for further study (Yellow, Purple, Brown North, Brown South, Green North, and Green South), and identifies Green North as the "Recommended Preferred Alternative". The staff of the DE SHPO offers its comments on the analyses performed to date, including steps taken to comply with Section 106 of the National Historic Preservation Act, and the Alternatives' relative potential effects on historic properties.

1

Under separate cover, this office is also providing technical comments on the DEIS. However, one technical comment bears mentioning in this letter. The Summary, Chapter III (Environmental Resources and Consequences), and Chapter V (Recommended Preferred Alternative) contain inconsistent information on the number of historic properties that may be affected by the Alternatives. The inconsistency is significant, as some of the figures given suggest that the preferred Green North alternative would affect fewer properties than may actually be the case. Please ensure that correct information is given in the Final EIS, and, in the interim, is provided to any members of the public who inquire about this aspect of the DEIS.

Analyses Performed/Section 106 Process:

The Federal Highway Administration (FHWA) and DelDOT reinitiated Section 106 consultation on the US 301 project in February 2005, and began the process of re-defining an Area of Potential Effect and identifying and evaluating historic properties. Earlier studies, performed by the University of Delaware (the Center for Historic Architecture and Engineering and the Center for Archaeological Research, 1993) were consulted, but new survey of architectural properties and studies of archaeological potential were warranted.



Response to Delaware State Historic Preservation Office:

Thank you for your comments on the US 301 Project Development Draft Environmental Impact Statement and the recommendation of the Green Alternative North Option as DelDOT's Preferred Alternative.

Each comment is numbered in your letter, corresponding with the responses that follow:

Response 1 – Regarding the discrepancy between the numbers of historic properties that may be affected, the information in the Summary Table S-1 and Chapter V, Sections B and C, is incorrect. The information presented in the Summary text, Page S-13, and in the text on page III-48 and on Table III-23 is correct. This information is updated based on the results of the application of the criteria of adverse effects and presented with consistency in the FEIS.

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- Negative changes in Air Quality can be viewed as an atmospheric effect, listed among the examples of adverse effects in the Section 106 regulations. Data in the DEIS indicate that some degradation of air quality will likely occur at the Rosedale and Maples historic properties, if the preferred alternative (or any "ridge" alignment) is built.

8

- Noise, or audible effects, is also listed among the examples of adverse effects. The DEIS indicates that several National Register-listed or eligible properties – as grouped with other types of properties in "Noise Sensitive Areas" – may be adversely affected by the introduction of highway noise, but states that mitigation is not feasible or not reasonable to undertake. Under Section 106, further consultation on noise effects to historic properties, specifically, and exploration of ways to minimize or mitigate for those effects is needed. Additionally, the analysis projects that noise levels under some Build alternatives would *decrease* over the current ambient/peak hour and/or the projected No Build noise levels at some historic properties (The Maples, for example); the Final EIS and Section 106 Assessment of Effects should include explanation of these results.

9

- The Section 106 Criteria of Adverse Effect include "reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative", similar to the definition of Secondary and Cumulative Effects given in the DEIS. The DEIS acknowledges that the project has the potential to result in secondary and cumulative effects, but relies on County ordinances, State land use guidance, and Section 106 regulations to address these effects (please see further discussion in the technical comments). This office suggests that FHWA and DelDOT continue to seek ways that the design of the facility itself could discourage such effects; a study of the actual secondary and cumulative effects of SR 1, a similar, large scale limited access highway that is now completed, might prove instructive.

Alternatives' and Options' Potential Effects on Historic Properties

The DE SHPO's views on the alternatives are similar to those expressed in October, 2005. With the exception of "No Build", all of the Alternatives presented to date are likely to adversely affect historic properties. The "Build" Alternatives, and various new Options associated with certain alternatives, can be characterized by their relative degree and nature of potential effects.

The Yellow, Purple and Green Alternatives all affect a higher number of known National Register listed or eligible properties than would the Brown Alternatives. Further, the Yellow Alternative would result in physical impacts to four historic properties. The effects of the alternatives on areas with a higher probability to contain archaeological sites is mixed, with Yellow and Purple less likely to affect pre-contact period Native American sites, but more likely to affect historic period sites; the reverse is the case for the Green and Brown alternatives.

(Continued from Page 6)

Response 7 – Some changes in general air quality always accompany the construction and use of a new highway. The project will be included in the WILMAPCO regional air quality conformity analysis following the completion of the Record of Decision. The microscale analysis performed for the project indicated a slight rise in CO levels at the receptor located at 1106 Bunker Hill Road for the alternatives using the ridge alignment. The predicted concentrations will not exceed the S-NAAQS 1-hour or 8-hour standard for CO at any location and, therefore, are not considered an impact (DEIS, III.C).

Response 8 – Predicted changes in noise levels at each historic property affected by the Preferred Alternative are evaluated under the criteria of adverse effects for audible effects that would diminish the integrity of the property's setting or feeling, as applicable. Where the audible impacts are adverse, these effects are taken into consideration in the mitigation measures included in the MOA. A discussion of the reasons for noise increases/decreases is included for each applicable historic property in the FEIS – see also responses to technical comments, response to comment 26.

Response 9 – DelDOT has designed new US 301 (mainline and spur road) as a limited access highway, thus, limiting access to areas that are already planned for development. The FEIS also discusses the cumulative effect that the roadway will add to those caused by the already planned and approved developments in the project area that will likely be completed before roadway construction will begin. Development adjacent to the new roadway access points is for the most part already planned and/or approved, and future development approvals will depend upon county and municipal zoning.

Response 10 (see next page for comment) – DelDOT has confirmed its preference for the Green North Alternative and considers the Spur Road an integral part of the roadway project. While we appreciate your concern about the Spur Road, only two additional historic resources are within the area of potential effect of the Spur Road - Choptank (CRS No. N00109) and Governor Benjamin T. Biggs Farm (N05123). During the consultation to apply the Criteria of Adverse Effect, it was agreed that there is an adverse effect on both resources based upon the change in the viewsheds. Mitigation to lessen the effect will be determined in accordance with the stipulations in the MOA.

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US 301 Project Development Final Environmental Impact Statement



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

February 15, 2007

Mr. Robert Kleinburd
Environmental Project Manager
Federal Highway Administration
300 South New Street
Dover, Delaware 19901

Subject: Draft Environmental Impact Statement for the Delaware Department of Transportation (DelDOT) US 301 Project (CEQ 20060469)

Dear Mr. Kleinburd:

In accordance with the National Environmental Policy Act (NEPA), Section 309 of the Clean Air Act, Section 404 of the Clean Water Act (Section 404), and the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 CFR 1500-1508), the U. S. Environmental Protection Agency (EPA) has reviewed Draft Environmental Impact Statement (DEIS) for the above referenced project. The Draft Environmental Impact Statement (DEIS) was prepared by DelDOT and the Federal Highway Administration (FHWA) in cooperation with the US Army Corp of Engineers, US Fish and Wildlife and the US Environmental Protection Agency (EPA).

The US 301 project proposes to improve and enhance highway safety, manage truck traffic, and address existing and projected traffic congestion in the Delaware portion of the highway, while minimizing environmental impacts and accommodating existing and planned development. The project proposes to provide improved travel conditions for vehicles traveling north/south between US 301 at the Delaware/Maryland state line and points north of the Chesapeake and Delaware Canal via State Road (SR) 896 (Summit Bridge) and SR-1 in Southern New Castle County, Delaware.

Throughout project development, including project planning, scoping, alternatives analysis and alternative selection, DelDOT has provided extensive and ongoing coordination, cooperation and consultation with EPA, as well as other Federal and state resource agencies. DelDOT has embraced the Mid-Atlantic Transportation and Environmental (MATE) streamlining concepts into its project development process which encourages early involvement by the regulatory agencies as a way of avoiding, minimizing and mitigating project impacts during the initial assessment and design phase. As such, the DEIS provides a collaborative assessment of the proposed project.

EPA has evaluated the DEIS for the US 301 Project and has rated the project as an EC-2, environmental concerns, insufficient information. EPA has developed the rating system to evaluate EISs under the NEPA process. A copy of the EPA EIS rating system is enclosed for your information. Further information regarding the rating system can be found at: <http://www.epa.gov/Compliance/nepa/comments/ratings.html>. EPA has based the EC-2 rating for the

1

1

Response to the US Environmental Protection Agency:

Thank you for your comments on the US 301 Project Development Draft Environmental Impact Statement (DEIS) and the recommendation of the Green Alternative North Option as DelDOT's Preferred Alternative.

Each comment is numbered in your letter, corresponding with the responses that follow:

Response 1 – We understand and accept your rating of EC-2, in accordance with the EPA's EIS evaluation system, and, based on continued consultation, suggest that those areas of concern which you identified in the DEIS, including the wetland mitigation plan and Ratledge Road Area resolution, have been resolved in the FEIS.

US 301 Project Development Final Environmental Impact Statement



project on the limited wetland mitigation as well as the unresolved Ratledge Road area alternative alignment in the DEIS. EPA believes these issues will be resolved final EIS.

In accordance with Section 404 of the Clean Water Act and the procedural considerations of NEPA, EPA requests that the wetland permitting process or the permit decision by the U.S. Army Corps of Engineers be placed on hold and that upon concurrence of the mitigation plan by EPA that the compensation plan be made a condition of permit issuance.

EPA is aware of the ongoing wetland mitigation work and has participated in the initial field work into the assessment of potential wetland mitigation sites. EPA anticipates that this effort will continue and will be included in a compensatory mitigation package. EPA also recommends that DelDOT investigate the use of the following measure to further improve the project:

2

1. Reducing the impacts of stormwater is a very important consideration for highway transportation projects and an important EPA initiative. If possible the project should implement Low Impact Development techniques and other Best Management Practices that will further reduce the impacts of stormwater runoff

2. Noise mitigation measures should be implemented during construction. These measures may include:

- maintenance of construction equipment and installation of mufflers to reduce noise;
- time of day restrictions on construction and maintenance activities to eliminate noise during those times of day when it is considered to be most objectionable; and
- timing of construction activities to avoid primary breeding and nesting seasons of avian and other affected species.

3. Off-road diesel engine emissions can have a significant impact on air quality. The use of low or ultra-low sulfur fuels, particulate controls and anti-idling measure can drastically reduce air emissions.

EPA recognizes and appreciates the proactive approach taken by DelDOT and FHWA in the development of the DEIS. Thank you for the opportunity to provide comments on the DEIS. Should you have any questions regarding our comments concerning the NEPA process, please contact Kevin Magerr at 215-814-5724.

Sincerely,

William Arguto
NEPA Team Leader

Enclosure


cc: Robert J. Taylor, DelDOT

(continued from page 16)

Response 2 – Item 1 – The FEIS includes a summary of the stormwater management efforts that may be employed for the project – including ponds, drainage swales and ditches, and other efforts to protect surface and groundwaters from untreated roadway runoff. Hydraulic studies have been included in the design effort for the Preferred Alternative in the FEIS, identifying appropriate drainage paths and treatments for roadway runoff and including additional detail not available in the DEIS. This effort to maximize the protections and minimize the impacts will continue during final design.

Item 2 – Possible noise mitigation measures during construction are specified as a project commitment in the FEIS, and include time-of-year restrictions, time-of-day restrictions and equipment maintenance. See Chapter III, Section I “Temporary Construction Impacts”.

Item 3 – These recommendations will be forwarded to the construction contractors, but will not be included as requirements. Many contractors agree that limiting idling time would be practical, and some already use low or ultra-low sulfur fuels.



U.S. Environmental Protection Agency

National Environmental Policy Act (NEPA)

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Environmental Impact Statement (EIS) Rating System Criteria

EPA has developed a set of criteria for rating draft EISs. The rating system provides a basis upon which EPA makes recommendations to the lead agency for improving the draft EIS.

- [Rating the Environmental Impact of the Action](#)
- [Rating the Adequacy of the Draft Environmental Impact Statement \(EIS\)](#)

RATING THE ENVIRONMENTAL IMPACT OF THE ACTION

- LO (Lack of Objections)** The review has not identified any potential environmental impacts requiring substantive changes to the preferred alternative. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposed action.
- EC (Environmental Concerns)** The review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact.
- EO (Environmental Objections)** The review has identified significant environmental impacts that should be avoided in order to adequately protect the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). The basis for environmental Objections can include situations:
 - Where an action might violate or be inconsistent with achievement or maintenance of a national environmental standard;
 - Where the Federal agency violates its own substantive environmental requirements that relate to EPA's areas of jurisdiction or expertise;
 - Where there is a violation of an EPA policy declaration;
 - Where there are no applicable standards or where applicable standards will not be violated but there is potential for significant environmental degradation that could be corrected by project modification or other feasible

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alternatives; or

5. *Where proceeding with the proposed action would set a precedent for future actions that collectively could result in significant environmental impacts.*

- **EU (Environmentally Unsatisfactory)** The review has identified adverse environmental impacts that are of sufficient magnitude that EPA believes the proposed action must not proceed as proposed. The basis for an environmentally unsatisfactory determination consists of identification of environmentally objectionable impacts as defined above and one or more of the following conditions:

1. *The potential violation of or inconsistency with a national environmental standard is substantive and/or will occur on a long-term basis;*
2. *There are no applicable standards but the severity, duration, or geographical scope of the impacts associated with the proposed action warrant special attention; or*
3. *The potential environmental impacts resulting from the proposed action are of national importance because of the threat to national environmental resources or to environmental policies.*

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RATING THE ADEQUACY OF THE DRAFT ENVIRONMENTAL IMPACT STATEMENT (EIS)

- **1 (Adequate)** The draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.
- **2 (Insufficient Information)** The draft EIS does not contain sufficient information to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the proposal. The identified additional information, data, analyses, or discussion should be included in the final EIS.
- **3 (Inadequate)** The draft EIS does not adequately assess the potentially significant environmental impacts of the proposal, or the reviewer has identified new, reasonably available, alternatives, that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. The identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. This rating indicates EPA's belief that the draft EIS does not meet the purposes of NEPA and/or the Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS.

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Question 13

Supporting Documentation

13-E



DRAFT ENVIRONMENTAL IMPACT STATEMENT - STATUS



NEPA Requirements:

What is an EIS?

The EIS Process

Notice of Intent (NOI) → Draft EIS → Final EIS → Record of Decision (ROD)

- The NOI is published in the Federal Register by the lead Federal agency and signals the initiation of the process. The NOI for the US 301 EIS was issued on February 3, 2005 in the Federal Register.
- Scoping is an open process involving the public and other Federal, state and local agencies, commences immediately to identify the major and important issues for consideration during the study.
- Public involvement and agency coordination continues throughout the entire process.
- The draft EIS (DEIS) provides a detailed description of the proposal, purpose and need, reasonable alternatives, affected environment and environmental effects.
- Following a formal comment period the final EIS (FEIS) is issued. The FEIS addresses the comments on the DEIS and identifies the selected alternative.
- Once the FEIS is published, a minimum 30-day waiting period is required before a Record of Decision (ROD) can be issued. A ROD notifies the public of the alternative that the agency has selected to proceed with and the reasons for that decision.

US 301 Draft Environmental Impact Statement

The US 301 EIS

Key Findings:

- The Yellow Alternative impacts the most hydric soils (158 acres). The Brown South Option would impact the least hydric soils (115 acres).

[illegible]

Recommended Preferred Alternative

This recommendation is for a Preferred Alternative only. Final identification of the Selected Alternative cannot occur until after a public hearing is conducted, the Final Environmental Impact Statement has been publicly circulated and the Record of Decision is complete. DelDOT will continue to interact with members of the public and communities, and those directly affected by the Preferred Alternative, along with the environmental resource and regulatory agencies, to refine the Preferred Alternative design and develop strategies to avoid, minimize and mitigate impacts.

Next Steps in NEPA Process:

- US 301 Project Comments
Attn: Mr. Mark Tudor
Project Director
Delaware Department of Transportation
800 Bay Road
Dover, Delaware 19903**

- **Prepare Record of Decision (ROD)**
- **Alternative Selected for Design**

Question 13

Supporting Documentation

13-F



AIR QUALITY

Macroscale (Region-wide) Air Quality Analysis

Performed by Wilmington Area Planning Council (WILMAPCO)

- State Implementation Plans (SIPs) are developed to define how a region will meet the primary and secondary National Ambient Air Quality Standards (NAAQS).
- The WILMAPCO develops a Constrained Long Range Plan (CLRP) and a Transportation Improvement Plan (TIP).
- A computer model is developed to predict CLRP and TIP impacts on air quality in New Castle County and to check conformity to the SIP.
- Emissions determined in the air quality analysis are summertime Nitrous Oxides (NO_x) and Volatile Organic Compounds (VOC) and wintertime Carbon Monoxide (CO). The NO_x and VOC emissions are pre-cursors for forming Ozone (O₃).
- The US 301 Project is included in the 2005-2010 CLRP.
- The US 301 Project conforms to the SIP since it is included in a conforming CLRP.

Microscale (Project-level) Air Quality Analysis

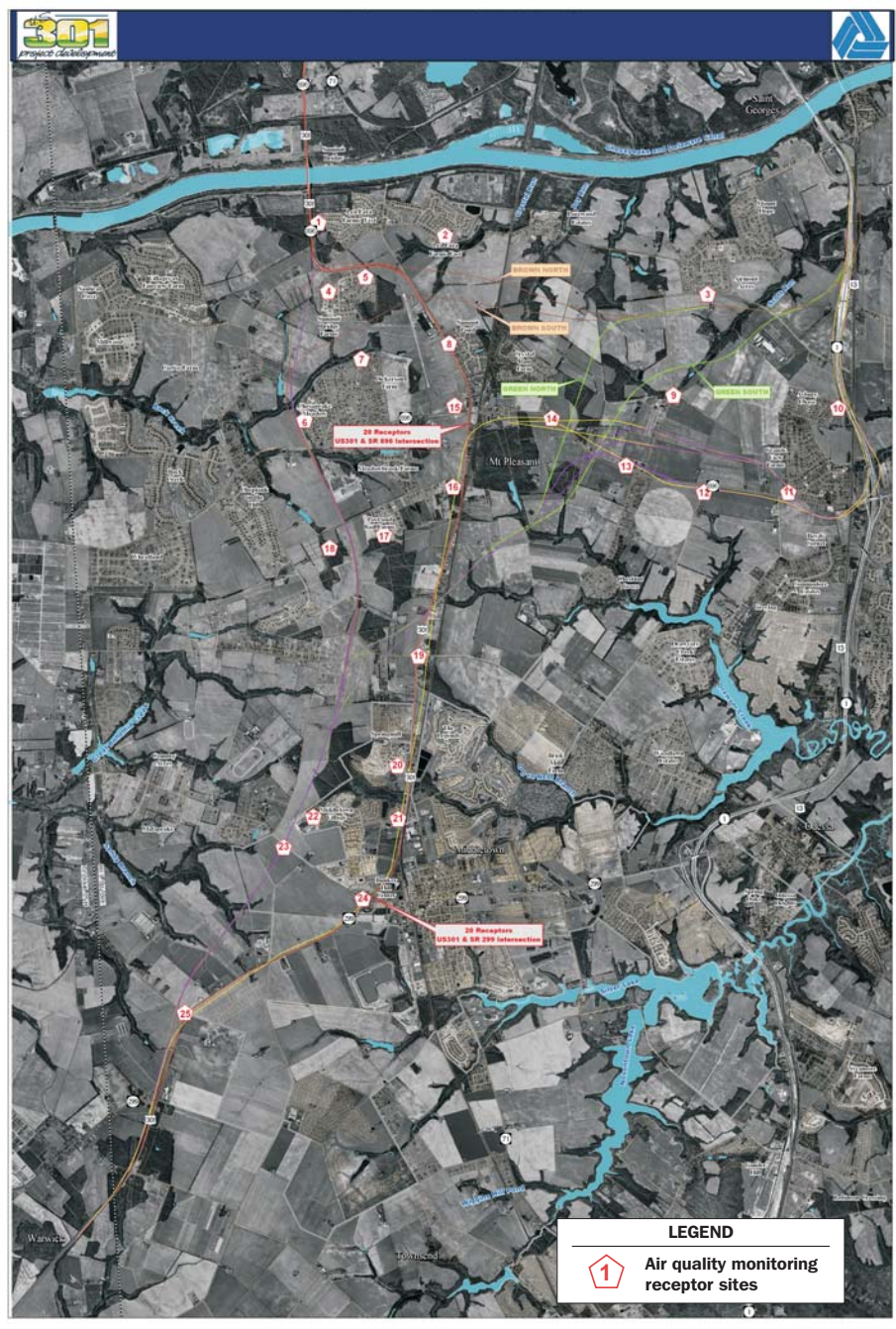
Performed by DelDOT

- CO hotspot analysis along the US 301 alignments and at 2 signalized intersections within the US 301 project area. CO impacts are analyzed as the acceptable indicator of vehicle-generated air pollution.
- 25 air quality receptor locations were selected to represent air quality sensitive locations. The sensitive receptor locations were defined as locations on either side of the proposed alignments that would be affected by changes in air quality.
- 2 signalized intersections along the proposed US 301 alignments were analyzed using 40 air quality receptors.
- The 1-hour State/National Ambient Air Quality Standard (S/NAAQS) for CO is 35 ppm. The 8-hour S/NAAQS for CO is 9 ppm.
- The 1-hour CO concentrations include a 1.7 ppm background level and the 8-hour average CO concentrations include a 1.2 ppm background level.
- The highest CO concentrations are as follows:

	HIGHEST CO CONCENTRATIONS (ppm)							
	2010				2030			
	Sensitive Receptor Sites		Intersections along US 301		Sensitive Receptor Sites		Intersections along US 301	
	1 hr	8 hr	1 hr	8 hr	1 hr	8 hr	1 hr	8 hr
No Build Alternative	4.8	2.7	5.5	3.2	4.0	2.3	4.4	2.7
Yellow Alternative	5.1	2.9	5.1	2.6	4.2	2.5	4.1	2.3
Purple + Spur Alternative	6.1	3.3	4.0	2.6	5.0	2.8	3.5	2.2
Brown Alternative (North & South)	6.3	3.4	5.1	2.6	5.2	2.9	4.1	2.3
Green + Spur Alternative (North & South)	6.3	3.5	4.0	2.6	5.2	2.9	3.5	2.2

- There will be no violations of the S/NAAQS for CO along any of the alternatives.
- Any alternative selected under this process will be included in a conformity analysis and the programming of any monies for design, right-of-way, or construction will proceed based on the results of that analysis.

AIR QUALITY MONITORING RECEPTOR SITES



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Supporting Documentation
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The federal noise criteria were exceeded at 63 to 108 Noise Sensitive Areas, depending on the alternative, thus resulting in noise impacts to these areas. Several communities are impacted under FHWA Noise Regulations and DelDOT's Noise Policy – see the Noise Analysis handout available at today's hearing.

Noise mitigation was considered and the Project Team continues to evaluate measures to minimize noise impacts, such as roadway profile. DelDOT has committed to provide a number of earth berms, where determined practicable, to provide visual screening between adjacent communities and new roadways. Additionally, visual earth berms can provide a measure of relief from noise impacts. Furthermore, analysis has shown that noise mitigation is not feasible, nor cost-effective, for a number of communities. This has been taken into consideration by DelDOT in recommending a preferred alternative. Details on the noise analysis are shown in the handouts and on the large display maps in the Workshop area.

A micro scale air quality analysis was conducted for the US 301 study area in accordance with state and federal guidelines. Carbon monoxide concentrations at all study area receptor locations are predicted to be below the state and National Ambient Air Quality Standards for the one-hour and eight-hour analyses of 35 parts per million and nine parts per million, respectively.

This concludes the environmental overview. Please refer to today's handouts for any additional information.

Question 13

Supporting Documentation

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and **Table 2** locate the community mitigation features listed under Alignment Modifications for Avoidance and Minimization and Visual Mitigation of Affected Communities.

7) Air Quality

Several measures are planned to minimize mobile source emissions during construction. For example, contract specifications will not permit vehicles and equipment to idle during long periods of time. Most contractors already practice this as a practical measure. The measures will be monitored during project construction. Although not a commitment for the contract specifications, many contractors already use low or ultra-low sulfur fuels in their equipment to reduce the potential for diesel emissions during construction. Contractor specifications will include conformance with latest EPA requirements regarding low and ultra-low sulfur fuels. See **Section VII** of this ROD for more information on air quality analyses.

8) Cultural Resources

As part of the obligation pursuant to the National Historic Preservation Act of 1966 as amended (NHPA), DelDOT and the FHWA entered into a Memorandum of Agreement (MOA) with the Delaware and Maryland SHPOs that reflects a series of stipulations regarding consultation to address and mitigate adverse effects to cultural resources in the study area (**Attachment D** of this ROD). Mitigation measures will be developed to address audible and visual effects to historic resources through landscaping and/or other treatments at the following resources:

The Maples, Cultural Resource Survey (CRS) No. N-106;
S. Holton Farm, CRS No. N-107;
Choptank, CRS No. N-109;
Rumsey Farm, CRS No. N-113;
Summerton, CRS No. N-112;
Idalia Manor, CRS No. N-3947
Governor Benjamin T. Biggs Farm, CRS No. N-5123;
T.J. Houston Farm, N-5131;
Armstrong-Walker House, CRS No. N-5146;
Rosedale, CRS No. N-5148;
C. Polk House, CRS No. N-5221; and

VII) AIR QUALITY DOCUMENTATION

With regard to the National Ambient Air Quality Standards (NAAQS), the US 301 project corridor is located in southern New Castle County, Delaware. The County is designated as in-attainment for carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), lead (Pb) and particulate matter (PM₁₀), meaning that the pollutant levels in the ambient air are currently within the maximum permissible concentrations. However, New Castle County is designated as a non-attainment area for ozone (O₃) and fine particulate matter (PM_{2.5}).

The US 301 project was subjected to two types of air quality analyses, a regional conformity analysis and project level analysis.

A. Regional Conformity Analysis

Transportation conformity analyses are coordinated by the Wilmington Area Planning Council (WILMAPCO), the regional transportation and planning agency for New Castle County, Delaware and Cecil County, Maryland. The recent addition of construction, design and right-of-way funds for US 301, a regionally significant project, to the Transportation Improvement Program (TIP) required the Regional Transportation Program (RTP) (fiscally constrained long range plan) to be amended to indicate available funding and air quality conformity. Amendments were proposed to the 2030 RTP, the 2008-2011 TIP and the draft 2009-2012 TIP.

In June 2007 and April 2008, the Secretary of DNREC issued Orders that finalized new budgets for New Castle County as part of Delaware's 8-hour ozone and PM_{2.5} State Implementation Plans (SIPs). These budgets were identified as necessary for Delaware to attain compliance with the 8-hour ozone and PM_{2.5} ambient air quality standards by the Clean Air Act deadline of 2010. The new 8-hour ozone budgets for New Castle County are 9.89 and 19.23 tons per day for VOC and NO_x, respectively, and 86.9 and 4904 tons per year for PM_{2.5} and NO_x, respectively. The new budgets, shown in **Table 11**, are significantly lower than the budgets of record, and have been submitted to EPA for approval.

Table 11: Comparison of 8-hour Ozone Standards

	Budget of Record	Finalized New Budget
VOC, tons/day	15.08	9.89
NO _x , tons/day	21.28	19.23
PM _{2.5} , tons/day	Not established	Not Applicable
PM _{2.5} , tons/year	208.6*	86.9
NO _x , tons/year	11,799.10	4904

Source: DNREC, April 10, 2008 letter to WILMAPCO

** 2002 baseline budget*

DNREC's Air Quality Management Section worked with DelDOT to determine the emissions associated with the 2030 WILMAPCO Regional Transportation Plan (RTP) and the 2009-2012 TIP. DNREC and DelDOT agreed that the methods and data used were acceptable. The results indicated conformity with all of the new budgets except Delaware's 2008 fine particle matter Attainment Demonstration SIP for 2030. PM_{2.5} emissions in 2030 are projected to exceed Delaware's attainment demonstration budget by about 8 tons per year, a relatively small amount. DelDOT and DNREC are committed to work together to identify measures that DelDOT has committed to implement to address this issue and to give their implementation a high priority. Accordingly, DNREC provided their concurrence on April 10, 2008 that the 2030 WILMAPCO RTP and 2009-2012 TIP, amended to include the US 301 project, are in conformity with Delaware's SIP.

The amendments to include the US 301 project in the 2030 RTP, the 2008-2011 TIP and the draft 2009-2012 TIP were approved by the WILMAPCO Council on April 10, 2008.

USEPA concurred in the air quality conformity determination on April 23, 2008, and FHWA/FTA provided their concurrence on April 24, 2008. Finally, FHWA approved the State Transportation Improvement Program (STIP) on April 25, 2008.

B. Project Level Analysis

The project must also meet the requirements for the analysis of localized CO and PM_{2.5} analysis (40 CFR 93.116). The project level CO "hot spot" analysis was performed for the No-Build Alternative as well as the four retained build alternatives. The results of this analysis are included in **Section III-C, pages III-73 through 80** of the Final EIS, the *Air Quality Technical Report*, and in the project files. The analysis demonstrated that the carbon monoxide

impact from the No-Build Alternative results in no violations of the State/National Ambient Air Quality Standards (S/NAAQS) one-hour concentration of 35.0 ppm or the eight-hour concentration of 9.0 ppm at any air quality receptor location in either the 2010 or 2030 analysis years. The air quality analysis also demonstrated that carbon monoxide impacts resulting from the implementation of any of the build alternatives, including the Selected Alternative, would not result in a violation of the one-hour concentration or the eight-hour concentration, at any air quality receptor location, in any analysis year.

In accordance with 40 CFR 93.123(b)(1), a qualitative PM_{2.5} hot-spot analysis is only required for projects of air quality concern, *i.e.*, those that involve significant levels of diesel vehicle traffic. Although the 2030 percentage of total truck traffic (including diesel trucks) on new US 301 is projected to exceed the eight percent guidance maximum (7-9 percent on most segments of the roadway and 20 percent at the state line), the average vehicles per day is less than half the minimum 125,000 AADT recommended for the analysis (the highest average daily traffic (ADT) is projected at 56,700). Because the new tolled US 301 does not encourage new diesel truck traffic, but merely shifts the diesel truck traffic from existing toll free US 301 to the new tolled roadway, it is not anticipated to result in a significant increase in diesel truck traffic. Therefore, the US 301 project is considered not a project of air quality concern, and a PM_{2.5} analysis was not included.

The conclusion that the project is not a project of air quality concern was contained in both the Draft EIS (**page III-54**) and the Final EIS (**page III-70**) and was available for public and agency review and comment. No comments were received from air quality agencies or the public in either review period regarding this conclusion.

C. Mobile Source Air Toxics (MSATS)

In addition to the criteria air pollutants for which there are National Ambient Air Quality Standards (NAAQS), EPA also regulates air toxics. Mobile Source Air Toxics (MSATs) are compounds emitted from highway vehicles and non-road equipment. No NAAQS have been established either individually or collectively for this group of compounds. Instead, EPA's current ruling regarding vehicle emissions and fuel formulations were issued to meet its duty under the Clean Air Act to regulate and reduce MSATs.

A project-level qualitative discussion of MSATs is included in the Final EIS. The US 301 improvements will provide a new controlled-access, grade separated freeway that will carry a projected design year traffic volume of approximately 57,000 vehicles per day at the location with the highest projected volume (north of the Levels Road interchange, prior to the Spur Road split). This volume is considerably lower than FHWA's Level 3 threshold of 140,000 to 150,000 vehicles per day for the performance of a quantitative analysis. Furthermore, the primary impact of the US 301 improvements will be to *shift* traffic, especially large, diesel trucks, 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, and which have traffic control devices (signals and stop signs) resulting in the need to accelerate and decelerate, and will place those vehicles on a higher speed facility with consistent travel speeds.

Because the analysis data indicated that there would only be minimal differences in the regional MSAT emissions for the US 301 Project Alternatives, in accordance with FHWA *Interim Guidance on Air Toxic Analysis in NEPA Documents* (February 3, 2006), the US 301 project is one "... that serve[s] to improve operations of highway...without adding substantial new capacity or creating a facility that is likely to meaningfully increase emissions" and the project would be considered a "Project with Low Potential MSAT Effects" and was subjected to a qualitative discussion of localized MSAT impacts. Although a qualitative analysis cannot identify and measure health impacts from MSATs, it can give a basis for identifying and comparing the potential differences among MSAT emissions, if any, from the various alternatives. The qualitative assessment presented in **Section III.K, pages III-233 to III-241** of the Final EIS was derived in part from FHWA's study, *A Methodology for Evaluating Mobile Source Air Toxic Emissions among Transportation Project Alternatives*.

The results of the analysis, as reported in the Final EIS, showed that for each retained alternative, the amount of MSATs emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables such as fleet mix are the same for each alternative. While the build alternatives are all projected to result in a small increase in total VMT relative to the No-Build throughout the project area (10 percent to 16 percent increase in VMT), those increases would be at least partially mitigated by the shift in total VMT away from existing, often

congested roads, and onto an uncongested higher speed roadway with consistent travel speeds (17 percent to 28 percent decrease in VMT).

In addition, because the estimated VMT under each of the build alternatives are nearly the same, varying by less than five percent, it is expected there would be no appreciable difference in overall MSAT emissions among the various alternatives. Regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce MSAT emissions by 57 to 87 percent from 2000 to 2020. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in virtually all locations.

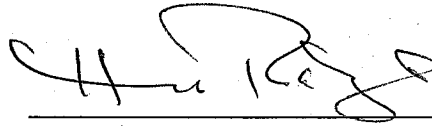
Because of the specific characteristics of the project alternatives (i.e. new connector roadways), there may be localized areas under each alternative where VMT would increase, and other areas where VMT would decrease. Therefore, it is possible that localized increases and decreases in MSAT emissions may occur. The localized increases in MSAT emissions would likely be most pronounced along the new US 301 alignments. However, even if these increases do occur, they too will be substantially reduced in the future due to implementation of EPA's vehicle and fuel regulations. Furthermore, MSAT emissions should be reduced, compared to the No-build, on several existing roads in the project area which are closer in proximity to numerous homes, businesses and schools than the proposed US 301 alignments.

In summary, under all build alternatives in the design year it is expected there would be only minor increases in MSAT emissions in the immediate area of the project, relative to the No-Build Alternative, due to the reduced VMT on the existing, congested roadway network, which helps to offset the increase in VMT associated with the build alternatives. Any potential increase in MSAT emissions associated with the build alternatives would be further reduced by the 2030 design year due to EPA's MSAT reduction programs.

In comparing various project alternatives, MSAT levels could be higher in some locations than others, but current tools and science are not adequate to quantify them. However, on a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will over

time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be significantly lower than today.

4/30/2008
Date



Hassan Raza, P.E.
Division Administrator
Federal Highway Administration

Question 13

Supporting Documentation

13-I



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029
January 16, 2008

Mr. Hassan Raza, Division Administrator
Federal Highway Administrator
300 South New Street
Dover, DE 19901

**Subject: Final Environmental Impact Statement for the Delaware Department of
Transportation (DelDOT) US 301 Project (CEQ 20060469)**

Dear Mr. Raza:


In accordance with the National Environmental Policy Act (NEPA), Section 309 of the Clean Air Act, Section 404 of the Clean Water Act (Section 404), and the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 CFR 1500-1508), the U. S. Environmental Protection Agency (EPA) has reviewed the Final Environmental Impact Statement (FEIS) for the above referenced project. The FEIS was prepared by DelDOT and the Federal Highway Administration (FHWA) in cooperation with the US Army Corp of Engineers, US Fish and Wildlife and the US Environmental Protection Agency (EPA).

As you are aware, the US 301 project proposes to improve and enhance highway safety, manage truck traffic, and address existing and projected traffic congestion in the Delaware portion of the highway, while minimizing environmental impacts and accommodating existing and planned development. The project proposes to provide improved travel conditions for vehicles traveling north/south between US 301 at the Delaware/Maryland state line and points north of the Chesapeake and Delaware Canal via State Road (SR) 896 (Summit Bridge) and SR-1 in Southern New Castle County, Delaware.

On September 17, 2007, EPA provided a comment letter on the Agency Preview of the FEIS. The letter included comments on wetland mitigation and storm water management associated with the highway project. DelDOT has allayed our concerns by providing additional information on proposed wetland mitigation and storm water management. Those additional measures will be incorporated into the proposed project's Record of Decision.

Thank you for the opportunity to provide comments on the FEIS. EPA looks forward to the continued coordination as DelDOT progresses forward with this project. Should you have any questions regarding our comments concerning the NEPA process, please contact Kevin Magerr at 215-814-5724.

Sincerely,


William Argulo
NEPA Team Leader

cc: Robert Taylor, DelDOT

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COMMENTS ON THE FINAL EIS AND RESPONSES

wetlands and relatively undisturbed natural stream systems and wildlife corridors in the area adjacent to and within the C&D Canal State Wildlife Area and State Natural Area (and those designated Level 3 and 4 in Liveable Delaware) are those that would occur on the east-west portion of the Brown Alternative alignment and not along the Spur Road alignment. The impacts of the Brown Alternative on the “ridge route” portion of the alignment are approximately the same as those of the Spur Road. The SHPO offered a preliminary evaluation of the Brown Alternatives as “satisfactory” (SHPO to FHWA, October 7, 2005). Potential impacts to the Summit Airport also factored into the decision to not recommend the Brown Alternative. See also Response M10 above.

Comment M15

Summary Page S-15

The preferred Alternative will impact far more than 143 properties. The MCC contends that there are hundreds more properties impacted by the “Spur” road, which are not included in this number. The MCC has done extensive research on the proposed “Spur” and finds DelDOT to be negligent and irresponsible in continuing the design and placement of the “Spur”.

Response M15

The preferred alternative will **directly** impact 143 properties; while it is true that additional properties will be indirectly affected, such as increased noise or a change in viewshed, this statement refers to those properties required, in total or in part, to construct the Green North plus Spur Road Alternative. A detailed list has been developed of each parcel that is anticipated to be directly impacted by the Selected Alternative, based on tax parcel information. Probable relocations that will occur as a result of the implementation of the Green North plus Spur Road Alternative were identified in both the Draft EIS (**Appendix D**) and Final EIS (**Appendix F**).

Comment M16

Summary Page S-17

The MCC would like an air quality conformity analysis before the ROD. This will help insure the well-being of the thousands of residents who live in the Green Route project area, including the “Spur” road area. We would like to receive the results of such an analysis, and its impact on the future health of residents living in the project area.

Response M16

An air quality conformity analysis that includes US 301 from the MD Line to SR 1 and the Spur Road from US 301 to Summit Bridge has been prepared as part of the amendments to the WILMAPCO Regional Transportation Plan (fiscally constrained long range plan), the 2008-2011 Transportation Improvement Program (TIP) and the draft 2009-2012 Transportation Program (See **Section VII, page 105 of the ROD**). The amendments were adopted by WILMAPCO’s Council on April 10, 2008. The USEPA concurred in the air quality conformity determination on April 23, 2008, and FHWA/FTA provided their concurrence on April 24, 2008. Finally, FHWA approved the State Transportation Improvement Program (STIP) on April 25, 2008. MCC will be provided with a copy of the analysis results. The air quality conformity analysis can also be accessed on the WILMAPCO web site, www.wilmapco.org. The TIP amendment is found at <http://www.wilmapco.org/tip/2009%20TIP/301%20amendment.pdf>.

The draft Amendment to 2030 WILMAPCO Regional Transportation Plan is located at <http://www.wilmapco.org/RTP/AMENDMENT%20March%202008.pdf>.

Question 13

Supporting Documentation

13-K

11. Why has DelDOT requested this amendment now and what is Council's role in reviewing the proposal?

Response: In late January FHWA provided DelDOT with guidance that indicated the US 301 project needs to be in WILMAPCO's "fiscally constrained" Long Range Plan before the FHWA can issue a Record of Decision (ROD). This has required DelDOT to work with WILMAPCO to include this information at this time, as compared to later in the process when federal funds would be anticipated to be utilized in Federal Fiscal Year 2009.

WILMAPCO to explain their role.

12. Why does projected PM 2.5 increase in 2030?

Response: The increase in the number of miles people are forecasted to drive begins to overwhelm the current technology and mitigation measures. This has been the experience with the Clean Air Act since it was first passed in the '70's. The budgets in the outer years have seemed very difficult to attain but technological and other improvements have been advanced in order to reach the goals and the improvements that have been made in terms of reaching the National Ambient Air Quality Standards (NAAQS) have been made while we have continued to enjoy a strong economy.

13. What steps will DelDOT and DNREC take to meet future draft emissions budgets?

Response: The most effective steps will probably continue to be taken by manufacturers of automobiles and fuels. In addition DelDOT and DNREC will continue to test motor vehicles to ensure they are functioning as they were designed, to support the creation of walkable communities, continue to build sidewalks and bike paths so more people can travel safely for more purposes without using a motor vehicle, and continue to provide the most comprehensive transit service we can afford.

14. What projects and in service years were included in the FY 2008-2011 and FY 2009-2012 TIP and 2030 RTP model runs?

Response: This list and an accompanying map are being prepared and will be available from WILMAPCO shortly/by end of March.

15. What accounts for the large drop in PM 2.5 emissions between the FY 2002 base year and FY 2010?

Response: This drop is largely due to the EPA required use of cleaner diesel fuel and modifications to diesel engines.

16. On what goals and criteria are emissions budgets based?

Response: The US EPA has established **National Ambient Air Quality Standards (NAAQS)** based on scientific studies that relate concentrations of certain chemical compounds in the air we breathe to health problems such as asthma. The goal is to have the concentrations of these compounds be below the standard.

The criteria are based on modeled relationships that attempt to equate emissions from all sources to measurable concentrations. The idea is that if the total amount of emissions is below the budget level the air quality standards are likely to be attained. All of this is included in the State Implementation Plan and is continually monitored and periodically revised.

17. *Why was a hot spot analysis not completed for the US 301 project?*

Response: Appropriate project level air quality analyses were conducted for the US 301 project, and described in the Final Environmental Impact Statement (FEIS) on page III-70 and pages III-73 to III-80. In summary:

- A project level PM_{2.5} analysis was not performed because the project is not a project of air quality concern. Although the 2030 percentage of total truck traffic (including diesel trucks) on new US 301 is projected to exceed the eight percent guidance maximum (7-9 percent on most segments of the roadway; 20 percent at the state line), the average vehicles per day is less than half the minimum 125,000 AADT recommended for the analysis (the highest ADT is projected at 56,700). Because the new US 301 does not encourage new diesel truck traffic, but merely shifts the diesel truck traffic from existing US 301 to the new roadway, it does not represent a significant increase in diesel truck traffic. Therefore, a PM_{2.5} analysis is not included for the project. (FEIS, page III-70)
- A project level CO hot spot analysis was performed for the project, with air quality receptors at 25 locations located throughout the project area and at two signalized intersections. The air quality analysis indicates that carbon monoxide impacts resulting from the No-Build Alternative OR the implementation of any of the build alternatives, including the Preferred Alternative, would not result in a violation of the 1-hour concentration or the 8-hour concentration, at any air quality receptor location, in any analysis year. (FEIS, pages III-73 to III-74)

The FEIS is available on the project website.

DESIGN, OPERATIONS & MAINTENANCE

18. *What are the expected maintenance and operations costs of the road, once opened?*

Response: Operation and maintenance costs are estimated at \$5 million per year at the time of opening and inflated at 3.25% per year after the opening. Also, \$1.5 million per year at the time of opening, inflated at 3.25% per year after opening, has been included for Maintenance Capital Expenses. These two costs would be funded from US 301 toll revenues and not DelDOT's Highway Operating budget. These costs are subtracted from the gross toll revenues, with the net toll revenues projected at 1.25x debt service. In addition, \$6.7 million has been included in the US 301 Construction Cost Estimate for construction of a new maintenance facility for the US 301 project.

Question 13

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13-L

The addition of a visual screening earth berm on the west side of Summit Bridge Farms would visually shield the community from a portion of the US 301 Spur Road. However, a berm is not feasible on the north side adjacent to SR 896, and twelve (12) residences would remain impacted by SR 896 on the north side of the community.

The visual screening berm recommended for Southridge/Spring Arbor would provide significant noise reductions for the community and eliminate all but three (3) residential impacts (applying the 2008 noise policy) or one (1) residential impact (applying the 2011 noise policy) at the southern end of the community. These impacts involve planned residential sites, not existing residential sites. Existing wetlands precluded extending the visual earth berm further to the south to benefit the impacted sites.

Air Quality

The US 301 project is a DelDOT priority and construction funding is included in the fiscally constrained Capital Transportation Program (CTP) FY 2011-FY 2016 and the Statewide Transportation Improvement Program (STIP) FY 2009-FY 2014 for regional air quality. The US 301 project is identified in the Wilmington Area Planning Council's (WILMAPCO's) current 2040 Regional Transportation Plan Update (October 2010) for in-service 2017 and in WILMAPCO's FY 2012-2015 TIP approved March 2011 amended September 2011. There would be no substantial change in local air quality impacts due to the changes made in the current design. No additional analysis is warranted at this time.

Commitments Monitoring

DelDOT remains firmly committed to all of the elements of the mitigation package as well as to the additional commitments made to the public during the planning process. All the project commitments have been placed in a tracking database to aid in project tracking efforts. Commitment tracking reports assessing compliance with each of the project commitments applicable to design contracts are developed for each construction contract at each design submission. Commitments applicable to the GEC and DelDOT are assessed in report every six months. Commitment tracking will continue into construction with tracking assessments being conducted on each contract and for the GEC and DelDOT every six months. Assessment tracking reports will ensure that all commitments are met throughout the project and a final commitment compliance assessment would be developed at the conclusion of the project.

Two commitments, however, would not be met exactly as noted in the ROD:

- Although a commitment was made to maintain crossroads open during overpass construction, the design team has identified considerable benefits to safety, natural resources, construction time and cost, by closing Hyetts Corner Road during construction of US 301. Closing Hyetts Corner road during construction would eliminate the need to construct a temporary haul road through the wetlands associated with Scott Run, avoiding impacts to this important habitat area. Safety benefits would accrue from maintaining separation of construction equipment and hauling vehicles from personal vehicle traffic. The closure of Hyetts Corner Road during construction would also decrease construction time by at least 15 months and result in an estimated \$20M in capitalized interest cost savings. A proposed detour route using existing

roads has been identified for the duration of construction, approximately three years (see Design Refinement 4 for rationale to revise this ROD commitment).

- While the ROD included a commitment to limit construction to weekday daylight hours, there are significant safety and traffic benefits to allowing some construction work at night and/or during the weekend. In order to ensure motorist safety and eliminate long traffic delays during some construction activities, such as the installation of overhead beams across high-volume roadways, DelDOT would schedule these activities at night rather than during weekday daylight hours. DelDOT will provide adequate and appropriate notices of such events.

Agency and Public Involvement

Resource Agency Coordination

Throughout the design process, DelDOT has continued coordination with the resource and regulatory agencies through regular quarterly meetings, special meetings and field reviews. Seven agency coordination meetings were held between publication of the ROD in April 2008 and the March 23, 2009 Public Workshop. Since the Workshop, agency coordination has continued during the design process. A total of 15 meetings and field reviews have taken place since the March 23, 2009 Public Workshop (through the end of October 2011) to provide constant review of the final design progress. Coordination will continue throughout the remaining design effort and during construction.

During the three years of agency coordination since the ROD, the agencies have concurred with/not objected to all 16 of the proposed design refinements for incorporation into the final design of US 301. Two refinements, the Relocation of US 13 to Northbound SR 1 Toll-Free Ramp at Port Penn Road and the Spur Road Alignment Refinements to Minimize Impacts, have been continuously refined in order to achieve the most desirable design with minimal impacts to resources and communities. Agency representatives strongly endorsed Design Refinement 4 as a way to reduce impacts to natural resources; requested Design Refinement 6 and Design Refinement 9 to shift natural resource impacts into lower quality resources; and determined the ultimate configuration of the bridges/culverts in Design Refinement 2 and Design Refinement 14 to preserve the most valuable portions of the impacted resources. See **Appendix H** for materials from the resource agency coordination meetings and field views.

Public Involvement

Community meetings were held in January through March 2009, and a Public Workshop was held on March 23, 2009 to present the US 301 Spur Road Alternatives. In addition, 11 of the current 16 design refinements were presented at the March 2009 Workshop. See the **Public Involvement** section of this report for the details and **Appendix F** for a summary of the workshop. The public was later notified of the decisions regarding six of the proposed Design Refinements presented at the Public Workshop in DelDOT's August 3, 2009 letter to the stakeholders (see **Appendix F**). The letter also provided a link to an on-line resource for updated information on the progress of the project.

Summit Bridge Farms: No landscaped visual earth berm was originally proposed for this community in the FEIS/ROD. However, the interchange between Bethel Church Road and the Spur Road extending to SR 896 shown in the ROD was subsequently refined after being presented at the March 2009 Public Workshop to provide a simpler, more direct interchange option (refer to Design Refinement 13 on pages 63 through 67). The Refined Design shifted the interchange closer to the community and raised the elevation of the roadway along the west side of the community. As a result, DelDOT committed to provide a visual earth berm between the community and the US 301 Spur Road, similar to those being provided at Airmont, Spring Arbor, Middletown Village and Springmill. At the August 22, 2011 pre-workshop community meeting, the community requested a 15-foot high, 2,000-foot long berm on existing DelDOT property to the west of the community, which is not impacted by noise, that would visually shield the residences from the Spur Road but avoid an existing line of trees. DelDOT has agreed to provide an 11-foot high, 1,840-foot visual berm, shifted to the west, but retaining an existing row of mature trees. Analysis of taller berms showed little or no perceptible improvement in noise reduction. The recommended 11-foot high berm would incur minimal additional cost to the project. Mitigation was found to be neither feasible nor reasonable for the impacted residences adjacent to SR 896 along the north side of the community.

More detailed information of the refinements to landscaped visual earth berms can be found in **Appendix E**.

Air Quality

The US 301 project is a DelDOT priority and construction funding is included in the fiscally constrained Capital Transportation Program (CTP) FY 2011-FY 2016 and the Statewide Transportation Improvement Program (STIP) FY 2009-FY 2014 for regional air quality. The US 301 project is identified in the Wilmington Area Planning Council's (WILMAPCO's) current 2040 Regional Transportation Plan Update (October 2010) for in-service 2017 and in WILMAPCO's FY 2012-2015 TIP approved March 2011 amended September 2011. There would be no substantial change in local air quality impacts due to the Design Refinements. No additional analysis is warranted at this time.

Commitments Monitoring

A compensatory mitigation package was proposed in the 2008 ROD that included wetlands mitigation, reforestation, riparian buffer enhancement, and other features. DelDOT remains firmly committed to all of the elements of the environmental mitigation package as well as to the additional commitments to the public included in the ROD (ROD Attachments A and B, included in **Appendix B**). Based upon the adoption of all of the proposed changes, all of the elements of the mitigation package will continue to fulfill the requirements for mitigation of resource impacts.

The commitments made by DelDOT during the planning process are being tracked to assure that each is followed through. In two instances, however, the ROD commitments would not be met exactly as presented – at the Hyetts Corner Road overpass of new US 301 and limiting construction to daylight hours.

ROD Commitment C-8 that would have crossroads remain open to traffic during overpass construction was made during the planning process. The design team has identified substantial

Question 13

Supporting Documentation

13-M

From: Weller, William W [<mailto:WWeller@morrisjames.com>]
Sent: Monday, May 21, 2012 10:31 AM
To: Hall-Long Bethany (LegHall); Al Grimminger <al.grimminger@atlanticbb.net>; Walker Rebecca (LegHall)
Cc: Slater Drew (LegHall)
Subject: RE: Agenda for 5/20 Civic Assoc Meeting

Thank you for checking in, as well as Becky.

Our meeting went well, **but we still have some unresolved issues with DeIDOT as to 301 project. In my most recent conversation with Andrew Bing, it was decided that it would probably be a good idea to reduce such issues in writing so that they are aware of exact issues (not to be all-inclusive, but should list out the major issues). We are in the process of providing them with a letter, and hope to forward to them and you gals either this week or next. The main issues are: height of the berm, length of the berm, fenceline that will run parallel to our neighborhood and proposed 301, environmental issues, request that DeIDOT retain ownership of land immediately adjacent to berm, screening and rescreening of potential construction workers, and location of construction workers' parking of vehicles.**

As for the environmental issues, I have reviewed a lot of studies, and the most recent one by American Lung Association (the 2012 State of the Air report), which gives Middletown area an "F" for air quality. In this report, it also highly recommends that proposed highways should be of a certain distance away from any development and/or schools. They reviewed 700 studies around the world, and it was reported that such health effects are heightened when neighborhoods/schools are immediately adjacent to such highways, with such effects as onset of childhood asthma, impaired lung function, premature death and death from cardiovascular diseases, and cardiovascular morbidity, with children and teenagers being most vulnerable. **In review of the Record of Decision, and the environmental studies within, I did not see any area that specifically addressed these important concerns.**

Also, the risk of autism does not appear in any of the DeIDOT's published environmental reports or studies, but is nonetheless very important. In a recent study, children who lived near highways at birth had twice the risk of autism as those who live farther away.

Previously, the legislators in their zeal to approve the path of the 301 project, a project that supposedly spared the "sacred" bog turtle, but unfortunately chose a path that provides immediate health and environmental concerns not only upon Airmont, but also the neighboring schoolchildren. However, and hopefully in final review, the legislators will rethink such an approach, or at a minimum, make the necessary changes to the path to ensure the health and environment for Airmont's residents, and the children that attend St. Georges Technical High School.

As mentioned initially, **we will in the near future provide DeIDOT with our letter that addresses our concerns, and I will also forward a copy to you as well. Do either of you have the current status as for the DeIDOT project?**

Thanks as always,

Bill Weller

Question 13

Supporting Documentation

13-N

From: Weller, William W [<mailto:WWeller@morrisjames.com>]
Sent: Wednesday, January 16, 2013 4:39 PM
To: Tudor Mark (DeIDOT)
Subject: 301 Project (NEPA)

Hey Mark,

I know we spoke late November or early December about some of Airmont's remaining issues with 301, our/legislators' standing request for 16' berm for Airmont, and also during that conversation I asked about whether DeIDOT has completed the update to the NEPA docs. I believe you said that you did about a year ago, and you were either going to update the 301 webpage with it or send to me. Can you send it to me, or arrange to have it sent to me, when you have a moment.

In reviewing the original documents, I noticed that it did not include or address some matters, with some of the concerns being:

(a) the increased risk of acquiring lung ailments for those person that are within so much of a distance to the new proposed road (301) - I know of research that has found that there maybe about 40% increase in lung ailments for those that are immediately adjacent to new highway (obviously we have our residents, but also the school children at St. George's Vo-Tech).

(b) the findings from the 2012 Air Quality Report, which has our area listed as their lowest rating for air quality and any new roadway would only make the air quality more dangerous for the surrounding communities.

(c) In speaking with the residents of some of the impacted communities and legislators, it is evident that nobody was adequately informed of these risks. Not blaming anyone, just would rather that it be addressed, public educated as to these risks, so that appropriate decisions can be made going forward.

As I mentioned before, we still have unresolved issues as to the 301 project, so we should probably circle back and perhaps review those to ensure everyone is on the same page for planning purposes. Of course, one option is to abandon the 301 project, which will moot any such need for this planning. As always, I look forward to hearing from you when you have a chance.

Bill

Question 13
Supporting Documentation
13-0



U.S. Department
of Transportation
Federal Highway
Administration

Memorandum

SENT VIA ELECTRONIC MAIL

Subject: **INFORMATION:** Interim Guidance
Update on Mobile Source Air Toxic
Analysis in NEPA Documents
/S/Original signed by

Date: December 6, 2012

From: April Marchese
Director, Office of Natural Environment

In Reply Refer To:
HEPN-10

To: Division Administrators
Federal Lands Highway Division Engineers

PURPOSE

The purpose of this memorandum is to update the September 2009 interim guidance that advised Federal Highway (FHWA) Division offices on when and how to analyze Mobile Source Air Toxics (MSAT) under the National Environmental Policy Act (NEPA) review process for highway projects.

This update reflects recent changes in methodology for conducting emissions analysis and updates of research in the MSAT arena. The U.S. Environmental Protection Agency (EPA) released the latest emission model, the Motor Vehicle Emissions Simulator (MOVES) in 2010, and started a 2-year grace period to phase in the requirement of using MOVES for transportation conformity analysis. On February 8, 2011, EPA issued guidance on [Using the MOVES and Emission FACtors \(EMFAC\) Models in NEPA Evaluation](#) that recommended the same grace period be applied to project-level emissions analysis for NEPA purposes. At the end of this grace period, i.e. beginning December 20, 2012, project sponsors should use MOVES to conduct emissions analysis for NEPA purposes. To prepare for this transition, FHWA is updating the September 2009 Interim Guidance to incorporate the analysis conducted using MOVES. Based on FHWA's analysis using MOVES2010b, the latest version of MOVES, diesel particulate matter (diesel PM) has become the dominant MSAT of concern. We have also provided an update on the status of scientific research on air toxics. The update supersedes the September 2009 Interim Guidance and should be referenced as a whole in NEPA documentation.

BACKGROUND

Controlling air toxic emissions became a national priority with the passage of the Clean Air Act Amendments (CAAA) of 1990, whereby Congress mandated that the U.S. Environmental Protection Agency (EPA) regulate 188 air toxics, also known as hazardous air pollutants. The EPA has assessed this expansive list in their latest rule on the Control of Hazardous Air

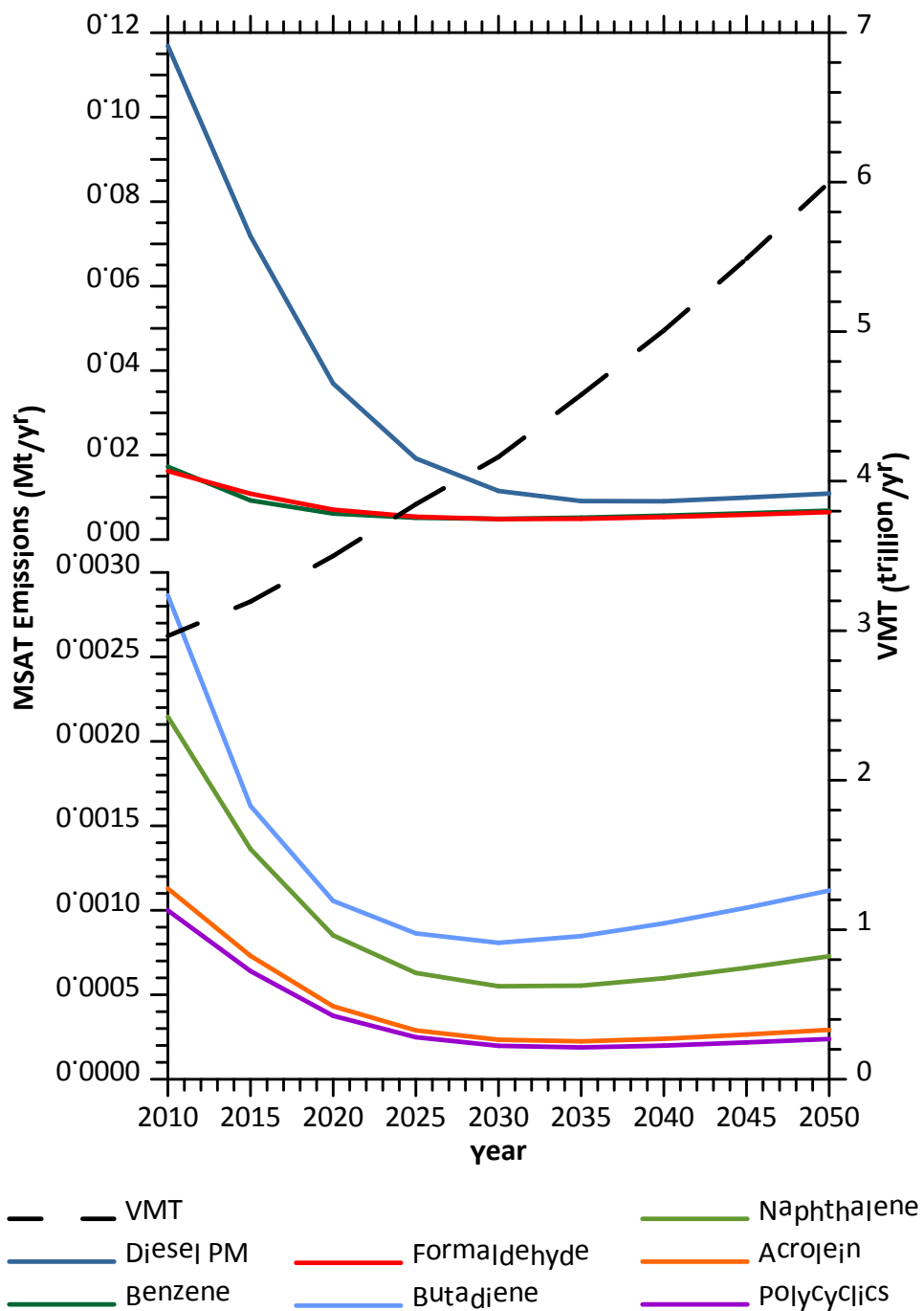
Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007), and identified a group of 93 compounds emitted from mobile sources that are listed in their Integrated Risk Information System (IRIS) (<http://cfcpub.epa.gov/ncea/iris/index.cfm>). In addition, EPA identified seven compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from their 1999 National Air Toxics Assessment (NATA) (<http://www.epa.gov/ttn/atw/nata1999/>). These are *acrolein, benzene, 1,3-butadiene, diesel particulate matter plus diesel exhaust organic gases (diesel PM), formaldehyde, naphthalene, and polycyclic organic matter*. While FHWA considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future EPA rules.

Motor Vehicle Emissions Simulator (MOVES)

According to EPA, MOVES improves upon the previous MOBILE model in several key aspects: MOVES is based on a vast amount of in-use vehicle data collected and analyzed since the latest release of MOBILE, including millions of emissions measurements from light-duty vehicles. Analysis of this data enhanced EPA's understanding of how mobile sources contribute to emissions inventories and the relative effectiveness of various control strategies. In addition, MOVES accounts for the significant effects that vehicle speed and temperature have on PM emissions estimates, whereas MOBILE did not. MOVES2010b includes all air toxic pollutants in NATA that are emitted by mobile sources. EPA has incorporated more recent data into MOVES2010b to update and enhance the quality of MSAT emission estimates. These data reflect advanced emission control technology and modern fuels, plus additional data for older technology vehicles.

Based on an FHWA analysis using EPA's MOVES2010b model, as shown in Figure 1, even if vehicle-miles travelled (VMT) increases by 102 percent as assumed from 2010 to 2050, a combined reduction of 83 percent in the total annual emissions for the priority MSAT is projected for the same time period.

Figure 1:
PROJECTED NATIONAL MSAT EMISSION TRENDS 2010 – 2050
FOR VEHICLES OPERATING ON ROADWAYS
USING EPA's MOVES2010b MODEL



Note: Trends for specific locations may be different, depending on locally derived information representing vehicle-miles travelled, vehicle speeds, vehicle mix, fuels, emission control programs, meteorology, and other factors

Source: EPA MOVES2010b model runs conducted during May – June 2012 by FHWA.

The implications of MOVES on MSAT emissions estimates compared to MOBILE are: lower estimates of total MSAT emissions; significantly lower benzene emissions; significantly higher diesel PM emissions, especially for lower speeds. Consequently, diesel PM is projected to be the dominant component of the emissions total.

MSAT Research

Air toxics analysis is a continuing area of research. While much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques for assessing project-specific health outcomes as a result of lifetime MSAT exposure remain limited. These limitations impede the ability to evaluate how potential public health risks posed by MSAT exposure should be factored into project-level decision-making within the context of NEPA.

Nonetheless, air toxics concerns continue to be raised on highway projects during the NEPA process. Even as the science emerges, we are duly expected by the public and other agencies to address MSAT impacts in our environmental documents. The FHWA, EPA, the Health Effects Institute, and others have funded and conducted research studies to try to more clearly define potential risks from MSAT emissions associated with highway projects. The FHWA will continue to monitor the developing research in this field.

NEPA CONTEXT

The NEPA requires, to the fullest extent possible, that the policies, regulations, and laws of the Federal Government be interpreted and administered in accordance with its environmental protection goals. The NEPA also requires Federal agencies to use an interdisciplinary approach in planning and decision-making for any action that adversely impacts the environment. The NEPA requires and FHWA is committed to the examination and avoidance of potential impacts to the natural and human environment when considering approval of proposed transportation projects. In addition to evaluating the potential environmental effects, we must also take into account the need for safe and efficient transportation in reaching a decision that is in the best overall public interest. The FHWA policies and procedures for implementing NEPA are contained in regulation at 23 CFR Part 771.

CONSIDERATION OF MSAT IN NEPA DOCUMENTS

The FHWA developed a tiered approach with three categories for analyzing MSAT in NEPA documents, depending on specific project circumstances:

- (1) No analysis for projects with no potential for meaningful MSAT effects;
- (2) Qualitative analysis for projects with low potential MSAT effects; or

(3) Quantitative analysis to differentiate alternatives for projects with higher potential MSAT effects.

For projects warranting MSAT analysis, the seven priority MSAT should be analyzed.

(1) Projects with No Meaningful Potential MSAT Effects, or Exempt Projects.

The types of projects included in this category are:

- Projects qualifying as a categorical exclusion under 23 CFR 771.117(c) (subject to consideration whether unusual circumstances exist under 23 CFR 771.117(b));
- Projects exempt under the Clean Air Act conformity rule under 40 CFR 93.126; or
- Other projects with no meaningful impacts on traffic volumes or vehicle mix.

For projects that are categorically excluded under 23 CFR 771.117(c), or are exempt from conformity requirements under the Clean Air Act pursuant to 40 CFR 93.126, no analysis or discussion of MSAT is necessary. Documentation sufficient to demonstrate that the project qualifies as a categorical exclusion and/or exempt project will suffice. For other projects with no or negligible traffic impacts, regardless of the class of NEPA environmental document, no MSAT analysis is recommended.¹ However, the project record should document the basis for the determination of “no meaningful potential impacts” with a brief description of the factors considered. Example language, which must be modified to correspond with local and project-specific circumstances, is provided in Appendix A.

(2) Projects with Low Potential MSAT Effects

The types of projects included in this category are those that serve to improve operations of highway, transit, or freight without adding substantial new capacity or without creating a facility that is likely to meaningfully increase MSAT emissions. This category covers a broad range of projects.

We anticipate that most highway projects that need an MSAT assessment will fall into this category. Any projects not meeting the criteria in category (1) or category (3) below should be included in this category. Examples of these types of projects are minor widening projects; new interchanges, replacing a signalized intersection on a surface street; or projects where design year traffic is projected to be less than 140,000 to 150,000 annual average daily traffic (AADT).

For these projects, a qualitative assessment of emissions projections should be conducted. This qualitative assessment would compare, in narrative form, the expected effect of the project on traffic volumes, vehicle mix, or routing of traffic and the associated changes in MSAT for the project alternatives, including no-build, based on VMT, vehicle mix, and speed. It would also

¹ The types of projects categorically excluded under 23 CFR 771.117(d) or exempt from certain conformity requirements under 40 CFR 93.127 does not warrant an automatic exemption from an MSAT analysis, but they usually will have no meaningful impact.

discuss national trend data projecting substantial overall reductions in emissions due to stricter engine and fuel regulations issued by EPA. Because the emission effects of these projects typically are low, we expect there would be no appreciable difference in overall MSAT emissions among the various alternatives.

Appendix B includes example language for a qualitative assessment, with specific examples for four types of projects: (1) a minor widening project; (2) a new interchange connecting an existing roadway with a new roadway; (3) a new interchange connecting new roadways; and (4) minor improvements or expansions to intermodal centers or other projects that affect truck traffic. The information provided in Appendix B must be modified to reflect the local and project-specific situation.

In addition to the qualitative assessment, a NEPA document for this category of projects must include a discussion of information that is incomplete or unavailable for a project specific assessment of MSAT impacts, in compliance with the Council on Environmental Quality (CEQ) regulations (40 CFR 1502.22(b)). This discussion should explain how current scientific techniques, tools, and data are not sufficient to accurately estimate human health impacts that could result from a transportation project in a way that would be useful to decision-makers. Also in compliance with 40 CFR 150.22(b), it should contain information regarding the health impacts of MSAT. See Appendix C.

(3) Projects with Higher Potential MSAT Effects

This category includes projects that have the potential for meaningful differences in MSAT emissions among project alternatives. We expect a limited number of projects to meet this two-pronged test. To fall into this category, a project should:

- Create or significantly alter a major intermodal freight facility that has the potential to concentrate high levels of diesel particulate matter in a single location, involving a significant number of diesel vehicles for new projects or accommodating with a significant increase in the number of diesel vehicles for expansion projects; or
- Create new capacity or add significant capacity to urban highways such as interstates, urban arterials, or urban collector-distributor routes with traffic volumes where the AADT is projected to be in the range of 140,000 to 150,000² or greater by the design year;

And also

- Proposed to be located in proximity to populated areas.

Projects falling within this category should be more rigorously assessed for impacts. If a project falls within this category, you should contact the Office of Natural Environment (HEPN) and the

² Using EPA's MOVES2010b emissions model, FHWA staff determined that this range of AADT would result in emissions significantly lower than the Clean Air Act definition of a major hazardous air pollutant (HAP) source, i.e., 25 tons/yr. for all HAPs or 10 tons/yr. for any single HAP. Variations in conditions such as congestion or vehicle mix could warrant a different range for AADT; if this range does not seem appropriate for your project, please consult with the contacts from HEPN and HEPE identified in this memorandum.

Office of Project Development and Environmental Review (HEPE) in FHWA Headquarters for assistance in developing a specific approach for assessing impacts. This approach would include a quantitative analysis to forecast local-specific emission trends of the priority MSAT for each alternative, to use as a basis of comparison. This analysis also may address the potential for cumulative impacts, where appropriate, based on local conditions. How and when cumulative impacts should be considered would be addressed as part of the assistance outlined above. The NEPA document for this project should also include relevant language on unavailable information described in Appendix C.

If the analysis for a project in this category indicates meaningful differences in levels of MSAT emissions among alternatives, mitigation options should be identified and considered. See Appendix E for information on mitigation strategies.

You should also consult with HEPN and HEPE if you have a project that does not fall within any of the types of projects listed above, but you think has the potential to substantially increase future MSAT emissions.

CONCLUSION

What we know about mobile source air toxics is still evolving. As the science progresses FHWA will continue to revise and update this guidance. FHWA is working with Stakeholders, EPA and others to better understand the strengths and weaknesses of developing analysis tools and the applicability on the project level decision documentation process. FHWA wanted to make project sponsors aware of the implications of the transition to the MOVES model and that we will be issuing updates to this interim guidance when necessary. Additional background information on MSAT-related research is provided in Appendix D.

The FHWA Headquarters and Resource Center staff Victoria Martinez (787) 766-5600 X231, Bruce Bender (202) 366-2851, and Michael Claggett (505) 820-2047, are available to provide information and technical assistance, support any necessary analysis, and limit project delays. All MSAT analysis beginning on or after December 20, 2012, should use the MOVES model. Any MSAT analysis initiated prior to that date may continue to operate under the previous guidance and utilize MOBILE6.2. We are available to answer questions from project sponsors as we transition to MOVES.

APPENDICES

Appendix A – Prototype Language for Exempt Projects

Appendix B – Prototype Language for Qualitative Project Level MSAT Analysis

Appendix C – The Council on Environmental Quality (CEQ) Provisions Covering Incomplete or Unavailable Information (40 CFR 1502.22) including a discussion of unavailable information for project-specific MSAT Health Impacts Analysis

Appendix D – FHWA Sponsored Mobile Source Air Toxics Research Efforts

Appendix E – MSAT Mitigation Strategies

APPENDIX A – Prototype Language for Exempt Projects

The purpose of this project is to *(insert major deficiency that the project is meant to address)* by constructing *(insert major elements of the project)*. This project has been determined to generate minimal air quality impacts for CAAA criteria pollutants and has not been linked with any special MSAT concerns. As such, this project will not result in changes in traffic volumes, vehicle mix, basic project location, or any other factor that would cause an increase in MSAT impacts of the project from that of the no-build alternative.

Moreover, EPA regulations for vehicle engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades. Based on regulations now in effect, an analysis of national trends with EPA's MOVES model forecasts a combined reduction of over 80 percent in the total annual emission rate for the priority MSAT from 2010 to 2050 while vehicle-miles of travel are projected to increase by over 100 percent. This will both reduce the background level of MSAT as well as the possibility of even minor MSAT emissions from this project.

APPENDIX B – Examples of Prototype Language for Qualitative Project-Level MSAT Analysis

The information in this Appendix is for projects with low potential MSAT effects – any non-exempt project that does not meet the threshold criteria for higher potential effects, as described in the interim guidance, should be considered for treatment provided here. The types of projects that fall into this category are those that improve operations of highways, or freight facilities without adding substantial new capacity. Examples include minor widening projects or new interchanges replacing signalized intersection on surface streets.

The following are some examples of qualitative MSAT analyses for different types of projects. Each project is different, and some projects may contain elements covered in more than one of the examples below. Analysts can use the example language as a starting point, but should tailor it to reflect the unique circumstances of the project being considered. The following factors should be considered when crafting a qualitative analysis:

- For projects on an existing alignment, MSAT are expected to decline due to the effect of new EPA engine and fuel standards.
- Projects that result in increased travel speeds will reduce MSAT emissions per VMT basis, although previously, the effect of speed changes on diesel particulate matter was not accounted for in the MOBILE6.2 model, however, MOVES does provide this estimation and should be accounted for accordingly. This speed benefit may be offset somewhat by increased VMT if the more efficient facility attracts additional vehicle trips.
- Projects that facilitate new development may generate additional MSAT emissions from new trips, truck deliveries, and parked vehicles (due to evaporative emissions). However, these may also be activities that are attracted from elsewhere in the metro region; thus, on a regional scale there may be no net change in emissions.
- Projects that create new travel lanes, relocate lanes, or relocate economic activity closer to homes, schools, businesses, and other populated areas may increase concentrations of MSAT at those locations relative to No Action.

Other elements related to a qualitative analysis are a discussion of information that is incomplete or unavailable for a project specific assessment of MSAT impacts and a discussion of any MSAT mitigation measures that may be associated with the project.

INTODUCTORY LANGUAGE FOR QUALITATIVE ANALYSIS FOR ALL PROJECTS

A qualitative analysis provides a basis for identifying and comparing the potential differences among MSAT emissions, if any, from the various alternatives. The qualitative assessment presented below is derived in part from a study conducted by the FHWA entitled *A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives*, found at: www.fhwa.dot.gov/environment/airtoxic/msatcompare/msatemissions.htm

(1) Minor Widening Project

(For purposes of this scenario, minor highway widening projects are those in which the design year traffic is predicted to be less than 140,000 – 150,000 AADT. Widening projects that surpass these criteria are subject to a quantitative analysis.)

For each alternative in this EIS/EA (*specify*), the amount of MSAT emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables such as fleet mix are the same for each alternative. The VMT estimated for each of the Build Alternatives is slightly higher than that for the No Build Alternative, because the additional capacity increases the efficiency of the roadway and attracts rerouted trips from elsewhere in the transportation network. Refer to Table ____ (*specify*). This increase in VMT would lead to higher MSAT emissions for the preferred action alternative along the highway corridor, along with a corresponding decrease in MSAT emissions along the parallel routes. The emissions increase is offset somewhat by lower MSAT emission rates due to increased speeds; according to EPA's MOVES2010b model, emissions of all of the priority MSAT decrease as speed increases. Because the estimated VMT under each of the Alternatives are nearly the same, varying by less than ____ (*specify*) percent, it is expected there would be no appreciable difference in overall MSAT emissions among the various alternatives. Also, regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by over 80 percent between 2010 and 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases.

(The following paragraph may apply if the project includes plans to construct travel lanes closer to populated areas.)

The additional travel lanes contemplated as part of the project alternatives will have the effect of moving some traffic closer to nearby homes, schools, and businesses; therefore, under each alternative there may be localized areas where ambient concentrations of MSAT could be higher under certain Build Alternatives than the No Build Alternative. The localized increases in MSAT concentrations would likely be most pronounced along

the expanded roadway sections that would be built at _____ (*specify location*), under Alternatives _____ (*specify*), and along _____ (*specify route*) under Alternatives _____ (*specify*). However, the magnitude and the duration of these potential increases compared to the No-Build alternative cannot be reliably quantified due to incomplete or unavailable information in forecasting project-specific MSAT health impacts. In sum, when a highway is widened, the localized level of MSAT emissions for the Build Alternative could be higher relative to the No Build Alternative, but this could be offset due to increases in speeds and reductions in congestion (which are associated with lower MSAT emissions). Also, MSAT will be lower in other locations when traffic shifts away from them. However, on a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be significantly lower than today.

(2) New Interchange Connecting an Existing Roadway with a New Roadway

(This scenario is oriented toward projects where a new roadway segment connects to an existing limited access highway. The purpose of the roadway is primarily to meet regional travel needs, e.g., by providing a more direct route between locations.)

For each alternative in this EIS/EA (*specify*), the amount of MSAT emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables such as fleet mix are the same for each alternative. Because the VMT estimated for the No Build Alternative is higher than for any of the Build Alternatives, higher levels of MSAT are not expected from any of the Build Alternatives compared to the No Build. Refer to Table ____ (*specify*). In addition, because the estimated VMT under each of the Build Alternatives are nearly the same, varying by less than ____ (*specify*) percent, it is expected there would be no appreciable difference in overall MSAT emissions among the various alternatives. Also, regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by over 80 percent from 2010 to 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in virtually all locations.

Under each alternative there may be localized areas where VMT would increase, and other areas where VMT would decrease. Therefore, it is possible that localized increases and decreases in MSAT emissions may occur. The localized increases in MSAT emissions would likely be most pronounced along the new roadway sections that would be built at _____ (*specify location*), under Alternatives _____ (*specify*), and along _____ (*specify route*) under Alternatives _____ (*specify*). However, even if these increases do occur, they too will be substantially reduced in the future due to implementation of EPA's vehicle and fuel regulations.

In sum, under all Build Alternatives in the design year it is expected there would be reduced MSAT emissions in the immediate area of the project, relative to the No Build

Alternative, due to the reduced VMT associated with more direct routing, and due to EPA's MSAT reduction programs.

(3) New Interchange Connecting New Roadways

(This scenario is oriented toward interchange projects developed in response to or in anticipation of economic development, e.g., a new interchange to serve a new shopping/residential development. Projects from the previous example may also have economic development associated with them, so some of this language may also apply.)

For each alternative in this EIS/EA (*specify*), the amount of MSAT emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables such as fleet mix are the same for each alternative. The VMT estimated for each of the Build Alternatives is slightly higher than that for the No Build Alternative, because the interchange facilitates new development that attracts trips that would not otherwise occur in the area. Refer to Table ____ (*specify*). This increase in VMT means MSAT under the Build Alternatives would probably be higher than the No Build Alternative in the study area. There could also be localized differences in MSAT from indirect effects of the project such as associated access traffic, emissions of evaporative MSAT (e.g., benzene) from parked cars, and emissions of diesel particulate matter from delivery trucks (*modify depending on the type and extent of the associated development*). Travel to other destinations would be reduced with subsequent decreases in emissions at those locations.

Because the estimated VMT under each of the Build Alternatives are nearly the same, varying by less than ____ (*specify*) percent, it is expected there would be no appreciable difference in overall MSAT emissions among the various Build Alternatives. For all Alternatives, emissions are virtually certain to be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by over 80 percent from 2010 to 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future than they are today.

(The following discussion would apply to new interchanges in areas already developed to some degree. For new construction in anticipation of economic development in rural or largely undeveloped areas, this discussion would be applicable only to populated areas, such as residences, schools, and businesses.)

The travel lanes contemplated as part of the project alternatives will have the effect of moving some traffic closer to nearby homes, schools and businesses; therefore, under each alternative there may be localized areas where ambient concentrations of MSAT would be higher under certain Alternatives than others. The localized differences in MSAT concentrations would likely be most pronounced along the new/expanded roadway sections that would be built at ____ (*specify location*), under Alternatives ____ (*specify*), and along ____ (*specify route*) under Alternatives ____ (*specify*).

However, the magnitude and the duration of these potential increases cannot be reliably quantified due to incomplete or unavailable information in forecasting project-specific MSAT health impacts. Further, under all Alternatives, overall future MSAT are expected to be substantially lower than today due to implementation of EPA's vehicle and fuel regulations.

In sum, under all Build Alternatives in the design year it is expected there would be slightly higher MSAT emissions in the study area relative to the No Build Alternative due to increased VMT. There also could be increases in MSAT levels in a few localized areas where VMT increases. However, EPA's vehicle and fuel regulations will bring about significantly lower MSAT levels for the area in the future than today.

(4) Minor Improvements or Expansions to Intermodal Centers or Other Projects that Affect Truck Traffic

(The description for these types of projects depends on the nature of the project. The key factor from an MSAT standpoint is the change in truck and rail activity and the resulting change in MSAT emissions patterns.)

For each alternative in this EIS/EA (*specify*), the amount of MSAT emitted would be proportional to the amount of truck vehicle miles traveled (VMT) and rail activity, assuming that other variables (such as travel not associated with the intermodal center) are the same for each alternative. The truck VMT and rail activity estimated for each of the Build Alternatives are higher than that for the No Build Alternative, because of the additional activity associated with the expanded intermodal center. Refer to Table ____ (*specify*). This increase in truck VMT and rail activity associated with the Build Alternatives would lead to higher MSAT emissions (particularly diesel particulate matter) in the vicinity of the intermodal center. The higher emissions could be offset somewhat by two factors: 1) the decrease in regional truck traffic due to increased use of rail for inbound and outbound freight; and 2) increased speeds on area highways due to the decrease in truck traffic. The extent to which these emissions decreases will offset intermodal center-related emissions increases is not known.

Because the estimated truck VMT and rail activity under each of the Build Alternatives are nearly the same, varying by less than ____ (*specify*) percent, it is expected there would be no appreciable difference in overall MSAT emissions among the various alternatives. Also, regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by over 80 percent from 2010 to 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the EPA-projected reductions are so significant (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future as well.

(The following discussion may apply if the intermodal center is close to other development.)

The additional freight activity contemplated as part of the project alternatives will have the effect of increasing diesel emissions in the vicinity of nearby homes, schools, and businesses; therefore, under each alternative there may be localized areas where ambient concentrations of MSAT would be higher than under the No Build alternative. The localized differences in MSAT concentrations would likely be most pronounced under Alternatives _____ (*specify*). However, as discussed above, the magnitude and the duration of these potential differences cannot be reliably quantified due to incomplete or unavailable information in forecasting project-specific health impacts. Even though there may be differences among the Alternatives, on a region-wide basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will cause substantial reductions over time that in almost all cases the MSAT levels in the future will be significantly lower than today.

(Insert a description of any emissions-reduction activities that are associated with the project, such as truck and train idling limitations or technologies, such as auxiliary power units; alternative fuels or engine retrofits for container-handling equipment, etc.)

In sum, all Build Alternatives in the design year are expected to be associated with higher levels of MSAT emissions in the study area, relative to the No Build Alternative, along with some benefit from improvements in speeds and reductions in region-wide truck traffic. There also could be slightly higher differences in MSAT levels among Alternatives in a few localized areas where freight activity occurs closer to homes, schools, and businesses. Under all alternatives, MSAT levels are likely to decrease over time due to nationally mandated cleaner vehicles and fuels.

MSAT MITIGATION STRATEGIES

Although there is no obligation to identify and consider MSAT mitigation strategies as part of a qualitative analysis, such strategies may be part of a project's design. Refer to the examples provided in (4) Minor Improvements or Expansions to Intermodal Centers or Other Projects that Affect Truck Traffic, or Appendix E. For these and similar circumstances, MSAT mitigation strategies should be discussed as part of a qualitative analysis.

CEQ PROVISIONS COVERING INCOMPLETE OR UNAVAILABLE INFORMATION (40 CFR 1502.22)

The introductory language for qualitative analysis should be followed by a 40 CFR 1502 assessment of incomplete or unavailable information. Refer to Appendix C for details.

APPENDIX C – CEQ Provisions Covering Incomplete or Unavailable Information (40 CFR 1502.22)

Sec. 1502.22 INCOMPLETE OR UNAVAILABLE INFORMATION

When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an environmental impact statement and there is incomplete or unavailable information, the agency shall always make clear that such information is lacking.

- (a) If the incomplete information relevant to reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the environmental impact statement.
- (b) If the information relevant to reasonably foreseeable significant adverse impacts cannot be obtained because the overall costs of obtaining it are exorbitant or the means to obtain it are not known, the agency shall include within the environmental impact statement:
 - 1. a statement that such information is incomplete or unavailable;
 - 2. a statement of the relevance of the incomplete or unavailable information to evaluating reasonably foreseeable significant adverse impacts on the human environment;
 - 3. a summary of existing credible scientific evidence which is relevant to evaluating the reasonably foreseeable significant adverse impacts on the human environment; and
 - 4. the agency's evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community. For the purposes of this section, "reasonably foreseeable" includes impacts that have catastrophic consequences, even if their probability of occurrence is low, provided that the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason.
- (c) The amended regulation will be applicable to all environmental impact statements for which a Notice to Intent (40 CFR 1508.22) is published in the Federal Register on or after May 27, 1986. For environmental impact statements in progress, agencies may choose to comply with the requirements of either the original or amended regulation.

INCOMPLETE OR UNAVAILABLE INFORMATION FOR PROJECT-SPECIFIC MSAT HEALTH IMPACTS ANALYSIS

In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not,

would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

The U.S. Environmental Protection Agency (EPA) is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the Clean Air Act and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSAT. The EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain the Integrated Risk Information System (IRIS), which is “a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects” (EPA, <https://www.epa.gov/iris/>). Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). Two HEI studies are summarized in Appendix D of FHWA’s Interim Guidance Update on Mobile source Air Toxic Analysis in NEPA Documents. Among the adverse health effects linked to MSAT compounds at high exposures are; cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations (HEI, <http://pubs.healtheffects.org/view.php?id=282>) or in the future as vehicle emissions substantially decrease (HEI, <http://pubs.healtheffects.org/view.php?id=306>).

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts – each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable.

It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways; to determine the portion of time that people are actually exposed at a specific location; and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI (<http://pubs.healtheffects.org/view.php?id=282>). As a result, there is no national

consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA (<http://www.epa.gov/risk/basicinformation.htm#g>) and the HEI (<http://pubs.healtheffects.org/getfile.php?u=395>) have not established a basis for quantitative risk assessment of diesel PM in ambient settings.

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the Clean Air Act to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine an “acceptable” level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA’s approach to addressing risk in its two step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable.

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

Due to the limitations cited, a discussion such as the example provided in this Appendix (reflecting any local and project-specific circumstances), should be included regarding incomplete or unavailable information in accordance with Council on Environmental Quality (CEQ) regulations [40 CFR 1502.22(b)]. The FHWA Headquarters and Resource Center staff Victoria Martinez (787) 766-5600 X231, Bruce Bender (202) 366-2851, and Michael Claggett (505) 820-2047, are available to provide guidance and technical assistance and support.

APPENDIX D – FHWA Sponsored Mobile Source Air Toxics Research Efforts

Human epidemiology and animal toxicology experiments indicate that many chemicals or mixtures termed air toxics have the potential to impact human health. As toxicology, epidemiology and air contaminant measurement techniques have improved over the decades, scientists and regulators have increased their focus on the levels of each chemical or material in the air in an effort to link potential exposures with potential health effects. The EPA's list of 21 mobile source toxics represents their prioritization of these chemicals or materials for further study and evaluation. The EPA's strategy for evaluating air toxic compounds effects is focused on both national trends and local impacts. The FHWA has embarked on an air toxics research program with the intent of understanding the mobile source contribution and its impact on local and national air quality. Several of studies either initiated or supported by FHWA are described below¹.

Air toxics emissions from mobile sources have the potential to impact human health and often represent a regulatory agency concern. The FHWA has responded to this concern by developing an integrated research program to answer the most important transportation community questions related to air toxics, human health, and the NEPA process. To this end, FHWA has performed, funded or is currently managing several research projects. Many of these projects are based on an Air Toxics Research Workplan that provides a roadmap for agency research efforts². These efforts include:

THE NATIONAL NEAR ROADWAY MSAT STUDY

The FHWA, in conjunction with the EPA and a consortium of State departments of transportation, studied the concentration and physical behavior of MSAT and mobile source PM 2.5 in Las Vegas, Nevada and Detroit, Michigan. The study criteria dictated that the study site be open to traffic and have 150,000 Annual Average Daily Traffic or more. These studies were intended to provide knowledge about the dispersion of MSAT emissions with the ultimate goal of enabling more informed transportation and environmental decisions at the project-level. These studies are unique in that the monitored data was collected for the entire year. The Las Vegas, NV report revealed there are a large number of influences in this urban setting and researchers must look beyond the roadway to find all the sources in the near road environment. Additionally, in Las Vegas, meteorology played a large role in the concentrations measured in the near road study area. More information is available at <http://www.fhwa.dot.gov/environment/airtoxicmsat/index.htm>.

¹ The information provided here is an update to research work discussed in the 2009 release of this interim guidance. The current title of each research activity is followed by the title used to describe the activity previously.

² Available at <http://www.fhwa.dot.gov/environment/airtoxic/workplan/index.htm>

TRAFFIC-RELATED AIR POLLUTION

Going One Step Beyond: A Neighborhood Scale Air Toxics Assessment in North Denver (The Good Neighbor Project)

In 2007, the Denver Department of Environmental Health (DDEH) issued a technical report entitled *Going One Step Beyond: A Neighborhood Scale Air Toxics Assessment in North Denver (The Good Neighbor Project)*. This research project was funded by FHWA. In this study, DDEH conducted a neighborhood-scale air toxics assessment in North Denver, which includes a portion of the proposed I-70 East project area. Residents in this area have been very concerned about both existing health effects in their neighborhoods (from industrial activities, hazardous waste sites, and traffic) and potential health impacts from changes to I-70.

The study was designed to compare modeled levels of the six priority MSATs identified in FHWA's 2006 guidance with measurements at existing MSAT monitoring sites in the study area. MOBILE6.2 emissions factors and the ISC3ST dispersion model were used (some limited testing of the CALPUFF model was also performed). Key findings include: 1) modeled mean annual concentrations from highways were well below estimated Integrated Risk Information System (IRIS) cancer and non-cancer risk values for all six MSAT; 2) modeled concentrations dropped off sharply within 50 meters of roadways; 3) modeled MSAT concentrations tended to be higher along highways near the Denver Central Business District (CBD) than along the I-70 East corridor (in some cases, they were higher within the CBD itself, as were the monitored values); and 4) dispersion model results were generally lower than monitored concentrations but within a factor of two at all locations.

Mobile Source Air Toxic Hot Spot

Given concerns about the possibility of MSAT exposure in the near road environment, The Health Effects Institute (HEI) dedicated a number of research efforts at trying to find a MSAT "hotspot." In 2011 three studies were published that tested this hypothesis. In general the authors confirm that while highways are a source of air toxics, they were unable to find that highways were the only source of these pollutants and determined that near road exposures were often no different or no higher than background or ambient levels of exposure, and hence no true hot spots were identified. These links provide additional information <http://pubs.healtheffects.org/getfile.php?u=659> page 137, <http://pubs.healtheffects.org/getfile.php?u=656> page 143, and <http://pubs.healtheffects.org/getfile.php?u=617> page 87, where monitored on-road emissions were higher than emission levels monitored near road residences, but the issue of hot spot was not ultimately discussed.

Traffic-Related Air Pollution: A Critical Review of the Literature on Emissions, Exposure, and Health Effects

In January 2010, HEI released Special Report #17, investigating the health effects of traffic related air pollution. The goal of the research was to synthesize available information on the effects of traffic on health. Researchers looked at linkages between: (1) traffic emissions (at the tailpipe) with ambient air pollution in general, (2) concentrations of ambient pollutants with human exposure to pollutants from traffic, (3) exposure to pollutants from traffic with human-health effects and toxicologic data, and (4) toxicologic data with epidemiological associations. Challenges in making exposure assessments, such as quality and quantity of emissions data and models, were investigated, as was the appropriateness of the use of proximity as an exposure-assessment model. Overall, researchers felt that there was “sufficient” evidence for causality for the exacerbation of asthma. Evidence was “suggestive but not sufficient” for other health outcomes such as cardiovascular mortality and others. Study authors also note that past epidemiologic studies may not provide an appropriate assessment of future health associations as vehicle emissions are decreasing overtime. The report is available from HEI’s website at <http://www.healtheffects.org/>. The FHWA provides financial support to HEI’s research work.

HEI SPECIAL REPORT #16

In November 2007, the HEI published Special Report #16: Mobile-Source Air Toxics: A Critical Review of the Literature on Exposure and Health Effects. The purpose of this Report was to accomplish the following tasks:

- Use information from the peer-reviewed literature to summarize the health effects of exposure to the 21 MSATs defined by the EPA in 2001;
- Critically analyze the literature for a subset of priority MSAT; and
- Identify and summarize key gaps in existing research and unresolved questions about the priority MSAT.

The HEI chose to review literature for acetaldehyde, acrolein, benzene, 1,3-butadiene, formaldehyde, naphthalene, and polycyclic organic matter (POM). Diesel exhaust was included, but not reviewed in this study since it had been reviewed by HEI and EPA recently. In general, the Report concluded that the cancer health effects due to mobile sources are difficult to discern since the majority of quantitative assessments are derived from occupational cohorts with high concentration exposures and some cancer potency estimates are derived from animal models. The Report suggested that substantial improvements in analytical sensitivity and specificity of biomarkers would provide better linkages between exposure and health effects. Noncancer endpoints were not a central focus of most research, and therefore require further investigation. Subpopulation susceptibility also requires additional evaluation. The study is available from HEI’s website at <http://www.healtheffects.org/>.

KANSAS CITY PM CHARACTERIZATION STUDY (KANSAS CITY STUDY)

This study was initiated by EPA to conduct exhaust emissions testing on 480 light-duty, gasoline vehicles in the Kansas City Metropolitan Area (KCMA). Major goals of the study included characterizing PM emissions distributions of a sample of gasoline vehicles in Kansas City; characterizing gaseous and PM toxics exhaust emissions; and characterizing the fraction of high emitters in the fleet. In the process, sampling methodologies were evaluated. Overall, results from the study were used to populate databases for the MOVES emissions model. The FHWA was one of the research sponsors. This study is available on EPA's website at: <http://www.epa.gov/otaq/emission-factors-research/420r08009.pdf>

ESTIMATING THE TRANSPORTATION CONTRIBUTION TO PARTICULATE MATTER POLLUTION (AIR TOXICS SUPERSITE STUDY)

The purpose of this study was to improve understanding of the role of highway transportation sources in particulate matter (PM) pollution. In particular, it was important to examine uncertainties, such as the effects of the spatial and temporal distribution of travel patterns, consequences of vehicle fleet mix and fuel type, the contribution of vehicle speed and operating characteristics, and influences of geography and weather. The fundamental methodology of the study was to combine EPA research-grade air quality monitoring data in a representative sample of metropolitan areas with traffic data collected by State departments of transportation (DOTs) and local governments.

Phase I of the study, the planning and data evaluation stage, assessed the characteristics of EPA's ambient PM monitoring initiatives and recruited State DOTs and local government to participate in the research. After evaluating and selecting potential metropolitan areas based on the quality of PM and traffic monitoring data, nine cities were selected to participate in Phase II. The goal of Phase II was to determine whether correlations could be observed between traffic on highway facilities and ambient PM concentrations. The Phase I report was published in September 2002. Phase II included the collection of traffic and air quality data and data analysis. Ultimately, six cities participated: New York City (Queens), Baltimore, Pittsburgh, Atlanta, Detroit and Los Angeles.

In Phase II, air quality and traffic data were collected. The air quality data was obtained from EPA AIRS AQS system, Supersite personnel, and NARSTO data archive site. Traffic data included ITS (roadway surveillance), Coverage Counts (routine traffic monitoring) and Supplemental Counts (specifically for research project). Analyses resulted in the conclusion that only a weak correlation existed between PM_{2.5} concentrations and traffic activity for several of the sites. The existence of general trends indicates a relationship, which however is primarily unquantifiable. Limitations of the study include the assumption that traffic sources are close enough to ambient monitors to provide sufficiently strong source strength, that vehicle activity is an appropriate surrogate for mobile emissions, and lack of knowledge of other factors such as non-traffic

sources of PM and its precursors. A paper documenting the work of Phase II was presented at the 2004 Emissions Inventory Conference and is available at <http://www.epa.gov/ttn/chief/conference/ei13/mobile/black.pdf>.

APPENDIX E – MSAT Mitigation Strategies

Lessening the effects of mobile source air toxics should be considered for projects with substantial construction-related MSAT emissions that are likely to occur over an extended building period, and for post-construction scenarios where the NEPA analysis indicates potentially meaningful MSAT levels. Such mitigation efforts should be evaluated based on the circumstances associated with individual projects, and they may not be appropriate in all cases. However, there are a number of available mitigation strategies and solutions for countering the effects of MSAT emissions.

Mitigating for Construction MSAT Emissions

Construction activity may generate a temporary increase in MSAT emissions. Project-level assessments that render a decision to pursue construction emission mitigation will benefit from a number of technologies and operational practices that should help lower short-term MSAT. In addition, the Federal Highway Administration has supported a host of diesel retrofit technologies in the Congestion Mitigation and Air Quality Improvement (CMAQ) Program provisions – technologies that are designed to lessen a number of MSATs.¹

Construction mitigation includes strategies that reduce engine activity or reduce emissions per unit of operating time, such as reducing the numbers of trips and extended idling. Operational agreements that reduce or redirect work or shift times to avoid community exposures can have positive benefits when sites are near populated areas. For example, agreements that stress work activity outside normal hours of an adjacent school campus would be operations-oriented mitigation. Verified emissions control technology retrofits or fleet modernization of engines for construction equipment could be appropriate mitigation strategies. Technology retrofits could include particulate matter traps, oxidation catalysts, and other devices that provide an after-treatment of exhaust emissions. Implementing maintenance programs per manufacturers' specifications to ensure engines perform at EPA certification levels, as applicable, and to ensure retrofit technologies perform at verified standards, as applicable, could also be deemed appropriate. The use of clean fuels, such as ultra-low sulfur diesel, biodiesel, or natural gas also can be a very cost-beneficial strategy.

The EPA has listed a number of approved diesel retrofit technologies; many of these can be deployed as emissions mitigation measures for equipment used in construction. This listing can be found at: www.epa.gov/otaq/retrofit/index.htm.

Post-Construction Mitigation for Projects with Potentially Significant MSAT Levels

Travel demand management strategies and techniques that reduce overall vehicle-mile of travel; reduce a particular type of travel, such as long-haul freight or commuter travel; or improve the transportation system's efficiency will mitigate MSAT emissions. Examples of such strategies include congestion pricing, commuter incentive programs, and increases in truck weight or length limits. Operational strategies that focus on speed limit

enforcement or traffic management policies may help reduce MSAT emissions even beyond the benefits of fleet turnover. Well-traveled highways with high proportions of heavy-duty diesel truck activity may benefit from active Intelligent Transportation System programs, such as traffic management centers or incident management systems. Similarly, anti-idling strategies, such as truck-stop electrification can complement projects that focus on new or increased freight activity.

Planners also may want to consider the benefits of establishing buffer zones between new or expanded highway alignments and populated areas. Modifications of local zoning or the development of guidelines that are more protective also may be useful in separating emissions and receptors.

The initial decision to pursue MSAT emissions mitigation should be the result of interagency consultation at the earliest juncture. Options available to project sponsors should be identified through careful information gathering and the required level of deliberation to assure an effective course of action. Such options may include local programs, whether voluntary or with incentives, to replace or rebuild older diesel engines with updated emissions controls. Information on EPA diesel collaborative around the country can be found at <http://www.epa.gov/otaq/diesel/whereyoulive.htm>.

¹

http://www.fhwa.dot.gov/environment/air_quality/cmaq/policy_and_guidance/2008_guidance/index.cfm

Question 13

Supporting Documentation

13-P

US 301 AIR QUALITY CONFORMANCE

The air quality analyses for an any highway project that is Federally funded, reviewed or approved must be completed in conformance with the National Environmental Policy Act (NEPA) and the Clean Air Act and the Clean Air Act Amendments of 1990 (CAA90).

The National Environmental Policy Act (“NEPA”) declares a broad national commitment to protecting and promoting environmental quality. NEPA has in fact become the basic national charter for protection of the environment. Compliance with NEPA ensures that federal agencies will consider significant environmental impacts of federal action, make available the relevant information, and open to public scrutiny their decision making process. Compliance with NEPA ensures that federal agencies will consider significant environmental impacts, including air quality impacts of federal action, make available the relevant information, and open to public scrutiny their decision making process. NEPA does not mandate a particular outcome for a proposed project; rather, it is a procedural statute which prescribes the process by which the agency is to reach an informed decision.

The Clean Air Act (“CAA”) establishes a joint state and federal program to control the Nation’s air pollution. The purpose of the CAA is to provide national standards on air pollution by requiring the Environmental Protection Agency (“EPA”) to establish national ambient air quality standards (“NAAQS”) for certain pollutants to protect public health and welfare. To date, the EPA has established NAAQS for six criteria pollutants: ozone (O₃), carbon monoxide (CO), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), particulate matter (PM), and lead. After promulgating NAAQS for a particular pollutant, the EPA must designate areas that meet the standard (“attainment areas”) and those that do not meet the standard (“nonattainment areas”). The CAA provides that certain conformity requirements apply to nonattainment areas. The CAA states that no Federal Agency may “engage in, support in any way or provide financial assistance for, license or permit or approve any activity which does not conform to an implementation plan in effect under the Act. This means a conformity determination must be made. Federal Regulation 40CFR93 - DETERMINING CONFORMITY OF FEDERAL ACTIONS TO STATE OR FEDERAL IMPLEMENTATION PLANS governs this conformity determination.

In essence, for pollutants that have NAAQS established, the CAA requires that a conformity determination using data, methods and procedures in 40CFR93 must be provided. Of the criteria pollutants some are analyzed at the regional level and some are analyzed at the project level. The project level pollutants for the US 301 project are Carbon Monoxide (CO) and Fine Particulate Matter (PM_{2.5}). Pollutants that don’t have a NAAQS assigned to them, such as Mobile Source Air Toxics (MSAT) are assessed and discussed in order to provide information to the public and decision-makers in conformance with NEPA.

The EPA and FHWA over time have provided additional rulemakings and guidance to assist in updating regulatory requirements and procedures. These have included:

- **PM Qualitative Guidance;** March 29, 2006-The Environmental Protection Agency (EPA) and the Federal Highway Administration (FHWA) issued joint guidance on how to perform qualitative hot-spot analyses in PM_{2.5} and PM₁₀ nonattainment and maintenance areas titled, ‘*Transportation Conformity Guidance for Qualitative Hot-spot Analysis in PM_{2.5} and PM₁₀ Nonattainment and Maintenance Areas*’ (March 2006 guidance). The guidance provides information for State and local agencies to meet the PM_{2.5} and PM₁₀ hot-spot analysis requirements established in the March 10, 2006, final transportation conformity rule (71 FR 12468).
- **FHWA Interim Guidance on Air Toxics Analysis in NEPA Documents;** February 2006- Provides advice on when and how to analyze mobile source air toxics (MSAT) in the National Environmental Policy Act (NEPA) process for highways.
- **FHWA Interim Guidance Update on Air Toxics Analysis in NEPA Documents;** September 2009
- **Final PM Conformity Rule; March 10, 2010.** In this action, EPA amended the transportation conformity rule to finalize provisions that were proposed on May 15, 2009. These amendments primarily affect conformity’s implementation in PM_{2.5} and PM₁₀ nonattainment and maintenance areas
- **FHWA Interim Guidance Update on Air Toxics Analysis in NEPA Documents;** December 2012.

US 301 AIR QUALITY CONFORMANCE

The US 301 air quality studies were completed and presented in conformance with all of the above laws, regulations and guidance documents.

- For the **November 2006 DEIS**, the air quality section included a discussion of all pollutants, a summary of the regional conformity determination, and a quantitative CO conformity determination. The DEIS also included a PM2.5 conformity determination in conformance with the 2006 guidance. The PM2.5 analysis determined that the project conforms to the implementation plans without a hot-spot analysis being required. This information was provided to the public, agencies and decision makers for their review and comment.
- The **November 2007 FEIS** addressed comments received on the DEIS and added a discussion of MSAT, including a detailed discussion of the effects on health of MSAT in conformance with the above guidance.
- The **April 2008 Record of Decision** summarized the FEIS air quality discussions and agreed with the findings of the FEIS analyses.
- In **December 2011 a Design Refinement Study** was completed, which included a review of the previous air quality studies. The Refinement Study concluded that there would be no substantial change in air quality impacts due to the Design Refinements.

In summary, all air quality studies for the US 301 project have been completed in conformance with The Clean Air Act, NEPA, and all required regulations and guidance. The project conforms to the Clean Air Act in that it will not create a new violation for the criteria pollutants or cause an increase in an existing violation if there are any. The project documents also meet all requirements for analysis of MSAT. All analyses and reports were presented to the public, agencies and decision-makers over numerous updates and all comments were addressed in accordance with NEPA.

Note: Included below is a section from the Court Opinion on a lawsuit filed on a similar project in Maryland (The Intercounty Connector) (ENVIRONMENTAL DEFENSE, et al. Plaintiffs, v. UNITED STATES DEPARTMENT OF TRANSPORTATION, et al., Defendants; Civil Action No. AW-07-1480 Consolidated). In this action the court found in favor of the Defendants (FHWA). Below are portions of this opinion.

- The Court believes that Defendants' methodology was reasonable and should be upheld. See Sierra Club v. United States Dep't of Transp., 753 F.2d 120, 129 (D.C. Cir. 1985) (agency has "responsibility of considering the various modes of scientific evaluation and theory and choosing the one appropriate for the given circumstances"). Defendants' failure to consider Plaintiffs' approach to the health effects analysis, which could be ascertained, if at all, only through uncertain modeling techniques, did not preclude informed decision-making under NEPA. Therefore, based on the record and the facts presented, the Court does not find that Defendants acted arbitrarily and capriciously in failing to consider Plaintiffs' approach to the health effects analysis.

- "Also, the adverse health effects of mobile source emissions were known prior to the issuance of the FEIS and were disclosed in the FEIS. These new studies [presented by the plaintiffs] did not present a "seriously different picture" of the environmental and health effects that were known prior to the FEIS. Hickory I, 893 F.2d at 63. Therefore, after reviewing FHWA's reevaluation and conclusions, and applying the "rule of reason," the Court concludes that the FHWA did take a "hard look" at these studies and the new standard. The Court further concludes that Defendants' decision not to prepare an SEIS was not arbitrary and capricious"

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<p>14. Air Quality (lung ailments/Schools) (NEPA Issue)</p>	<ul style="list-style-type: none"> - NEPA <u>requires</u> all proposed highway projects to evaluate and fully consider such adverse impacts. <p><i>The National Environmental Policy Act (“NEPA”) declares a broad national commitment to protecting and promoting environmental quality. NEPA has in fact become the basic national charter for protection of the environment. Compliance with NEPA ensures that federal agencies will consider significant environmental impacts of federal action, make available the relevant information, and open to public scrutiny their decision making process. Compliance with NEPA ensures that federal agencies will consider significant environmental impacts, including air quality impacts of federal action, <u>make available the relevant information, and open to public scrutiny their decision making process.</u> NEPA <u>does not mandate a particular outcome for a proposed project</u>; rather, it is a procedural statute which prescribes the process by which the agency is to reach an informed decision. Regulation 40CFR1502 governs what is required to be in an Environmental Impact Statement (EIS) in order to comply with the requirements of NEPA. Paragraph 1502.22(b)(1) provides what is required when there is unavailable or incomplete information such as detailed analysis of the health effects on resident adjacent to a particular highway. Paragraph 1502.22(b)(1) states that if the information relevant to reasonably foreseeable significant adverse impacts cannot be obtained the agency shall include the following in the EIS:</i></p> <ul style="list-style-type: none"> <i>(1) A statement that such information is incomplete or unavailable;</i> <i>(2) a statement of the relevance of the incomplete or unavailable information to evaluating reasonably foreseeable significant adverse impacts on the human environment;</i> <i>(3) a summary of existing credible scientific evidence which is relevant to evaluating the reasonably foreseeable significant adverse impacts on the human environment, and</i> <i>(4) the agency's evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community. For the purposes of this section, “reasonably foreseeable” includes impacts which have catastrophic consequences, even if their probability of occurrence is low, provided that the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason.</i> <p><i>Pages III-233 through III-241 of the FEIS provide all the data required by 40CFR1502(b)(1) including the health effects of the Criteria Pollutants (III-68 & III-69) and the health effects of MSAT (III-238).</i></p> <ul style="list-style-type: none"> - DelDOT’s filed reports fail to address ANY impacts that are associated with the potential risk of lung ailments upon the school children/staff at the impacted schools. - DelDOT failed to acknowledge, address, and adequately explain the risk of lung ailments to school administrators, students and parents of students (at Appoq./St. George’s Vo-Tech schools). - Indeed, DelDOT failed to even address any risk in their reports, as to impacted schools. - DelDOT will need to update reports to advise of the risk of lung ailments to school administrators, students, and parents of students. <p><i>The Airmont community and St. George’s Vo-tech School are represented in the quantitative CO analysis by AQ receptor 3: 236 Oak Drive. CO is often considered an indicator pollutant for the other criteria pollutants since it was the first pollutant to be analyzed at the project level. Results on pages III-73 through III-78 of the FEIS show that the maximum 1-hour CO concentration is 5.2 ppm</i></p>
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which is only 14.9% of the CO NAAQS of 35 ppm. [It should be noted that the 1-hour background level (CO level from sources other than the proposed road) is 1.7, which means that 3.5 ppm is due to traffic on US 301.] The maximum 8-hour CO concentration is 2.9 ppm which is only 32.2% of the CO NAAQS of 9 ppm. [With an 8-hour background level of 1.2 ppm, the CO level due to US 301 is 1.7 ppm]. Quantitative analysis of PM2.5 and MSAT is a developing science and is not required for this project. However the qualitative analyses for PM2.5 and MSAT shown on pages III-233 through III-241 of the FEIS and pages 107 through 109 of the ROD, completed in conformance with Federal Regulations (40CFR93 and 40CFR1502) demonstrates that the US 301 project will not cause a new violation or increase an existing violation of the PM2.5 NAAQS, and that any slight increase in MSAT levels would be offset by reductions resulting from EPA's MSAT reduction program.

- DelDOT will need to prepare and file a supplemental EIS.

A supplemental EIS is not required. See response to question 13 on pages 13-4 and 13-5.

The US 301 air quality effort is similar to that undertaken on other similar major projects and has been successfully tested in court.

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**15. Air Quality
(impact upon Rt.1/95
and
NB Rt. 13 residents)
(NEPA Issue)**

- NEPA requires all proposed highway projects to evaluate and fully consider such adverse impacts.

The National Environmental Policy Act ("NEPA") declares a broad national commitment to protecting and promoting environmental quality. NEPA has in fact become the basic national charter for protection of the environment. Compliance with NEPA ensures that federal agencies will consider significant environmental impacts of federal action, make available the relevant information, and open to public scrutiny their decision making process. Compliance with NEPA ensures that federal agencies will consider significant environmental impacts, including air quality impacts of federal action, make available the relevant information, and open to public scrutiny their decision making process. NEPA does not mandate a particular outcome for a proposed project; rather, it is a procedural statute which prescribes the process by which the agency is to reach an informed decision. Regulation 40CFR1502 governs what is required to be in an Environmental Impact Statement (EIS) in order to comply with the requirements of NEPA. Paragraph 1502.22(b)(1) provides what is required when there is unavailable or incomplete information such as detailed analysis of the health effects on residence adjacent to a particular highway. Paragraph 1502.22(b)(1) states that if the information relevant to reasonably foreseeable significant adverse impacts cannot be obtained the agency shall included the following in the EIS:

- (1) A statement that such information is incomplete or unavailable;*
- (2) a statement of the relevance of the incomplete or unavailable information to evaluating reasonably foreseeable significant adverse impacts on the human environment;*
- (3) a summary of existing credible scientific evidence which is relevant to evaluating the reasonably foreseeable significant adverse impacts on the human environment, and*
- (4) the agency's evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community. For the purposes of this section, "reasonably foreseeable" includes impacts which have catastrophic consequences, even if their probability of occurrence is low, provided that the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason.*

- DelDOT's filed reports fail to address ANY impacts that are associated with the potential risk of lung ailments upon the residents of NB Rt. 13 residents that will be exposed to the increase traffic from 301.
- DelDOT's reports fail to address any impact of increased truck traffic that 301 will create upon the Rt. 1/95 and NB Rt. 13 impacted residents.

As shown on Figure 9 of the FEIS the project study area extends from The Chesapeake and Delaware Canal southerly to the Maryland State Line. In addition to the effects of traffic on the proposed alignments, the air quality analysis considers traffic on major existing roads in the study area, including SR 1, SR 896, and US13. A project level air quality analysis of roadways outside the study area is not required by either the Clean Air Act or NEPA. However, all roads, as well as others inside and outside the study area, and the traffic on them are considered in the Conformity Determination of the Transportation Improvement Program, which includes US 301, completed by WILMAPCO. Table III-67 on page III-192 of the FEIS shows traffic volumes on roads both within the study area and outside the study area. A detailed review of this traffic data reveals that, except for SR 1 north of the study area, traffic on the major roads decreases from the No-build to the Build [Green] condition. This results from vehicles accessing US 301

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via the multi-lane SR 1 instead of from the congested, less efficient local roads, resulting in increased operational efficiency and decreased emissions per vehicle. This is reflected in the Conformity Determination as described on page on page 106 of the ROD, which states: “DNREC provided their concurrence on April 10, 2008 that the 2030 WILMAPCO RTP and 2009-2012 TIP, amended to include the US 301 project, are in conformity with Delaware’s SIP.”

As stated in the FEIS (Page III-70), “In accordance with the recent (Federal Register, Volume 71, Number 47, March 10, 2006) regulations, the referenced final rule requires a qualitative PM2.5 hot-spot analysis only for projects of air quality concern, i.e., those that involve significant levels of diesel vehicle traffic. Although the 2030 percentage of total truck traffic (including diesel trucks) on new US 301 is projected to exceed the eight percent guidance maximum (7-9 percent on most segments of the roadway; 20 percent at the state line), the average vehicles per day is less than half the maximum 125,000 AADT recommended for the analysis (the highest ADT is projected at 56,700). Because the new US 301 does not encourage new diesel truck traffic, but merely shifts the diesel truck traffic from existing US 301 to the new roadway, it does not represent a significant increase in diesel truck traffic. Therefore, a PM2.5 analysis is not included for the project.”

The resulting AADT on SR 1 is also projected to remain below 125,000, even with the construction of US 301. Also, the US 301 Build Alternative is projected to decrease traffic, including truck traffic, on the St. George’s Bridge (US 13) and further north along US 13 to the SR 72 interchange.

- DelDOT failed to even address any risk to these residents.

Please see prior response.

- DelDOT will need to update their reports to advise of the risk of lung ailments to these impacted residents.

Repeated comment – see prior response.

- DelDOT failed to acknowledge, address, and adequately explain the risk of lung ailments to these impacted residents.

Repeated comment – see prior response.

Pages III-233 through III-241 of the FEIS provide all the data required by 40CFR1502(b)(1) including the health effects and risks of the Criteria Pollutants (III-68 & III-69) and the health effects and risks of MSAT (III-238).

- DelDOT will need to update reports to advise of their findings as to these risks.
- DelDOT will need to prepare and file a supplemental EIS.

A Supplemental EIS is not required. See response to question 13 on pages 13-4 and 13-5.

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16. Air Quality (2012 American Lung Association's State of the Air Study) (NEPA Issue)

- In 2012, the ALA issued its study as to air quality in our region.
- Middletown was rated ALA's lowest rating of an "F".
- There is nothing in DelDOT's reports as to ALA's findings, nor do these reports include any mitigation to offset the expected impacts from 301.

The American Lung Association (ALA) is a non-profit advocacy group whose stated purpose includes "to fight air pollution by working to reduce hazardous pollution from power plants and factories, dirty diesel trucks, buses and more. We're also fighting to protect the Clean Air Act and pushing the Environmental Protection Agency to exercise its authority to enforce its lifesaving protections." The reference report by the American Lung Association "looks at levels of ozone and particle pollution found in official monitoring sites across the United States in 2008, 2009 and 2010", and "examines fine particulate matter (PM2.5) in two different ways: averaged year-round (annual average) and over short-term levels (24-hour)". ALA used the services of a consultant to identify the maximum daily 24-hour AQS (Air Quality Station) PM2.5 concentration for each county in 2008, 2009, and 2010 with monitoring information obtained from the EPA air quality monitoring sites. Using this data the report used the maximum values obtained and a "scale" developed to rate areas of the country as follows:

24-Hour PM2.5 Concentration

*0.0 µg/m3 to 15.4 µg/m3
15.5 µg/m3 to 35.0 µg/m3
35.1 µg/m3 to 65.4 µg/m3
65.5 µg/m3 to 150.4 µg/m3
150.5 µg/m3 to 250.4 µg/m3
Greater than or equal to 250.5 µg/m3*

Air Quality Index Levels

*Good (green)
Moderate (yellow)
Unhealthy for Sensitive Groups (orange)
Unhealthy (red)
Very Unhealthy (purple)
Hazardous (maroon)*

The report then applies a weighting factor to the above index to obtain a letter grade based on the number of days at a given level. The grades are ranked A through F. As the questioner noted, according to the ALA study, New Castle county does receive a grade of F for PM2.5 with 26 orange days and 1 red day. However, the study also notes that "thanks to stronger standards for pollutants and for the sources of pollution, the United States has seen continued reduction in ozone and particle pollution as well as other pollutants for decades."

While it is correct that "there is nothing in DelDOT's reports as to ALA's findings", it is not correct that the US 301 environmental documents do not address the concerns of the ALA or consider on-going mitigation. The Clean Air Act (CAA) Amendments of 1990 and the Final Transportation Conformity Rule [40 CFR Parts 51 and 93] direct the U.S. Environmental Protection Agency (EPA) to implement environmental policies and regulations that will ensure acceptable levels of air quality. Both the Clean Air Act and the Final Transportation Conformity Rule affect proposed transportation projects. To comply with the CAA, the Environmental Protection Agency (EPA) has issued regulations Proposed Rules, Guidance Clarifications, and Final Rules cover methods and requirements for monitoring existing pollutant concentrations, methods for determining where these concentrations exceed the National Ambient Air Quality Standards (NAAQS), and procedures for analyzing and mitigating these at both the regional level and

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the project level. With the assistance of federal and state agencies, the Delaware Department of Natural Resources and Environmental Control [DNREC] is responsible for implementing and enforcing regulations to ensure that the air that Delaware citizens breathe is clean and healthful. This mission is accomplished through several methods, including air pollution monitoring. The EPA uses the data from the DNREC air monitoring sites to determine if there is a violation of the NAAQS which, if one occurs, would require the area to be listed as “non-attainment”. If this is the case, the State Implementation Plan would have mitigation procedures to assure that the area would eventually be in attainment. In order to accomplish this, the SIP includes pollution budgets which are the maximum amount of a pollutant allowed per year considering all sources. The budgets are achieved by requirements such as mobile and stationary source emissions reductions, a conformity determination of the Transportation Improvement Program [TIP] which includes all projects proposed or studied, vehicle inspections program, ride-share, transit options, bikeways and many others. If the TIP does not conform then changes will be made to the programs and projects so that it does. As discussed on page III-72 and III-73 of the FEIS, the project area is a non-attainment for PM_{2.5} and that the “WILMAPCO 2030 RTP [Regional Transportation Plan] demonstrated continued conformity with the State of Delaware 2005 State Implementation Plan (SIP) air quality budgets that were applicable at the time the RTP was adopted.” The Record of Decision further states that “DNREC’s Air Quality Management Section worked with DelDOT to determine the emissions associated with the 2030 WILMAPCO Regional Transportation Plan (RTP) and the 2009-2012 TIP. DNREC and DelDOT agreed that the methods and data used were acceptable. The results indicated conformity with all of the new budgets except Delaware’s 2008 fine particle matter Attainment Demonstration SIP for 2030. PM_{2.5} emissions in 2030 are projected to exceed Delaware’s attainment demonstration budget by about 8 tons per year, a relatively small amount. DelDOT and DNREC are committed to work together to identify measures that DelDOT has committed to implement to address this issue and to give their implementation a high priority. Accordingly, DNREC provided their concurrence on April 10, 2008 that the 2030 WILMAPCO RTP and 2009-2012 TIP, amended to include the US 301 project, are in conformity with Delaware’s SIP. The amendments to include the US 301 project in the 2030 RTP, the 2008-2011 TIP and the draft 2009-2012 TIP were approved by the WILMAPCO Council on April 10, 2008.” Detailed information on Delaware Air Quality Plans can be found at:

<http://www.dnrec.delaware.gov/whs/awm/AOM/Pages/AOMPublicationsandReports.aspx>.

- DelDOT failed to even state what the current level of air quality is in our region.

Pages III-71 and III-72 of the FEIS present existing air quality at the time the studies were done. The data is presented for Carbon Monoxide (CO), Nitrogen Dioxide (NO₂), Particulate Matter (PM), Ozone (O₃) and Sulfur Dioxide (SO₂). Current monitored pollutant levels are readily available to the public at the EPA website: http://www.epa.gov/airdata/ad_rep_mon.html

- DelDOT failed to offer any mitigation efforts to increase the air quality.
- Additional traffic will only make air quality worse, and most definitely not any better.

Reducing the amount of congestion with stop and go driving conditions has the effect of reducing pollutant emissions. First, studies have suggested that emissions start to go up when average speeds dip below 45 miles per hour (mph). Secondly, the constant

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acceleration and braking of stop-and-go traffic burns more gas, and therefore pumps more pollutants into the air.

Page III-73 of the FEIS and page 106 of the ROD both reference the Delaware State Implementation Plan (SIP). The State Implementation Plan is a state plan that identifies how that State will attain and maintain air quality that conforms to each primary and secondary National Ambient Air Quality Standard ("NAAQS"). The SIP consists of narrative, rules, technical documentation, and agreements that an individual state will use to clean up polluted areas. The SIP also includes pollution budgets. A Conformity Determination was prepared for New Castle County which considered all stationary sources, off-road sources and existing and proposed highways, including the US 301 project. The Conformity Determination included projections of current and future year traffic for use in the analysis. As stated on page 106 of the ROD, "DNREC provided their concurrence on April 10, 2008 that the 2030 WILMAPCO RTP and 2009-2012 TIP, amended to include the US 301 project, are in conformity with Delaware's SIP."

- NEPA **requires** all proposed highway projects to evaluate and fully consider such adverse impacts. As such, DelDOT will need to conduct the additional and necessary air quality studies that will accurately demonstrate to the community the associated risks, and the impact upon air quality in our region.

A supplemental EIS is not required. See response to question 13 on pages 13-4 and 13-5.

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<p>17. Impact Upon Businesses (NEPA Issue)</p> <p>17-A: DEIS, pgs. III-26 to III- 27</p> <p>17-B: DEIS Appendix D</p> <p>17-C: FEIS, pgs. III-23 to III-26 and pgs. III-28 to III-30</p> <p>17-D: FEIS Appendix F</p>	<ul style="list-style-type: none"> - NEPA <u>requires</u> all proposed highway projects to evaluate and fully consider such adverse impacts <u>to businesses and farms.</u> - DelDOT's reports fail to address any impact upon local businesses. - DelDOT is obligated to prepare a detailed report of the expected/potential impact upon businesses and farms, and the related effect upon the impacted residents. <p><i>The effects of US 301 on businesses is noted on pgs III-26 and III-27 and in Appendix D of the DEIS and on pgs III-28 through III-30 of the FEIS.</i></p> <p><i>The effects of US 301 on farms and farmland are addressed on pgs III-19 through III-24 of the DEIS and on pgs III-20 to III-26 and Appendices F and G of the FEIS.</i></p> <ul style="list-style-type: none"> - DelDOT has failed to address and nor does DelDOT offer any plan to mitigate any adverse impacts upon already existing Rt. 301 businesses. <p><i>The purpose of new US 301 is to:</i></p> <ul style="list-style-type: none"> • <i>Improve Safety</i> <ul style="list-style-type: none"> ▫ <i>Existing US 301 (2000 - present)</i> <ul style="list-style-type: none"> - <i>1,150 total crashes - 395 resulted in injuries</i> - <i>19 crashes (6 involved trucks) resulted in 21 fatalities</i> - <i>Total crashes continue to increase</i> ▫ <i>Fatality rate on existing US 301 is 54% higher than Delaware State-wide average and 56% higher than the national average</i> • <i>Manage Truck Traffic</i> <ul style="list-style-type: none"> ▫ <i>New US 301 would remove interstate trucks from existing US 301 (70% in 2030), Boyds Corner Road (45% in 2030) and other local roads.</i> <p><i>Note: 70% of heavy trucks at MD/DE line are thru trips.</i></p> • <i>Reduce Congestion – Existing and Projected</i> <ul style="list-style-type: none"> ▫ <i>Numerous intersections in the project area projected to operate at Level of Service F (failing)</i> ▫ <i>Reduces traffic by at least 20% on over 50% of the local roads</i> <p><i>The US 301 project is supported by the Town of Middletown and has been included in their development plan for years. As noted below, DelDOT conducted an extensive public involvement effort, meeting with farmers, businesses and communities during the evaluation of numerous alternatives. The public was well-informed of the effects resulting from the various alternatives, including the preferred alternative, noted in the DEIS, the selected alternative, noted in the FEIS and the rationale for selecting the Green North + Spur Road and for not selecting other alternatives noted in the FEIS and ROD.</i></p>
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DelDOT does not guarantee a certain level of traffic in front of a business. As upheld by the Delaware Courts, the loss of business is not a compensable item.

- A failure of any business along the 301 corridor due to the impact of the project will have a negative impact upon the corresponding communities and Middletown.

US 301 has been proposed to support economic development:

- *New US 301 will support the significant amount of approved and proposed economic development in southern New Castle County, which is projected to be one of the fastest growing areas of the State.*
 - *87% of the projected population growth in New Castle County is projected for southern New Castle County.*
 - *Existing commercial/office development is projected to increase by 275% (7.9 million square feet total – 5.0 MSF approved and 2.9 MSF proposed).*
 - *Existing residential units are projected to increase by 143% (a total of 19,085 - 12,735 approved/6,350 proposed).*
 - *These figures only include a portion of the 1,100 acre Whitehall development and do not include 52 acres of developable land in Westown.*
 - *New US 301, along with local road improvements, will accommodate the traffic resulting from the existing, approved and proposed development, along with the projected regional/interstate traffic.*
- *US 301 will support economic development by removing regional / long distance traffic, especially heavy trucks, from local roads thus freeing up capacity and enhancing safety on the local roads for increased economic activity from travel by cars, bikes and pedestrians. US301 will also provide expressway access to job centers in Wilmington, Philadelphia and southern New Jersey.*

No. of Jobs	Type	Source
14,400	Permanent	Approved or Proposed Economic Development
650	Temporary	
5,200	Construction ¹	US 301 Construction ⁴
2,400	Supporting Industry ²	
7,700	Induced ³	

US 301 will create jobs:

- *The approved and proposed economic development in this important growth area and the construction of US 301 will create a significant number of needed jobs.*

¹ *Construction oriented employment, including all jobs that are created either by the construction firms that work directly on the project or by the firms that provide direct inputs (paving materials, steel, concrete, etc.) to the construction project;*

² *Supporting industries' employment, including jobs in firms that provide inputs to the industries that directly provide materials and equipment used in highway construction. For example, a firm that produces guard rails is counted as 'construction oriented' employment but the firm that provides the sheet steel to make the guard rails is considered part of 'supporting industries' employment; and*

³ *Induced employment, which includes all of the jobs supported by consumer expenditures resulting from wages to 'construction oriented' and 'supporting industries' Employment (Definitions from FHWA's "Employment Impacts of Highway Infrastructure Investment")*

⁴ *FHWA methodology*

Airmont Questions and Concerns as to 301 Project

APRIL 4, 2013

- DelDOT needs to adequately educate the residents and business owners of such risks.

The extensive US 301 public involvement program has educated the local residences and businesses regarding the advantages and disadvantages of the various alternatives evaluated, including the preferred / selected alternative, as summarized by the following:

- *Over 4,200 people attended 7 sets of public workshops and a public hearing*
- *Over 80 community meetings*
- *Over 2,600 people provided written comments*
- *The majority of the comments supported the US 301 project.*
- *There was significant support for project need.*
- *Virtually no support for the “No-Build” alternative.*
- *Middletown Corridor Coalition opposed the Spur Road (future phase of the project).*

The public involvement effort also included a listening tour with local communities, business leaders and elected officials; a project website; project newsletters (FYIs); the mailing of public workshop notices; pre-workshop meetings with individual communities on material to be presented at the workshops; a project team office in Middletown open to the public; public workshop handouts (environmental impacts matrices and display boards); a hotline; etc. An extensive effort was made to secure public input and to respond to public comments and concerns.

Dover has thriving businesses along the Route 13 corridor. The building of Route 1 removed through traffic from the local roads has allowed Route 13 to be less congested and, therefore, easier to shop the many businesses in the area. The removal of through traffic from the local roads also made available traffic capacity to support increased economic activity at existing businesses and the development of new businesses. SR1 provided interchanges to the north and south of Dover to allow traffic to access the businesses on Route 13 and the downtown area. US301 will similarly provide interchanges north and south of Middletown.

Nearly all businesses along existing US 301 would be expected to benefit from the shifting of most through heavy truck traffic to new US 301 and the projected continual growth in the Middletown area. The likely exception is the truck stop on the south edge of Middletown. The owner is well aware of the proposed US 301 project, since the property is being acquired from this owner for the project.

- DelDOT will need to prepare a supplemental EIS.

A supplemental EIS is not required. See response to question 13 on pages 13-4 and 13-5.

Airmont Questions and Concerns as to 301 Project

APRIL 4, 2013

Background:

- Prior to Rt. 1 in Dover, traffic was always heavy on weekends through business district on Rt. 13/Rt. 113 Dover area.
- After Rt. 1 in Dover, this traffic was diverted around the business district and the businesses suffered substantial loss in revenue. Businesses along 301 have invested substantial funds in these businesses, and should be made aware of any possible negative impacts upon their business.

- DelDOT does not address any of these impacts, nor do they offer any mitigation or related information.

See response to question 17.

DelDOT does not guarantee a certain level of traffic in front of a business. As upheld by the Delaware Courts, the loss of business is not a compensable item.

Question 17

Supporting Documentation

17-A

Table III-10: Population Age Distribution in the Project Area

Geographic Area	Number of Persons	Age Distribution								
		Under 25		25-44		45-64		65 and Older		Median Age
		#	%	#	%	#	%	#	%	
Delaware	783,600	269,915	34.4	236,441	30.2	175,418	22.4	101,726	13.0	36.0
New Castle County	500,265	176,303	35.2	157,485	31.5	108,574	21.7	57,903	11.6	35.0
166.01	5,712	2,183	38.2	2,077	36.4	1,104	19.3	348	6.1	33.5
166.02	4,442	1,702	38.3	1,523	34.3	992	22.3	225	5.1	35.2
166.04	4,995	1,979	39.6	1,646	33.0	973	19.5	397	7.9	31.5
168.01	2,983	990	33.2	922	30.9	755	25.3	316	10.6	37.7
Project Area Total	18,132	6,854	33.2	6,168	29.9	3,824	18.6	1,286	6.2	

Source: US Census 2000

Note: Shaded areas identify tracts with higher than state or county percentages of elderly.

As shown in **Table III-10**, the highest percentage of elderly persons in the project area, 10.6 percent, are in Census tract 168.01; this tract includes the area mostly south of Middletown. The only concentration of elderly residents identified in the project area was in Springmill, an “active adult” community with an age requirement of 55 and older.

b. Environmental Consequences and Mitigation

Property Impacts and Relocations

There will be no impacts to existing properties from the No-Build Alternative. Each of the build alternatives will impact a number of properties along its alignment, with property impacts ranging from small partial takes to total parcel acquisitions and relocations. The number of properties impacted and the numbers of relocation impacts associated with each of the alternatives is detailed in **Table III-11**.

The Yellow Alternative would require the greatest number (377) of property acquisitions and the most relocations; there would be 118 residential, 32 business and 11 other relocations with this alternative. The alternatives that follow the ridge route would require less property acquisitions and relocations, with the Brown Alternative Options impacting the fewest properties.

Table III-11: Property Impacts by Alternative

Zoning Classification¹	Yellow	Purple	Brown North Option	Brown South Option	Green North Option	Green South Option
Residential						
<i>Full</i>	128	7	2	2	4	4
<i>Partial</i>	48	23	18	25	24	24
<i>Relocations</i>	118	7	2	2	3	3
Business²						
<i>Full</i>	58	5	4	4	8	7
<i>Partial</i>	50	16	14	14	16	17
<i>Relocations</i>	32	0	0	0	2	4
Other³						
<i>Full</i>	21	18	6	6	12	15
<i>Partial</i>	72	85	56	49	68	63
<i>Relocations</i>	11	9	0	2	8	11
Full Takes Total	207	30	12	12	24	26
Partial Takes Total	170	124	88	88	108	104
Total Relocations	161	16	2	4	13	18
Total Affected Properties	377	154	100	100	132	130

Notes:

¹ Zoning classifications for New Castle County and Town of Middletown; if zoning is not known, property is included in Other category.

² Business includes General Business, Business Park, Commercial, Industrial, Manufacturing classifications.

³ Other includes Suburban, Suburban Reserve and Open Space classifications.

Relocation Plan

Each property owner will be contacted regarding the acreage to be acquired. For right-of-way takes where small portions will be acquired, owners will be compensated fairly based on assessment of property value and the size of the acquisition. In addition to just compensation for the assessed property value, those owners whose residences or business properties will be taken will be provided relocation assistance in accordance with the Uniform Relocation Assistance and Real Property Acquisition Act of 1970, as amended by the Uniform Relocation Act Amendments of 1987 (Refer to **Appendix D**).

A comparison of relocations required (**Table III-11**, above) and the potential stock of housing and business opportunities that will be available within the project area (**Tables III-4, III-5, and III-6**) shows that a sufficient supply of housing units (single family residence, townhomes and apartments) should be available for occupancy during the estimated time of relocation. While the Yellow Alternative would require the most (118) residential relocations, more than 15,000 new housing units are planned for development. Similarly, the highest number of business relocations (32) would be required with the Yellow Alternative, and there are more than ample opportunities for businesses (industrial, commercial, retail and others) planned within the adjacent project area. A detailed relocation plan for property impacts associated with the project is included in this DEIS as **Appendix D**.

Question 17
Supporting Documentation
17-B

Appendix D

Relocation Assistance Program

US 301 Project Development



***Federal Highway
Administration***



***Delaware Department
Of Transportation***

Summary of the Relocation Assistance Program of the Delaware Department of Transportation

All Delaware Department of Transportation projects utilizing Federal funds must comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 USC 4601) as amended by Title IV of the Surface Transportation and Uniform Relocation Act of 1987 (Public Law 100-17), Public Law 105-117 in 1997, and Title 49 CFR Part 24 in 2005. State-funded projects must also comply with the provisions of the Delaware Code Title 29, Chapter 93, Uniform Relocation Assistance.

In the above referenced Federal and State laws, the Delaware Department of Transportation is required to provide relocation services and payments to eligible persons who are displaced by a public project. Only citizens or non-citizen nationals in the United States of America may be considered eligible and will be assigned a Relocation Counselor upon verification of eligibility. Those persons that qualify as a displaced person maybe entitled to a replacement housing payment, moving costs and related expenses as well as relocation advisory services. Additionally displaced residential persons may be eligible for reimbursement for certain miscellaneous expenses incurred in moving as provided for solely under the Delaware relocation assistance statute . The Delaware Department of Transportation will determine all maximum payments amounts. The Delaware Department of Transportation's, Division of Planning, Real Estate Services Section administers the Relocation Assistance Program.

Residential Displacements

Residential occupants who are required to move must be provided the ability to relocate to a comparable replacement dwelling that is decent, safe, and sanitary, and functionally equivalent to present dwelling. Replacement housing payments are made to both owner occupants and tenant occupants. An owner occupant may receive payments for a purchase supplement, incidental expenses and mortgage interest differential, rental assistance or downpayment assistance.

There are three basic length-of-occupancy requirements which determine the type of replacement housing payment a displaced person is entitled to, and they are: owner occupants of 180 days or more, and owner occupants of 90 to 179 days and tenants of 90 days or more. Length-of-occupancy in most instances, is defined as the number of days of residence in the dwelling before the initiation of negotiations by the Delaware Department of Transportation for the purchase of the property.

Purchase Supplement

Owners who were in occupancy 180 days or more prior to the initiation of negotiations may be eligible for a purchase supplement payment of up to \$22,500 in addition to the fair market value of property acquired.

The purchase supplement is the amount by which the cost of a replacement dwelling exceeds the acquisition cost of the replacement dwelling.

Incidental Expenses

180-day owner occupants are also eligible for reimbursement of incidental expenses such as, but are not limited to, costs incurred for a title search, recording fees, and other closing costs (excluding real estate taxes and property insurance).

Mortgage Interest Differential

180-day owners occupants may also be reimbursed for the increased mortgage interest costs if the interest on the new mortgage exceeds that of the previous mortgage.

Rental Assistance

Owners who have been in occupancy from 90 to 179 days, or tenants of 90 days prior to the initiation of negotiations are eligible for a rental assistance payment of up to \$5,250. This payment is designed to enable the displaced person to rent a comparable, decent, safe and sanitary dwelling for a 42 month period.

Persons who are in occupancy at the initiation of negotiations, but less than 90 days prior to that date are still considered a displaced person entitled to relocation assistance advisory services and moving payments, and may also be entitled to a rental assistance payment if comparable replacement rental housing is not available within their financial means. Under this circumstance a displaced person's rental assistance payment would be an amount that exceeds the base monthly rent for the displacement dwelling to rent a replacement dwelling as determined by the Department of Transportation. Such rental assistance would be paid under the provisions of replacement housing of last resort.

Downpayment

Like rental assistance, owners who have been in occupancy from 90 to 179 days, or tenants of 90 days prior to the initiation of negotiations are eligible for a rental assistance payment or a downpayment of up to \$5,250. However, the payment for a displaced owner cannot exceed the amount of the payment that would be received by a 180-day owner occupant for the same property. Owners and tenants may also be eligible for reimbursement of incidental expenses such as costs incurred for a title search, recording fees, and other closing costs (excluding real estate taxes and property insurance).

Residential Moving Cost Reimbursement

Displaced individuals and families may choose to be paid on the basis of actual reasonable moving and related expenses, or according to a fixed moving cost schedule.

For actual reasonable moving costs, displaced persons can choose to utilize a professional mover or move themselves, but reimbursement is limited to a 50 mile distance. Other related moving expenses include packing and unpacking, temporary storage, transportation, and moving insurance. All expenses must be considered necessary and

reasonable by the Delaware Department of Transportation and be documented by paid receipts, or other evidence of expenses incurred.

Owners and tenants of the State of Delaware displaced from a residential dwelling by a program or project can be eligible to receive reimbursement for miscellaneous expenses incurred within thirty days of moving from the displaced dwelling if not otherwise authorized under the State of Delaware relocation assistance statute. In no event shall payment from the Delaware Department of Transportation exceed 1% of the appraised residential value of the residence acquired.

Fair Housing

The Fair Housing Law (actually Title VI of the Civil Rights Act of 1964 and Title VIII of the Civil Rights act of 1968) sets forth the policy of the United States of America to provide, within constitutional limitations, for fair housing throughout the United States of America. These acts and Executive Order 11063 make discriminatory practices in the purchase and rental of most residential units illegal based on race, color, religion, sex, or national origin.

Whenever possible, minority persons shall be given reasonable opportunities to relocate to decent, safe, and sanitary replacement dwellings, not located in an area of minority concentration, that are within their financial means. This policy, however, does not require the Delaware Department of Transportation to provide a displaced person with a larger payment than is necessary to enable a person to relocate to a comparable replacement dwelling outside of an area of minority concentration.

Nonresidential Displacements

Nonresidential displacements, business, farm or nonprofit organization, may be eligible for the reimbursement of moving expenses, loss of tangible personal property, searching expenses or a fixed payment in lieu of actual moving expenses. A small business as defined may be eligible for reimbursement for certain reestablishment expenses not to exceed \$22,500.00

Nonresidential Moving Cost Reimbursement

Displaced businesses, farms, or nonprofit organizations are also entitled to reasonable moving expenses. Like residential displacements there are two types of payment; businesses, farms, or nonprofit organizations between two payment types. The types of payments available are actual reasonable moving costs or a fixed payment in lieu of moving costs.

Actual Reasonable Moving Costs

Actual reasonable moving costs can be paid if moved by a professional mover or if nonresidential displaced person elects to move on their own. Related expenses can also be covered which include direct loss of tangible property that occurred as a result of the

move or discontinuation of the operation, reestablishment expenses, and expenses incurred while searching for a replacement property (not to exceed \$2,500.00).

Under the actual reasonable moving costs, a small business, farm or nonprofit organization may be eligible for a payment, not to exceed \$22,500 for expenses actually incurred in relocating and reestablishing the enterprise at a replacement site. To qualify, the business, farm or nonprofit organization must not have more than 500 employees working at the site being acquired or displaced by the Delaware Department of Transportation, and is a site of economic activity. Sites solely occupied by outdoor advertising signs, displays, or devices do not qualify as a small business.

Fixed Payment in Lieu of Actual Moving Costs

The non-residential displaced person may also be eligible for a fixed payment in lieu of actual moving and other related expenses. The fixed payment is based upon the average annual net earnings of the operation for the two taxable years immediately preceding the taxable year in which it was displaced, or within a two year period deemed more representative by the Delaware Department of Transportation.

The fixed payment may not be less than \$1,000 or more than \$20,000, and several criteria must be met to be eligible for this type of payment. Any business that is solely engaged in the rental of space for residential or business purposes is not eligible for this type of payment.

Housing of Last Resort

Federal and State law require that the Delaware Department of Transportation shall not proceed with any phase of the project which will cause relocation of any persons, or proceed with any construction project, until it has furnished satisfactory assurances that the above payment will be provided, and that all displaced persons will be satisfactorily relocated to comparable decent, safe and sanitary housing within their financial means, or that such housing is in place and has been made available to the displaced persons.

On most projects, an adequate supply of housing will be available for sale or rent, and the benefits provided will be sufficient to enable displaced persons to relocate to comparable replacement housing. However, there may be projects in certain locations where the supply of available housing is insufficient to provide the necessary housing for those persons being displaced. When a housing shortage occurs, the Delaware Department of Transportation will implement the administrative process called Housing of Last Resort by providing additional or alternative assistance required to assure that all residential occupants displaced have the ability to move to comparable, decent, safe and sanitary housing.



STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
250 BEAR-CHRISTIANA ROAD
BEAR, DELAWARE 19701

CAROLANN WICKS, P.E.
SECRETARY

MEMORANDUM

TO: Bill Hellmann
Partner Emeritus
Rummel, Klepper & Kahl, LLP

VIA: V. Wayne Rizzo 
Assistant Director of Planning, Real Estate Services

VIA: Carol O'Donoghue 
Assistant Chief, Real Estate

FROM: Thomas D. Nickel 
North District Real Estate Manager

RE: US 301 Green North Alternative
Relocation Plan

This project starts at the Delaware/Maryland state lines below Middletown, Delaware and continues in a northerly and northeasterly direction to the Chesapeake and Delaware Canal. There are several alternatives to this project. For the purpose of this Relocation Plan we are looking at only one (Green North Alternative, work in progress) alternative. This Relocation Plan is being developed with assumptions from the work in progress plan supplied by RK&K Engineering firm. **No contact was made with the public in formulation of this Relocation Plan.** Starting at the southern end of this alternative on the Maryland/Delaware state line, and continuing north there are approximately thirty-five (35) total acquisitions. Of the total acquisitions twenty-seven (27) appear to be residential properties with 180-day homeowner/occupants. The dwelling types of these twenty-seven (27) range from small ranch homes to large two story colonials. Ages range from construction in the early 1950's to new construction. Parcel sizes range from small (less than one acre) to large acreage (more than 10 acres). Several parcels have improvements including outbuildings (barn structures) housing

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animals from horses to small animals. At least two (2) of the twenty-seven (27) properties have mobile homes on the properties. The residential properties are identified below:

13-012.00-010 with mobile home	13-012.00-038
13-012.00-036	13-012.00-102
13-012.00-098	13-017.00-007
13-012.00-103	13-017.00-013
13-017.00-012	13-017.00-084 with mobile home
13-017.00-083	13-017.00-086 existing building permit
13-017.00-085 existing building permit	13-017.00-107
13-017.00-087	13-017.00-119 new house permit issued
13-017.00-116 has older home/being subdivided	13-017.00-121 new construction
13-017.00-120 undergoing subdivision	13-017.00-127 undergoing subdivision
13-017.00-126 undergoing subdivision	13-026.00-006
13-017.00-129 undergoing subdivision	
13-026.00-012 vacant residential	14-010.00-002 vacant residential
14-010.00-015 vacant residential	14-010.00-025 vacant residential

In prioritizing the residential properties with the appraisal and acquisition process the properties at the forefront would be tax parcels 13-017.00-085, 086, 107, 116, 119, 120, 121, 126, 127, 129, as these properties are actively going through the subdivision process and/or having homes constructed on them. While they are not occupied at this time, they are being or will be improved with large (in the 3,000 to 5,000 square foot range) homes within the reasonable near future. This would require time and with a high degree of certainty the utilization of housing of last resort to relocate these displacees. The second group in order of priority are more average dwellings but with amenities that will have to be address in the relocation process. This group includes tax parcels 13-012.00-010 and 13-017.00-084 as they have mobile homes on the sites. It will be important to determine if these mobile homes are personality or realty early on since the relocation concerns differ depending how the ownership is held. The last group in order of priority is tax parcels 13-012.00-036, 038, 098, 102, 103, 13-017.00-007, 012, 013, 083, 087, 13-026.00-006 and 13-010.00-002, 015, 025 these are vacant residential.

It would seem that with the development in this area that it will not be hard to find replacement housing, although the replacement housing may not have the acreage that the homeowners once had and this could become an issue. Also without interviewing the homeowners it was not possible to know if there are or will be special transportation issues, handicap issues, school issues, or the need to be near medical services and stores. Without answers to these questions it is hard to develop a plan to address the needs of the displacees.

There are approximately eight (8) commercial properties. These properties include a small homes converted to an office use, a Gas station, a Daycare facility, a possible Religious Outreach facility, and a water utility facility with a well field and treatment site. The commercial properties are identified below:

13-012.00-036 Amazing Grace Outreach – Tenant occupied (storage building/shed sales site)
13-012.00-106 Tidewater Utilities
13-017.00-037 Residence converted to office
13-017.00-043 Daycare Center
13-026.00-010 Vacant commercial
14-010.00-016 Gas Station
14-010.00-026 Vacant commercial (DP&L)
14-010.00-028 Vacant commercial

Of the commercial properties without interviews we cannot determine if they are owner occupied or tenant occupied.

In prioritizing the commercial properties with the appraisal and acquisition process they would be:

(1) Tax parcel 13-012.00-106, Tidewater Utility. Because of the nature of this property (three deep wells, storage/treatment facility) it will be very expensive (possible \$5,000,000) and time consuming (possibly three to five years) to relocate this user. As this owner/user is a water service provider to several residential subdivisions in the area, it is vitally important to consider the potential disruption of potable water to all affected recipients of services. In order to maintain the current level of service a new fully operational “sister” facility would be required prior to shutdown of the existing facility. (2) The next commercial property would be tax parcel 13-017.00-043. This is a daycare facility requiring enough lead-time to find suitable property. They would need to be very close to the current location so as to serve their client base. Again this could take 2 years. (3) Next would be tax parcel 14-010.00-016, the Gas Station. As with this type of property the risk of soil contamination is always great. So it could possibly take several years to find suitable replacement property and years to clean up the old property. (4) The next property would be tax parcel 13-012.00-036. This is the Amazing Grace Outreach. Currently this does not have any permanent improvements but is being utilized as a site for the display and sale of small storage building and shed structures. It is anticipated the parcel will be improved with a community based outreach facility. This again could take a year to find a suitable property with all the amenities for this particular type of facility. (5) Then would be tax parcel 13-017.00-037. This is a residence that has been converted into office. For this instant property there appears to be an adequate market for this type of property. (6, 7 and 8) And last there are tax parcels 13-026.00-010, 13-010.00-026, 028 that are vacant commercial property.

In summation, the residential and non-residential relocations will pose some difficulties. For the residential relocations replacement housing is available in the market place with an anticipation of at least one to two years to relocate displacees and utilization of housing of last resorts for the majority of the residential displacees. The non-residential relocations will encounter some unusual concerns due to the types of commercial properties/business enterprises displaced by the proposed project. It is anticipated the non-residential relocation plan will take more time, possibly up to five years, with above average expenses due to the type of commercial enterprises or businesses displaced and potential special needs of several displaced businesses.

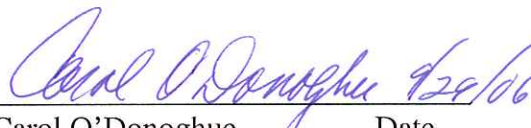
This preliminary relocation plan was completed with current market conditions as of September 25, 2006 and will need to be updated when final plans and route are selected and completed. Also, in the event the scope of the project changes to include more or less displacees, a revised relocation plan will need to be completed.

Approved:

 10/02/06


Wayne Rizzo Date
Assistant Director of Planning

Approved:

 9/29/06

Carol O'Donoghue Date
Assistant Chief, Real Estate

Approved:

 9-29-06

Tom Nickel Date
North District Real Estate Manager

Question 17

Supporting Documentation

17-C

There are businesses within the project area that are vital to or support agriculture. South of Middletown, Middletown Veterinary, Hooper, Inc. (Case Tractor), and Money's Farm Market are located along existing US 301. North of Middletown, Logullo's Country Market, M L Whiteman & Sons Landscape Contractors, Ciamaricone's Landscaping, and Mr. Mulch are located adjacent to existing US 301. In addition to those businesses located adjacent to major roadways within the project area, the Peavey Agricultural Products processing plant and grain storage/shipping facility is located in Townsend and serves the needs of many of the local farmers in both Delaware and Maryland.

b. Environmental Consequences and Mitigation

Farm parcels were evaluated using the Land Evaluation Site Assessment (LESA) model, a state and federally approved land analysis system that rates agricultural parcels for suitability for long-term agricultural use. A higher LESA score indicates high agricultural suitability. The 300-point rating system is based on a Land Evaluation (LE) factor (determined by using a land use dependent soil productivity index) and a Site Assessment (SA) factor (derived from non-soil factors, many of which are non-agricultural).

For each alternative, the specific parcels impacted by the alternative were quantitatively assessed by multiplying the LESA score by the amount of land within the parcel that is impacted, thus providing an acre-weighted total score for the specific portion of land impacted. The acre-weighted total scores for each of the affected parcels were then added and divided by the number of acres impacted by the alternative. The result is an acre-weighted score for each alternative.

The LESA score for the Preferred Alternative is 211; 15 farms (as identified during field survey in 2006) were identified as impacted. The LESA score with development parcels excluded is 219. The LESA evaluation for the retained alternatives is shown in **Table III-9**.

Table III-9: LESA Model Scores for Impacted Farm Parcels

Alternative	Yellow Alternative	Purple Alternative	Brown Alternative North Option	Brown Alternative South Option	Green Alternative North Option (DEIS)	Green Alternative South Option
Farms Impacted ¹	9	16	13	15	15	15
LESA Score ²	192	203	198	202	210	204
LESA Score ³	212	218	202	209	218	213

Notes: 1. Includes the total acres of specific parcels impacted by each alternative.

2. Indicates total impacts, regardless of existing land use.

3. Excludes farmland parcels with existing and planned development.

The variance in the LESA scores for the retained alternatives is small (the range of scores is 192 to 210), with the Yellow Alternative having the lowest LESA score (192) and the Green Alternative North Option having the highest LESA score (210). All of the alternatives will impact farm parcels that are suitable for agriculture based on their LESA score.

The Farmland Protection Policy Act (FPPA), as amended in 1984 and 1994, includes criteria defining the situations to which the FPPA applies and for which a Form AD-1006 (Form CPA-106 for corridor-type projects) is required. The AD-1006 Farmland Conversation Impact Rating (FCIR) is used by federal agencies who wish to convert farmland to nonagricultural uses. Calculations on the form result in a farmland conversion impact rating which assesses the value of farmlands to be converted. The FCIR CPA-106 form, completed for the Preferred Alternative and included in **Appendix G**, uses a one-mile wide corridor (1/2 mile on either side of the centerline of the alignment) to complete the requirements of the FPPA. The form is coordinated through the state Natural Resources Conservation Service (NRCS) office. Impacts to prime farmland soils are discussed in detail in **Section F** of this chapter.

The No-Build Alternative will not impact farms or farmland. Impacts to active farm parcels are updated for the Preferred Alternative based on the identification of individual parcel impacts for the entire length of the project, recent aerial photography, and input from the farming community. The Preferred Alternative will impact 831 acres on 28 active farm parcels that are not currently proposed for development. This total includes areas outside of the LOD for the project that will no longer be accessible upon completion of the Preferred Alternative and areas proposed for wetlands mitigation. Only one farm parcel will be a total acquisition (it includes the primary wetland mitigation site) and the remainder will be partial acquisitions. Three of the farms that are impacted are under agricultural preservation protection: two are easements (impacting 10.9 acres) and one is an agricultural district (32.6 acres of impact). An additional 17 parcels will be impacted that are currently being farmed and are proposed, pending or approved for development. These parcels will account for an additional 371 acres. Only one parcel, a DP&L alignment parcel, will be a total acquisition. Farm impacts are discussed in the following paragraphs.

The Preferred Alternative alignment LOD will impact 616 acres of prime farmland soils, an increase from the 437 acres reported for the Green North Alternative in the DEIS. This increase is due to the enlarged footprint of the roadway, more detailed stormwater management facilities and sites proposed for wetland mitigation. Topography was obtained for the area, allowing for more detailed engineering, including preliminary drainage concepts which required that the roadway profile be raised slightly higher than the DEIS alignment in some places (refer to the introduction on page III-1). It is anticipated that all of the alternatives impacts would increase proportionally, were they subjected to the same level of detail as the Preferred Alternative. Many of the calculations for land acquisitions for the Preferred Alternative also include “remainder” portions (portions of parcels that will be inaccessible following construction of the Preferred Alternative) of parcels that are impacted directly.

The Preferred Alternative would not impact businesses associated with or essential to farming in the area. As part of the build alternative, a proposed connection between Strawberry Lane and existing US 301, south of Levels Road, will assure continued safe local access for transportation of large farm machinery across new US 301 and provide access to a farm machinery repair business.

As described in the DEIS, the other build alternatives would impact active farm parcels and prime farmland soils (**Table III-10**). These impacts were considered during the evaluation of alternatives and selection of the Preferred Alternative.

The Green Alternative South Option would impact the fewest (398) acres of prime farmland soil, while the Yellow Alternative would impact the lowest number of active farmland parcels (9). Each of the build alternatives would partially impact one or more agricultural districts or easements. The Yellow Alternative impacts 14.1 acres of an agricultural district that has been approved for development as a part of the Westown project. The Purple, Brown and Green Alternatives would impact 32.6 acres of an agricultural district north of Bunker Hill Road. The Brown Alternative will impact 9.4 to 12.4 acres of an easement north of Churchtown Road, while the spur road (Purple and Green Alternatives) would impact 5.3 acres of the same property. The Preferred Alternative also impacts 5.9 acres of a county agricultural easement in order to provide the Strawberry Lane connection to existing US 301. This additional impact would occur with all of the build alternatives, were they subjected to same level of detail in engineering as the Preferred Alternative.

**Table III-10: DEIS Impacts to Prime Farmland Soils,
Active Farms, and Agricultural Preserves**

Alternative	Yellow Alternative	Purple Alternative	Brown Alternative North Option	Brown Alternative South Option	Green Alternative North Option (DEIS)	Green Alternative South Option
Prime Farmland Soils Impacted (acres) ¹	203	415	412	424	437	398
Active Farmland Parcels Impacted ²	9	15	16	13	15	15
Partial Takes	7	5	3	2	4	4
Total Takes	2	10	13	11	11	11
Agricultural Districts Impacted Number (acres)	1 (14.1)	1 (32.6)	1 (32.6)	1 (32.6)	1 (32.6)	1 (32.6)
Agricultural Easements Impacted Number (acres)	0 (0)	1 (6.0)	1 (9.4)	1 (12.4)	1 (6.0)	1 (6.0)

Notes: 1 The impacts to farmland soils includes areas of proposed development.

2 Based on field survey only and does not include parcels planned and approved for development. Includes estimated total and partial takes.

The Yellow Alternative will impact the seven businesses that are related directly or indirectly to agriculture. All of the alternatives will impact the Middletown Veterinary property (requiring a partial strip take), and the Yellow Alternative would require the relocation of Hooper, Inc. (Case Tractor).

None of the build alternatives completely avoid impacts to farms and farmlands. Acquisitions of active farm parcels have been minimized through alignment location and engineering design and will be further minimized, where possible, during final design.

Property owners will be contacted regarding potential acquisitions and be fairly compensated for the required acreage. In some cases (agricultural preservation lands), compensation will be determined based on the “highest and best development use of the property with no consideration given to the restrictions and limitations” of the preservation agreement (Delaware Code Title 3, Chapter 9, Subchapter IV, Section 922). Compensation will also be provided for any farmland that may be unsuitable or inaccessible for farming purposes as a result of the roadway improvements. For those businesses that are subject to relocation, owners will be provided relocation assistance in accordance with the Uniform Relocation Assistance and Real Property Acquisition Act of 1970, as amended by the Uniform Relocation Act Amendments of 1987 (Refer to *Appendix F*).

5. Population and Housing

a. Existing Conditions

Data were extracted from the US Census Bureau web site to describe population and housing within the project area. The Census tracts in the project area are shown on *Figure III-6*.

According to the 2000 Census, 18,132 persons live in the four census tracts that include the project area, as shown in *Table III-11*. Tract 166.01, located between the state line and Summit Bridge Road/US 301/SR 71, has the highest population of the four tracts; tract 168.01, located south of US 301 has the smallest population. The other two tracts, 166.02 and 166.04, are located to the east of Summit Bridge Road/US 301/SR 71. Census tract 166.04 includes most of the area of Middletown east of SR 71 and the Town of Odessa.

Table III-11: Population and Housing in the Project Area

Geographic Area	Number of Persons	Number of Housing Units	Number of Occupied Housing Units	Average Household Size
166.01	5,712	1,974	1,885	3.03
166.02	4,442	1,402	1,366	3.25
166.04	4,995	1,995	1,842	2.71
168.01	2,983	1,112	1,056	2.82
Project Area Total	18,132	6,483	6,149 (95.1%)	

Source: US Census 2000

There are 6,149 housing units in the project area, and 95 percent are occupied. In census tracts 166.01, 166.02 and 168.01, most of the housing units are detached single family homes. Many of the homes in tracts 166.01 and 166.02 are located in more recently constructed developments.

The population is also identified by age, in order to identify those persons who are classified as elderly (age 65 and older).

Table III-12: Population Age Distribution in the Project Area

Geographic Area	Number of Persons	Age Distribution								Median Age
		Under 25		25-44		45-64		65 and Older		
		#	%	#	%	#	%	#	%	
Delaware	783,600	269,915	34.4	236,441	30.2	175,418	22.4	101,726	13.0	36.0
New Castle County	500,265	176,303	35.2	157,485	31.5	108,574	21.7	57,903	11.6	35.0
166.01	5,712	2,183	38.2	2,077	36.4	1,104	19.3	348	6.1	33.5
166.02	4,442	1,702	38.3	1,523	34.3	992	22.3	225	5.1	35.2
166.04	4,995	1,979	39.6	1,646	33.0	973	19.5	397	7.9	31.5
168.01	2,983	990	33.2	922	30.9	755	25.3	316	10.6	37.7
Project Area Total	18,132	6,854	33.2	6,168	29.9	3,824	18.6	1,286	6.2	Average: 34.5

Source: US Census 2000

Note: Shaded area identifies tract with highest percentage of elderly in the project area.

As shown in **Table III-12**, the highest percentage of elderly persons in the project area, 10.6 percent, are in Census tract 168.01; this tract includes the area mostly south of Middletown. The only concentration of elderly residents identified in the project area was in Springmill, an “active adult” community with an age requirement of 55 and older.

b. Environmental Consequences and Mitigation

Property Impacts and Relocations

There will be no impacts to existing properties from the No-Build Alternative. The Preferred Alternative will impact a total of 143 properties, of which 26 will be full acquisitions and 117 will be partial acquisitions. DelDOT 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, resulting in 35 separate relocation assignments. Property acquisitions required by the Preferred Alternative are shown in **Table III-13** by zoning classification.

Table III-13: Property Impacts of the Preferred Alternative

Zoning Classification ¹	Total Acquisitions		Partial Acquisitions		Total Properties
	Number	Acres	Number	Acres	
Business/General Business	0	0	6	122.20	6
Commercial Regional	5	6	14	91.69	19
Industrial	3	3	3	1.34	6
Residential NC15/NC21/NC40	2	7	17	11.82	19
Residential R1/R2	0	0	2	1.01	2
Suburban	12	71	70	674.85	83
Suburban Reserve	4	303	5	173.86	9
Total Acquisitions (number)	26	390	117	1106.65	143

Note 1: Zoning classifications for New Castle County and Town of Middletown

Zoning classifications do not accurately reflect the use of the property, i.e., the “General Business” category includes the Appoquinimink High School property; several properties with residential or “Suburban” zoning are residential open space or owned by utility companies and do not reflect residential acquisitions; and the “Suburban” and “Suburban Reserve” categories represent mostly residential properties or farmlands, including the Whitehall Properties, the Middletown Baptist Church property, and properties owned by DP&L, the Appoquinimink School District and the University of Delaware.

Each of the build alternatives would impact a number of properties along its alignment, as shown in the DEIS, with property impacts ranging from small partial takes to total parcel acquisitions and relocations. These impacts were considered during the evaluation of alternatives and the selection of the Preferred Alternative. The number of properties impacted and the numbers of relocation impacts associated with each of the alternatives is detailed in **Table III-14**.

Table III-14: Preliminary Property Impacts by Retained Alternative

Zoning Classification¹	Yellow Alternative	Purple Alternative	Brown Alternative North Option	Brown Alternative South Option	Green Alternative North Option (DEIS)	Green Alternative South Option
Residential						
<i>Full</i>	128	7	2	2	4	4
<i>Partial</i>	48	23	18	25	24	24
<i>Relocations</i>	118	7	2	2	3	3
Business²						
<i>Full</i>	58	5	4	4	8	7
<i>Partial</i>	50	16	14	14	16	17
<i>Relocations</i>	32	0	0	0	2	4
Other³						
<i>Full</i>	21	18	6	6	12	15
<i>Partial</i>	72	85	56	49	68	63
<i>Relocations</i>	11	9	0	2	8	11
Full Takes Total	207	30	12	12	24	26
Partial Takes Total	170	124	88	88	108	104
Total Relocations	161	16	2	4	13	18
Total Affected Properties	377	154	100	100	132	130

Notes:

¹ Zoning classifications for New Castle County and Town of Middletown; if zoning is not known, property is included in Other category.

² Business includes General Business, Business Park, Commercial, Industrial, Manufacturing classifications.

³ Other includes Suburban, Suburban Reserve and Open Space classifications.

The Yellow Alternative would require the greatest number (377) of property acquisitions and the most relocations; there would be 118 residential, 32 business and 11 other relocations with this alternative. The alternatives that follow the ridge route would require less property acquisitions and relocations, with the Brown Alternative Options impacting the fewest properties.

Relocation Plan

For properties impacted by the Preferred Alternative, each property owner will be contacted regarding the acreage to be acquired. For right-of-way takes where small portions will be acquired, owners will be compensated fairly based on assessment of property value and the size of the acquisition. In addition to just compensation for the assessed property value, those owners whose residences or business properties will be taken will be provided relocation assistance in accordance with the Uniform Relocation Assistance and Real Property Acquisition Act of 1970, as amended by the Uniform Relocation Act Amendments of 1987 (Refer to **Appendix F**).

A comparison of relocations required and the potential stock of housing and business opportunities that will be available within the project area (**Tables III-5 and III-7**) shows that a sufficient supply of housing units (single family residence, townhomes and apartments) should be available for occupancy during the estimated time of relocation. A detailed relocation plan for property impacts associated with the Preferred Alternative is included in **Appendix F**.

6. Communities and Community Facilities

a. *Existing Conditions*

Communities

The existing communities, shown on **Figure III-7**, were identified from an inventory of information from the State of Delaware and New Castle County sources. Within the Town of Middletown, communities include Springmill, Middletown Village, The Legends, Bunker Hill Center, Brick Mill Farm, downtown, and Middletown Commons. Both within and outside of Middletown, there are many communities represented by homeowners associations, including:

Fox Hunter Crossing	Post and Rail Farms	Summit Farms
Matapeake	Springmill	Midland Farms
Grande View Farms	Mount Hope	Augustine Creek (east of SR 1)
Middletown Village	The Legends	Chesapeake Meadow
Airmont	Dickerson Farms	Crystal Run Farms
Summit Bridge Farms	Summit Pond	Back Creek
Westside Hunt	Lea Eara Farms	Asbury Chase

Question 17

Supporting Documentation

17-D

Appendix F

Relocation Assistance Program

US 301 Project Development



***Federal Highway
Administration***



***Delaware Department
Of Transportation***



STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
250 BEAR-CHRISTIANA ROAD
BEAR, DELAWARE 19701

CAROLANN WICKS, P.E.
SECRETARY

MEMORANDUM

TO: William Hellmann
Partner Emeritus
Rummel, Klepper & Kahl, LLP

VIA: Wayne Rizzo *WR*
Assistant Director of Planning, Real Estate Services

FROM: Thomas D. Nickel *TDN*
North District Real Estate Manager

Paul Meleri *PM*
Operation Support Manager

DATE: October 19, 2007

RE: US 301 Green North + Spur Alternative
Relocation Plan

Attached is the updated Relocation Plan for the US 301 Green North + Spur Alternative. Re-analysis of the Relocation Plan was necessary since the potential relocation needs changed from the submission for the DEIS and a modification at the Bethel Church Road connection.

Please consider this Relocation Plan for the FEIS submission.

TDN:sea
Attachment

RECEIVED

OCT 26 2007

RUMMEL, KLEPPER & KAHL, LLP



US 301 Relocation Plan

General Area of Project

This project starts at the Delaware/Maryland state line below Middletown, Delaware and continues in a northerly and northeasterly direction to the Chesapeake and Delaware Canal. This Relocation Plan has been prepared for the Green North plus Spur Road Alternative and is to be incorporated into the FEIS.

Planning Assumptions

This Relocation Plan was compiled based upon assumptions from the work in progress plan supplied by RK&K Engineering, a field inspection conducted by Delaware Department of Transportation, Real Estate Services staff on 8-23-07, New Castle County assessment records and public information available over the internet. This plan also assumes that no advanced acquisitions requiring relocation assistance will occur on the project prior to the distribution of Semi-Final Right of Way Plans. **No contact was made with any person in occupancy upon any parcel listed below in formulation of this Relocation Plan other than what had been communicated to Real Estate Services staff at their convenience.**

Potential Displacement Inventory

There are twenty-one (21) parcels that appear to be occupied thus requiring relocation assistance and payments. Fifteen (15) of the parcels would be total acquisitions while six (6) are partial acquisitions. Based upon the field inspection and county assessment records it appears that there would be thirty-five (35) separate relocation assignments and are as follows:

- ✓ Ten (10) 180-Day Homeowner Occupants
- ✓ Eleven (11) 90-Day Occupants (tenants)
- ✓ One (1) Farm Operation
- ✓ Three (3) Occupied Businesses
- ✓ Ten (10) Non-Occupant Businesses (Reestablishment Expense eligibility only)

By Parcel Relocation Type

11-061.00-011: One (1) 180-Day Homeowner Occupant, One (1) Farm Operation
13-012.00-010: One (1) 180-Day Homeowner Occupant, One (1) 90-Day Occupant (tenant-mobile home)
13-012.00-035: One (1) Occupied Business, One (1) Non-Occupant Business
13-012.00-036: One (1) 90-Day Occupant (tenant-mobile home)
13-012.00-037: One (1) Occupied Business, One (1) Non-Occupant Business
13-012.00-038: One (1) 180-Day Homeowner Occupant
13-012.00-098: One (1) 180-Day Homeowner Occupant
13-012.00-102: One (1) 90-Day Occupant, One (1) Non-Occupant Business
13-012.00-103: One (1) 90-Day Occupant, One (1) Non-Occupant Business
13-017.00-007: One (1) 90-Day Occupant, One (1) Non-Occupant Business
13-017.00-012: One (1) 180-Day Homeowner Occupant

13-017.00-013: One (1) 180-Day Homeowner Occupant
13-017.00-083: One (1) 180-Day Homeowner Occupant
13-017.00-084: One (1) 180-Day Homeowner Occupant, One (1) 90-Day Occupant (mobile home)
13-017.00-087: One (1) 180-Day Homeowner Occupant
13-017.00-119: One (1) 90-Day Occupant, One (1) Non-Occupant Business
13-017.00-129: One (1) 90-Day Occupant, One (1) Non-Occupant Business
13-022.00-001: One (1) 90-Day Occupant, One (1) Non-Occupant Business
13-026.00-006: One (1) 180-Day Homeowner Occupant
14-010.00-004: One (1) 90-Day Occupant, One (1) Non-Occupant Business
14-010.00-016: One (1) Occupied Business, One (1) Non-Occupant Business

Available Replacement Sites for Residential Occupants

There is presently a good supply of comparable or better replacement housing available for 180-Day Homeowner Occupants and it would appear that an adequate supply of available housing will be available at the time of displacement as the area continues to develop residentially. However, it is anticipated that the cost of providing comparable replacement housing will require housing of last resort for approximately fifty-eight percent (58%) caused by the following:

- ✓ Handicapping condition requiring special modifications to replacement housing
- ✓ The amounts of a Purchase Supplement, Incidental Expense costs and Mortgage Interest Differential costs will exceed the established statutory limits

The field investigation revealed that all identified residential tenants reside in single-family dwellings. Further investigation indicated that there is a limited supply of available housing of this type presently for rent in and around the project area. As such, housing of last resort will be utilized to provide for comparable replacement housing if the supply condition remains the same at the time of displacement.

Non-Residential Occupant Issues

The Farm Operation will in all probability require the operator to relocate out of the immediate project area as the farmland is under heavy development pressure and therefore it is assumed that there may not be any potential replacement sites available at the time of displacement. However, it is anticipated that the availability of farmland for sale and for the purpose of conducting a farm operation will be available in the surrounding area when displacement occurs.

The three (3) occupied businesses in the area are considered small businesses of which two (2) are retail operations and one (1) is a service operation. Specifically, the type of businesses being conducted are as follows:

- ✓ A home decorating service
- ✓ Storage shed and children's residential playground equipment sales
- ✓ A gas station/convenience store

There is a possibility that the gas station/convenience store may include additional displaced person occupying the site caused by personal property being owned by various product providers. This will be determined when interviews are conducted.

It is anticipated that at the time of displacement, the one (1) service oriented business will be able to relocate to available sites as there will be space available in the area for lease or purchase that can accommodate this operation. This is based upon the present and continuous availability in the project area of the type of space required to conduct these operations.

It cannot be said, for certain, that at the time of displacement sites will be available for the retail operations in the immediate area. This is based on the uniqueness of the operation requirements of these enterprises; however, that is not to say that the reestablishment of these operations will not occur.

In summation, the residential and non-residential relocations will pose some difficulties but not insurmountable. A more detailed plan will be developed at the time Semi-Final Right of Way Plans become available. At which time all potential Displaced Persons will be interviewed to determine the needs and preferences of those occupants. Based upon the information collected during those interviews an acquisition prioritization schedule will be developed for those displaced to provide for adequate time needed for successful moves. Additionally, these interviews will provide the basis for determining the best course of action for the utilization of Housing of Last Resort to resolve those residential issues, which cannot be resolved within Federal and State of Delaware statutory provisions.

Approved:

 10.22.07

Wayne Rizzo Date
Assistant Director of Planning

Recommended:

 10.19.07

Thomas D. Nickel Date
North District Real Estate Manager

Recommended:

 10/12/07

Paul Meleri Date
Operation Support Manager

Summary of the Relocation Assistance Program of the Delaware Department of Transportation

All Delaware Department of Transportation projects utilizing Federal funds must comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 USC 4601) as amended by Title IV of the Surface Transportation and Uniform Relocation Act of 1987 (Public Law 100-17), Public Law 105-117 in 1997, and Title 49 CFR Part 24 in 2005. State-funded projects must also comply with the provisions of the Delaware Code Title 29, Chapter 93, Uniform Relocation Assistance.

In the above referenced Federal and State laws, the Delaware Department of Transportation is required to provide relocation services and payments to eligible persons who are displaced by a public project. Only citizens or non-citizen nationals in the United States of America may be considered eligible and will be assigned a Relocation Counselor upon verification of eligibility. Those persons that qualify as a displaced person maybe entitled to a replacement housing payment, moving costs and related expenses as well as relocation advisory services. Additionally displaced residential persons may be eligible for reimbursement for certain miscellaneous expenses incurred in moving as provided for solely under the Delaware relocation assistance statute . The Delaware Department of Transportation will determine all maximum payments amounts. The Delaware Department of Transportation's, Division of Planning, Real Estate Services Section administers the Relocation Assistance Program.

Residential Displacements

Residential occupants who are required to move must be provided the ability to relocate to a comparable replacement dwelling that is decent, safe, and sanitary, and functionally equivalent to present dwelling. Replacement housing payments are made to both owner occupants and tenant occupants. An owner occupant may receive payments for a purchase supplement, incidental expenses and mortgage interest differential, rental assistance or downpayment assistance.

There are three basic length-of-occupancy requirements which determine the type of replacement housing payment a displaced person is entitled to, and they are: owner occupants of 180 days or more, and owner occupants of 90 to 179 days and tenants of 90 days or more. Length-of-occupancy in most instances, is defined as the number of days of residence in the dwelling before the initiation of negotiations by the Delaware Department of Transportation for the purchase of the property.

Purchase Supplement

Owners who were in occupancy 180 days or more prior to the initiation of negotiations may be eligible for a purchase supplement payment of up to \$22,500 in addition to the fair market value of property acquired.

The purchase supplement is the amount by which the cost of a replacement dwelling exceeds the acquisition cost of the replacement dwelling.

Incidental Expenses

180-day owner occupants are also eligible for reimbursement of incidental expenses such as, but are not limited to, costs incurred for a title search, recording fees, and other closing costs (excluding real estate taxes and property insurance).

Mortgage Interest Differential

180-day owners occupants may also be reimbursed for the increased mortgage interest costs if the interest on the new mortgage exceeds that of the previous mortgage.

Rental Assistance

Owners who have been in occupancy from 90 to 179 days, or tenants of 90 days prior to the initiation of negotiations are eligible for a rental assistance payment of up to \$5,250. This payment is designed to enable the displaced person to rent a comparable, decent, safe and sanitary dwelling for a 42 month period.

Persons who are in occupancy at the initiation of negotiations, but less than 90 days prior to that date are still considered a displaced person entitled to relocation assistance advisory services and moving payments, and may also be entitled to a rental assistance payment if comparable replacement rental housing is not available within their financial means. Under this circumstance a displaced person's rental assistance payment would be an amount that exceeds the base monthly rent for the displacement dwelling to rent a replacement dwelling as determined by the Department of Transportation. Such rental assistance would be paid under the provisions of replacement housing of last resort.

Downpayment

Like rental assistance, owners who have been in occupancy from 90 to 179 days, or tenants of 90 days prior to the initiation of negotiations are eligible for a rental assistance payment or a downpayment of up to \$5,250. However, the payment for a displaced owner cannot exceed the amount of the payment that would be received by a 180-day owner occupant for the same property. Owners and tenants may also be eligible for reimbursement of incidental expenses such as costs incurred for a title search, recording fees, and other closing costs (excluding real estate taxes and property insurance).

Residential Moving Cost Reimbursement

Displaced individuals and families may choose to be paid on the basis of actual reasonable moving and related expenses, or according to a fixed moving cost schedule.

For actual reasonable moving costs, displaced persons can choose to utilize a professional mover or move themselves, but reimbursement is limited to a 50 mile distance. Other related moving expenses include packing and unpacking, temporary storage, transportation, and moving insurance. All expenses must be considered necessary and

reasonable by the Delaware Department of Transportation and be documented by paid receipts, or other evidence of expenses incurred.

Owners and tenants of the State of Delaware displaced from a residential dwelling by a program or project can be eligible to receive reimbursement for miscellaneous expenses incurred within thirty days of moving from the displaced dwelling if not otherwise authorized under the State of Delaware relocation assistance statute. In no event shall payment from the Delaware Department of Transportation exceed 1% of the appraised residential value of the residence acquired.

Fair Housing

The Fair Housing Law (actually Title VI of the Civil Rights Act of 1964 and Title VIII of the Civil Rights act of 1968) sets forth the policy of the United States of America to provide, within constitutional limitations, for fair housing throughout the United States of America. These acts and Executive Order 11063 make discriminatory practices in the purchase and rental of most residential units illegal based on race, color, religion, sex, or national origin.

Whenever possible, minority persons shall be given reasonable opportunities to relocate to decent, safe, and sanitary replacement dwellings, not located in an area of minority concentration, that are within their financial means. This policy, however, does not require the Delaware Department of Transportation to provide a displaced person with a larger payment than is necessary to enable a person to relocate to a comparable replacement dwelling outside of an area of minority concentration.

Nonresidential Displacements

Nonresidential displacements, business, farm or nonprofit organization, may be eligible for the reimbursement of moving expenses, loss of tangible personal property, searching expenses or a fixed payment in lieu of actual moving expenses. A small business as defined may be eligible for reimbursement for certain reestablishment expenses not to exceed \$22,500.00

Nonresidential Moving Cost Reimbursement

Displaced businesses, farms, or nonprofit organizations are also entitled to reasonable moving expenses. Like residential displacements there are two types of payment; businesses, farms, or nonprofit organizations between two payment types. The types of payments available are actual reasonable moving costs or a fixed payment in lieu of moving costs.

Actual Reasonable Moving Costs

Actual reasonable moving costs can be paid if moved by a professional mover or if nonresidential displaced person elects to move on their own. Related expenses can also be covered which include direct loss of tangible property that occurred as a result of the

move or discontinuation of the operation, reestablishment expenses, and expenses incurred while searching for a replacement property (not to exceed \$2,500.00).

Under the actual reasonable moving costs, a small business, farm or nonprofit organization may be eligible for a payment, not to exceed \$22,500 for expenses actually incurred in relocating and reestablishing the enterprise at a replacement site. To qualify, the business, farm or nonprofit organization must not have more than 500 employees working at the site being acquired or displaced by the Delaware Department of Transportation, and is a site of economic activity. Sites solely occupied by outdoor advertising signs, displays, or devices do not qualify as a small business.

Fixed Payment in Lieu of Actual Moving Costs

The non-residential displaced person may also be eligible for a fixed payment in lieu of actual moving and other related expenses. The fixed payment is based upon the average annual net earnings of the operation for the two taxable years immediately preceding the taxable year in which it was displaced, or within a two year period deemed more representative by the Delaware Department of Transportation.

The fixed payment may not be less than \$1,000 or more than \$20,000, and several criteria must be met to be eligible for this type of payment. Any business that is solely engaged in the rental of space for residential or business purposes is not eligible for this type of payment.

Housing of Last Resort

Federal and State law require that the Delaware Department of Transportation shall not proceed with any phase of the project which will cause relocation of any persons, or proceed with any construction project, until it has furnished satisfactory assurances that the above payment will be provided, and that all displaced persons will be satisfactorily relocated to comparable decent, safe and sanitary housing within their financial means, or that such housing is in place and has been made available to the displaced persons.

On most projects, an adequate supply of housing will be available for sale or rent, and the benefits provided will be sufficient to enable displaced persons to relocate to comparable replacement housing. However, there may be projects in certain locations where the supply of available housing is insufficient to provide the necessary housing for those persons being displaced. When a housing shortage occurs, the Delaware Department of Transportation will implement the administrative process called Housing of Last Resort by providing additional or alternative assistance required to assure that all residential occupants displaced have the ability to move to comparable, decent, safe and sanitary housing.

Airmont Questions and Concerns as to 301 Project

APRIL 4, 2013

<p>18. Impact Upon Property Values (NEPA Issue)</p> <p>18-A: Court Decisions on Property Values</p>	<ul style="list-style-type: none"> - NEPA <u>requires</u> all proposed highway projects to evaluate the costs of eliminating or minimizing such adverse <u>effects to property value losses</u>. - DelDOT failed to address in any of their reports. - DelDOT is obligated to prepare a real property value loss estimate for all of the impacted residents. - DelDOT will need to prepare a supplemental EIS. <p><i>FHWA regulations implementing NEPA do not require property values to be reviewed. This is because effects to property values from a roadway project cannot be effectively evaluated during project development as part of NEPA documents (e.g., the EIS).</i></p> <p><i>Given the many factors which can influence the existing and future value of a specific property, it would be speculative to attempt to determine the influence of the project relative to the influence of the other factors. These other factors include physical characteristics of the property, location and proximity to employment centers, the characteristics of the surrounding community, recent property sales in the vicinity, local economic climate, ease of access to transportation facilities, zoning and planned land use surrounding the property (including transportation reservations) and the national/regional housing market. These factors are highly variable in both negative and positive directions and can change substantially over time.</i></p> <p><i>The US 301 project has complied with the provisions of the federal “Uniform Relocation Assistance Act”.</i></p> <p><u>Background:</u> <i>Realtor research has found that:</i></p> <ul style="list-style-type: none"> <i>(a) there would be a definite loss of value due to the close proximity of a highway;</i> <i>(b) there is the potential of loss of value due to loss of privacy due to new highway;</i> <i>(c) there would be difficulty in selling the property due to close proximity of a highway;</i> <i>(d) there would be increased time on market, which will only increase the likelihood of price reductions.</i> <p><i>A supplemental EIS is not required. See response to question 13 on pages 13-4 and 13-5.</i></p>
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Question 18

Supporting Documentation

18-A

A review of case law regarding regulatory taking claims based on alleged decreased value in property value shows it has proven difficult for private property owners to establish such claims against the government. The courts have consistently held that a landowner is not entitled to the most beneficial use of his or her land, and a decrease in value resulting from a land use regulation, standing alone, does not constitute a "taking". The decline in economic value of a property "must be very great" in order for a taking to be found. The U.S. Supreme Court has a long history of decisions in which it has been determined that very significant reductions in the value of land did not amount to takings: In *Agins v. City of Tiburon*, 447 U.S. 255 (1980), there was no taking with an eighty-five percent reduction in value; In *Vill. of Euclid v. Ambler Realty Co.*, 272 U.S. 365 (1926) there was no taking with a seventy-five percent reduction in value; In *Hadacheck v. Sebastian*, 239 U.S. 394 (1915) there was no taking with a 92.5% diminution in value.

Airmont Questions and Concerns as to 301 Project

APRIL 4, 2013

<p>19. Construction Noise (NEPA Issue)</p> <p>Refer to Question 8 Supporting Documentation</p>	<ul style="list-style-type: none"> - NEPA <u>requires</u> all proposed highway projects to evaluate and fully consider such adverse <u>effects due to construction noise</u>. - DelDOT failed to address in any of their reports. - DelDOT is obligated to prepare a detailed report of the expected/potential construction noise, and the effect upon the impacted residents. <p><i>See response to question 8 regarding NEPA and FHWA guidance on the evaluation and mitigation of adverse environmental effects from highway traffic noise.</i></p> <ul style="list-style-type: none"> - DelDOT will need to prepare a supplemental EIS. <p><i>In the US 301 Project's Technical Noise Analysis Report, dated November 2006, Section VII addressed the temporary nature of construction noise, noted the typical source of construction noise as well as potential measures to minimize noise disturbances. Likewise, in the Final Environmental Impact Statement, dated November 2007, Section III, Item D.3. and Item I.3. construction noise was addressed. For both documents, the issue of construction noise was addressed in the manner acceptable and in accordance to FHWA guidelines.</i></p> <p><i>Additionally, DelDOT included language in Section III, Item I.3. of the FEIS, which was reiterated in the Record of Decision, that noted "to limit the effects" of construction noise, "construction activity would typically be limited to weekday daylight hours in accordance with local ordinances." In understanding the nature of construction activity however, is why the commitment used the terminology "typically." DelDOT understands that there may be periods of construction activity for which only nighttime activity can occur to complete the operation without significant impact to the traveling public.</i></p> <p><i>DelDOT's Contract Documents require their contractors to investigate and strictly comply with, all Federal, State, or county laws and regulations, and city or town ordinances and regulations. This includes the New Castle County noise ordinance. For reference, the following is a summary of noise control provisions in Section 22.02.007 of the New Castle County Code. Please refer to the official code for complete details and information.</i></p> <ul style="list-style-type: none"> ▪ <i>Construction Noise – may be considered a noise disturbance:</i> ▪ <i>Between the hours of 9:00 p.m. and 7:00 a.m. the following day on weekdays;</i> ▪ <i>Between the hours of 10:00 p.m. on Friday and Saturday evening and 9:00 a.m. on Saturday and Sunday mornings; or</i> ▪ <i>Between the hours of 10:00 p.m. the day before and 9:00 a.m. the day of a legal holiday.</i> <p><i>The New Castle County ordinances are the provisions under which the road construction will be performed. DelDOT does not intend to seek a Noise Waiver from New Castle County for the US 301 construction in the area from Jamison Corner Road to Scott Run. The contractor for this section of US 301 could apply for a waiver.</i></p> <p><i>A supplemental EIS is not required. See response to question 13 on pages 13-4 and 13-5.</i></p>
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Airmont Questions and Concerns as to 301 Project

APRIL 4, 2013

<p>20. Construction Noise (Location of Construction Workers)</p>	<ul style="list-style-type: none"> - The previous construction of St. George's Vo-Tech resulted in substantial number of complaints from Airmont's residents of contractors parking on residents' property. <p><i>The first day of construction, there were some surveyors who parked in the right-of-way on Hyett's Corner Rd. After complaints from residents, no workers parked in this area.</i></p> <ul style="list-style-type: none"> - Although previously requested, DelDOT has not advised of any plans with respect to where contractors will park their personal and work vehicles/equipment. - DelDOT needs to develop a plan and require/direct that contractors' employees are parked sufficiently away from any property owned by an Airmont's resident. <p><i>DelDOT will include a project note in the plans, stating that the contractor, their workers and subcontractors shall not park construction equipment or personal vehicles within residential subdivision.</i></p> <p><i>DelDOT's Contract Documents require their contractors to investigate and strictly comply with, all Federal, State, or county laws and regulations, and city or town ordinances and regulations. This would include where equipment and workers are parked. Per code, parking along DelDOT's highways must be on paved areas without obstructing travel or creating a safety hazard. The pavement along Hyetts Corner Road includes 11' lanes and 5' shoulders, so there isn't room to park on the pavement without obstructing travel.</i></p> <p><u>Background:</u></p> <ul style="list-style-type: none"> - At the August 24, 2011 meeting between Airmont's residents and DelDOT, DelDOT advised that the construction documents do not direct contractor's employees where to park.
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Airmont Questions and Concerns as to 301 Project

APRIL 4, 2013

<p>21. Desirable Community (NEPA Issue)</p> <p>21-A: DEIS, pgs. III-28 to III-34</p> <p>21-B: FEIS, pgs III-30 to III-38</p> <p>21-C: DRR, pgs. 43 to 47, Closing of Hyetts Corner Road</p>	<ul style="list-style-type: none"> - NEPA <u>requires</u> all proposed highway projects to evaluate and fully consider such adverse <u>effects due to disruption of desirable community.</u> - DelDOT failed to address in any of their reports. - DelDOT is obligated to prepare a detailed report of the expected/potential disruption of desirable community, and the effect upon the impacted residents. - DelDOT will need to prepare a supplemental EIS. <p><i>The effects of the project on communities and community facilities are addressed on III-28 to III-34 of the DEIS and pages III-30 to III-38 of the FEIS.</i></p> <p><i>The closure of Hyetts Corner Road is addressed on pages 43 of 81 to 47 of 81 in the Design Refinements Report and mitigating the effects of the closure is an ongoing activity with the Airmont community – see response to Question 7.</i></p> <p><i>The effects of the project on community aesthetics are discussed in the response to questions 1 to 4 and 6.</i></p> <p><i>The construction noise effects are discussed in the response to questions 8, 9 and 20.</i></p> <p><i>A supplemental EIS is not required. See response to question 13 on pages 13-4 and 13-5.</i></p>
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Question 21

Supporting Documentation

21-A

6. Communities and Community Facilities

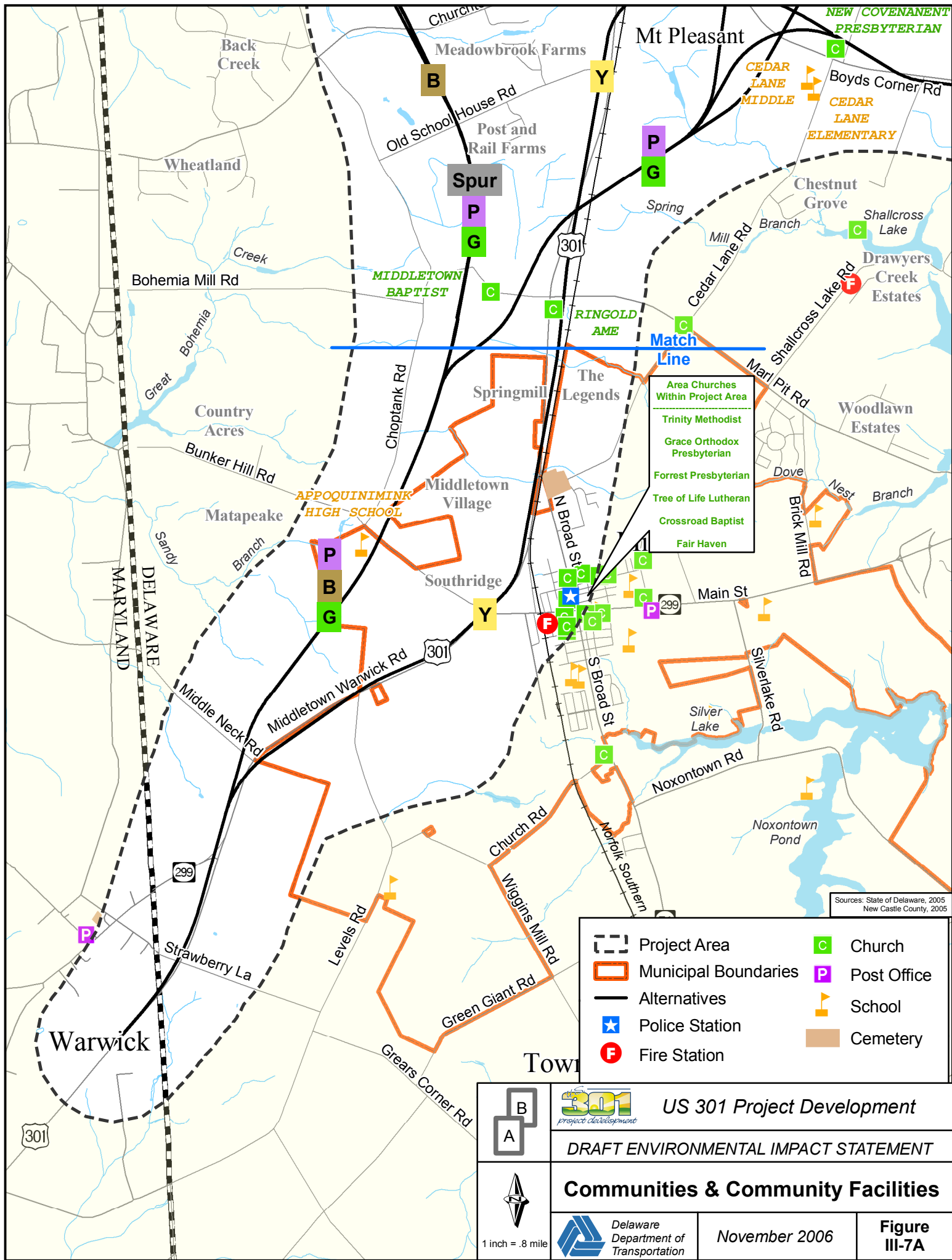
a. *Existing Conditions*

Communities

The existing communities, shown on *Figure III-7*, were identified from an inventory of information from the State of Delaware and New Castle County sources. Within the Town of Middletown, communities include Springmill, Middletown Village, The Legends, Bunker Hill Center, Brick Mill Farm, downtown, and Middletown Commons. Both within and outside of Middletown, there are many communities represented by homeowners associations, including

Fox Hunter Crossing	Post and Rail Farms	Summit Farms
Matapeake	Springmill	Midland Farms
Grande View Farms	Mount Hope	Augustine Creek (east of SR 1)
Middletown Village	The Legends	Chesapeake Meadow
Airmont	Dickerson Farms	Crystal Run Farms
Summit Bridge Farms	Summit Pond	Back Creek
Westside Hunt	Lea Eara Farms	Asbury Chase

Most of the communities within and surrounding the project area consist of single family homes or town homes. Many of the community residents are active participants in the project development process, have attended Public Workshops and individual community meetings, and have submitted comments about the proposed alternatives. **Chapter IV** discusses the details of community involvement. *Table III-12* provides a profile of the communities in southern New Castle County that are adjacent to or within 1,500 feet of one or more of the alternatives alignments.



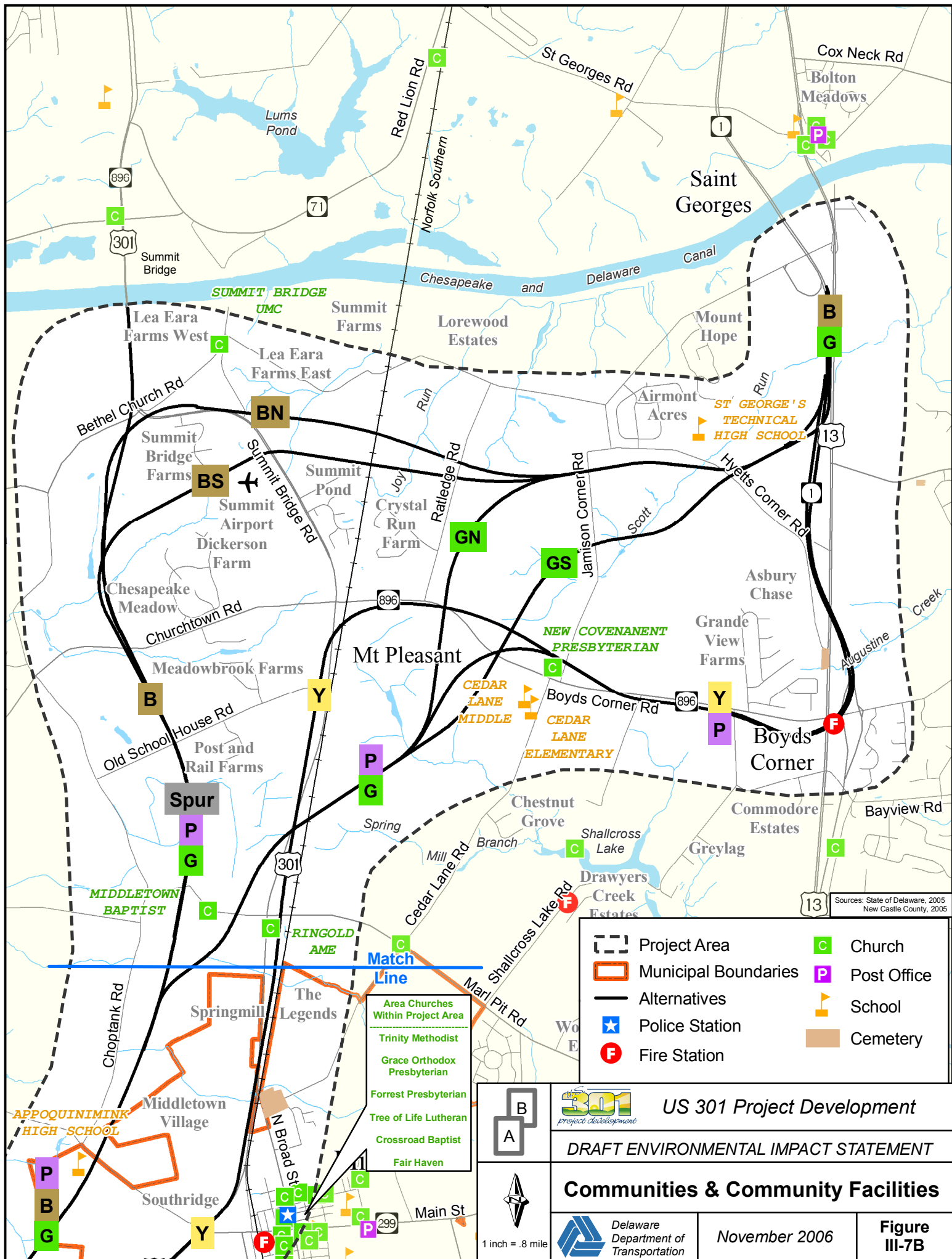


Table III-12: Community Profiles and Alternatives Adjacent

Name	# Units	Type of Units	Within 1,500 feet of Alternative					
			Yellow	Purple	Brown North	Brown South	Green North	Green South
Airmont	117	Single family			X	X	X	
Asbury Chase	77	Single family	X	X				
Grande View Farms	170	Singe Family	X	X				
Summit Farms	148	Singe family			X			
Lea Earra Farms	132	Single family	X		X	X		
Summit Bridge Farms	91	Single family	X	X	X	X	X	X
Dickerson Farm	92	Singe family				X		
Chesapeake Meadow	69	Single family		X	X	X	X	X
Meadowbrook Farms	65	Single family	X					
Post and Rail Farms	34	Single family		X	X	X	X	X
Springmill	363	Singe-family	X	X	X	X	X	X
The Legends	140	Single family	X					
Middletown Village	291 481	Single Family Town houses	X	X	X	X	X	X
Crystal Run Farms	81	Single family				X	X	
Matapeake	27	Single family		X	X	X	X	X
Summit Pond	67	Single family				X		
Midland Farms	@ 20	Single Family		X	X	X	X	X

Community Facilities

Community facilities, also shown on **Figure III-7**, are located throughout the project area. Community facilities include emergency services (fire, rescue and police), schools, public parks, recreation areas and greenways, churches, cemeteries, libraries, and post offices. Many of the community facilities are identified in **Table III-13**.

In addition to the existing facilities, several public park areas are planned/approved in conjunction with Westown and other developments (see **Section A.2.a** and **Tables III-4** and **III-5** in this Chapter), and Delaware Greenways has proposed the Scott Run Greenway Trail and a series of pathways (non-motorized, on-alignment, separated paved paths) to connect the C&D Canal with the public open space along Marl Pit Road (proposed water farm area).

Table III-13: Community Facilities in the Project Area

Emergency Services	Municipal Facilities	Airport
Middletown Police (NCC)	Middletown Post Office	Summit Airport
Middletown Volunteer Fire Company No. 27	National Guard Armory	Golf Courses
Southern Patrol Unit & Paramedic Company No. 9	Middletown Town Hall	Back Creek
Odessa Fire & Rescue Station 4	Delaware Court No. 9	Frog Hollow
	Appoquinimink Public Library	
Schools	Churches	Day Care Centers
Appoquinimink High School	Summit Bridge Methodist	Middletown Charter School
Silver Lake Elementary School	New Covenant Presbyterian	Day Care
St. Georges Technical High School	Full Gospel Church of Deliverance	8 additional Day Care Centers
Middletown High School	Union Church	Parks & Recreation Areas
Cedar Lane Elementary School	Immanuel United Methodist	Future Water Farm II
Redding Middle School	Haven United Methodist	Middletown Commons
Cedar Lane Middle School	Mount Calvary Baptist	C&D Canal Greenway Trails
Everett Meredith Middle School	Trinity Methodist	
Cedar Lane Early Childhood Center	Dales Memorial Methodist	Cemeteries
Groves Adult High School	St Josephs Catholic	Forest Cemetery
St. Andrews School	Middletown Baptist	St Anne's Church Cemetery
Middletown Charter School	Grace Orthodox Presbyterian	Asbury Cemetery
St. Annes School	St. Anne's Church	
Middletown Middle School	St. Anne's Episcopal	
Brick Mill Elementary School	Bethesda United Methodist	
	Forest Presbyterian	

b. Environmental Consequences and Mitigation

There will be no direct impacts to communities from the No-Build Alternative. However, inaction will continue to compound congestion and safety concerns on roadways traveled by residents within these communities, affecting travel times and access for residents and businesses.

Affected communities and proposed mitigations are identified on **Table III-14**. These and other community impacts are discussed below.

The Yellow Alternative would impact the community fabric of Middletown by bisecting the town, affecting local access as well as businesses and residences along existing US 301. All of the build alternatives avoid physical impacts to the remaining communities located throughout the project area, although there may be impacts to individual homes in these communities. Some planned residential developments with approved subdivision plans may also be impacted by one or more of the alternatives. For example, the proposed Bayberry development would be bisected by the Yellow, Purple and Green South Alternatives.

Table III-14: Residential Community Impacts Summary

Community	Potential Impacts and Proposed Mitigation
Airmont	Brown and Green Alternatives right of way would be within 360 to 3,000 feet of the nearest homes and would be 300 feet wide. The roadway elevation would be below to above grade. A visual screening earth berm is proposed along the south side of the community.
Grande View Farms	The Yellow and Purple Alternatives right of way would be within 80 to 320 feet of the nearest homes and would be 200 to 225 feet wide. The roadway elevation would be above grade. An earth berm is not feasible due to proximity and influence of other local roadways.
Lea Eara Farms	All of the build alternatives right of way would be within 0 and 850 feet of the nearest homes and would be at grade, rising to above grade approaching Summit Bridge. Roadway width would be between 220 and 260 feet. An earthen berm is proposed to the south of Lea Eara Farms to screen visual impacts.
Ratlidge Road Residences	The Green North Alternative right of way would be between 350 to 400 feet from the nearest homes and would be above grade at existing US 301 descending to grade. An earth berm could provide visual screening to some homes as the roadway approaches grade.
Summit Bridge Farms	All of the build alternatives would require right of way acquisition from properties nearest the alignment, which would be between 0 and 300 feet from the adjacent properties. Alignments would be at grade, rising to above grade approaching Summit Bridge. Roadway width would be between 200 and 600 feet. Visual screening berms are proposed except on the north side of the community (affected by Brown North and Yellow Alternatives), where an earth berm is not feasible due to proximity and influence of other local roadways.
Chesapeake Meadow	The Brown, Purple and Green Alternatives right of way would be within 130 to 160 feet of the nearest properties, and the roadway right of way between 260 and 310 feet wide. The roadway would be above-grade at this location. An earth berm is proposed adjacent to the roadway to mitigate visual impacts.
Springmill	The Yellow Alternative right of way would be 87 feet from the east side of the community, 525 feet wide and above-grade at this location. An earth berm is not feasible due to proximity and the influence of local roadways and the railroad. The Brown, Purple and Green Alternatives right of way would be between 650 and 1500 feet from the northwest corner of the community, between 260 and 550 feet wide and at to above grade in this location. An earthen berm is proposed to visually screen the community from these alternatives.
The Legends West	The Yellow Alternative right of way would be 400 feet from the nearest homes on the west side of this community. The roadway right of way would be 400 to 550 feet wide and above grade in this location. An earth berm is not feasible due to proximity and the influence of local roadways and the railroad.
Middletown Village	The Yellow Alternative right of way would be 500 feet from the nearest residences and 200 to 400 feet wide east of the community and above grade. An earth berm is not feasible in this location due to proximity and the influence of local roadways. ROW The Brown, Purple and Green Alternatives right of way would be between 200 and 2,000 feet from homes on the west side of the community. The roadway would be 250 to 325 feet wide and below to above grade in this location. An earthen berm is proposed to visually screen the community from these alternatives.
Matapeake	The Brown, Purple and Green Alternatives right of way would be between 500 and 1,200 feet from homes on the east side of the community. The roadway would be 330 feet wide and would be below grade in this location. No mitigation is proposed at this location.

Within some communities adjacent to one of the build alternatives, residences adjacent to the alignment may be acquired and the owners relocated. These impacts are on the edges of communities, and, therefore, do not impact the communities as a whole, and the fabric of the community would remain intact. Most of the impacts to communities in the project area will be

associated with noise impacts, visual impacts, and air quality effects caused by the proximity of one of the build alternatives. Air quality is discussed in **Section C**, and noise impacts and potential mitigations are discussed in **Section D**.

There are no impacts to community facilities from the No-Build Alternative. The Purple, Brown and Green Alternatives will require acquisition of a portion of the Appoquinimink High School property, but the acquisition is not anticipated to affect any school activities. Odessa Fire & Rescue Station 4, located at Boyds Corner Road and US 13, may be impacted by the Yellow and Purple Alternatives due to the construction of the US 301 ramps to SR 1, and may require relocation.

There will be no impacts to publicly owned parks and recreation areas from the No-Build Alternative or from the build alternatives. All of the build alternatives have been engineered to utilize avoidance structures such as steeper slopes and retaining walls in order to avoid these resources. All of the build alternatives that cross the proposed Scott Run Greenway and associated connecting pathways will be designed to provide for full connectivity of these paths and trails.

Visual impacts to communities may be minimized by landscaping and grading to provide a buffer screening of natural vegetation. Landscaping would be determined during the final design phase of the project. Earthen berms are proposed in several locations to screen the highway from nearby communities (Southridge, Middletown Village, Springmill, Chesapeake Meadow, Summit Bridge Farms, Lea Eara Farms and Airmont). Potential noise impacts could also be minimized or eliminated by the berms. Potential noise impacts are discussed in detail in Section D.

7. Environmental Justice

Title VI of the Civil Rights Act of 1964 (USC 2000d *et seq.*) and Executive Order 12898 (*Federal Actions to Identify and Address Environmental Justice in Minority and Low Income Populations*, February 11, 1994, commonly referred to as environmental justice), require all federal agencies "...to identify and address as appropriate, disproportionately high and adverse human health or environmental effects ... on minority populations and low-income populations". Title VI requires federal agencies to ensure that their programs, policies, and activities do not have the effect of excluding minority or low income populations from the benefits of the project, or subjecting persons or populations to discrimination. Environmental justice considerations require that minority populations and low-income populations are specifically included in public participation and outreach programs.

a. *Existing Conditions*

Racial distribution in the project area is shown in **Table III-15**. The percentages of minority populations in the project area are, for most of the Census tracts, less than for the state and county as a whole. Of note is the larger than average percent of Hispanic population in tract 166.04 (4.7 percent) and the larger than average number of black/African American persons in tract 166.04 (23.1 percent). The latter Census tract includes the Town of Middletown east of the

Question 21
Supporting Documentation
21-B

Relocation Plan

For properties impacted by the Preferred Alternative, each property owner will be contacted regarding the acreage to be acquired. For right-of-way takes where small portions will be acquired, owners will be compensated fairly based on assessment of property value and the size of the acquisition. In addition to just compensation for the assessed property value, those owners whose residences or business properties will be taken will be provided relocation assistance in accordance with the Uniform Relocation Assistance and Real Property Acquisition Act of 1970, as amended by the Uniform Relocation Act Amendments of 1987 (Refer to **Appendix F**).

A comparison of relocations required and the potential stock of housing and business opportunities that will be available within the project area (**Tables III-5 and III-7**) shows that a sufficient supply of housing units (single family residence, townhomes and apartments) should be available for occupancy during the estimated time of relocation. A detailed relocation plan for property impacts associated with the Preferred Alternative is included in **Appendix F**.

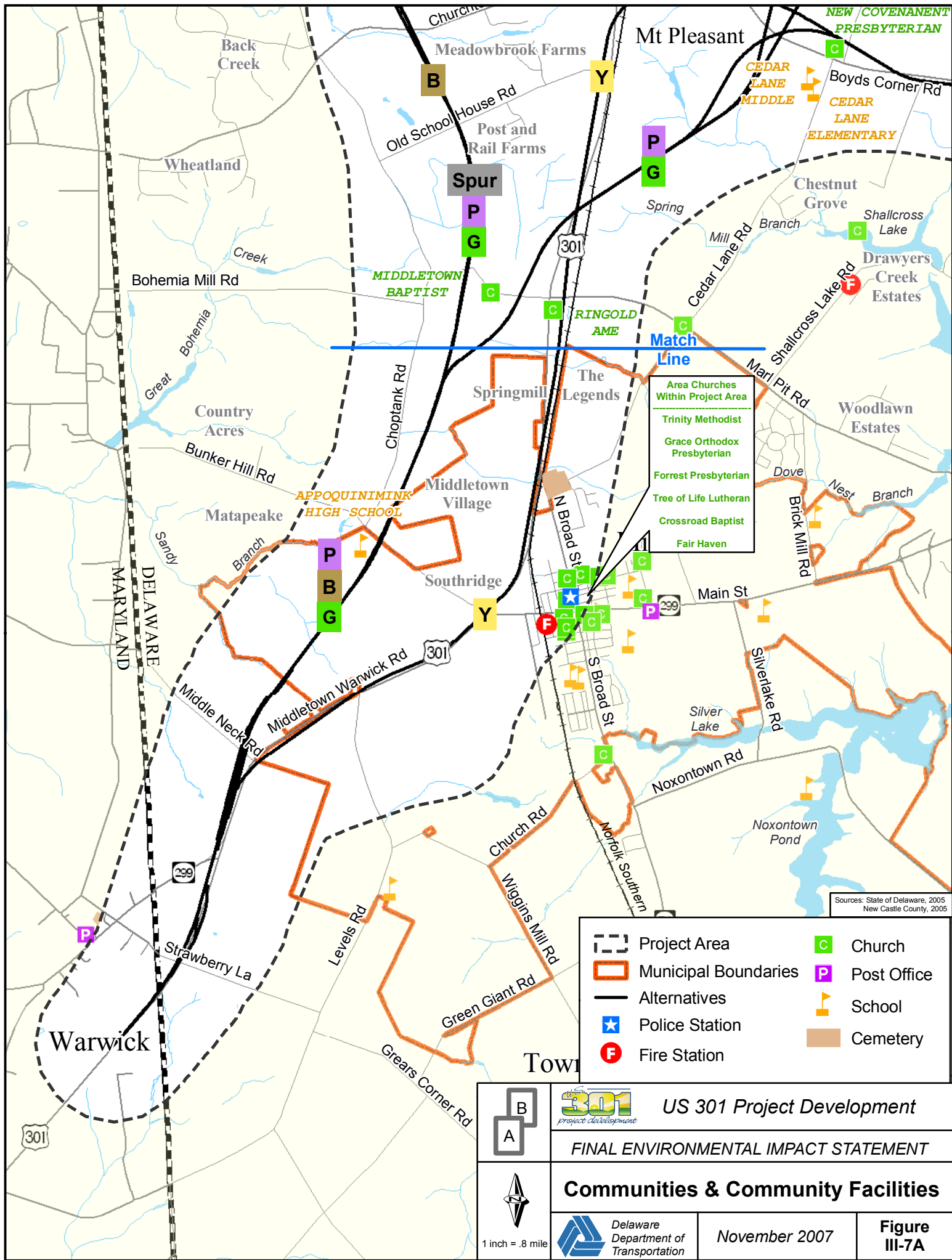
6. Communities and Community Facilities

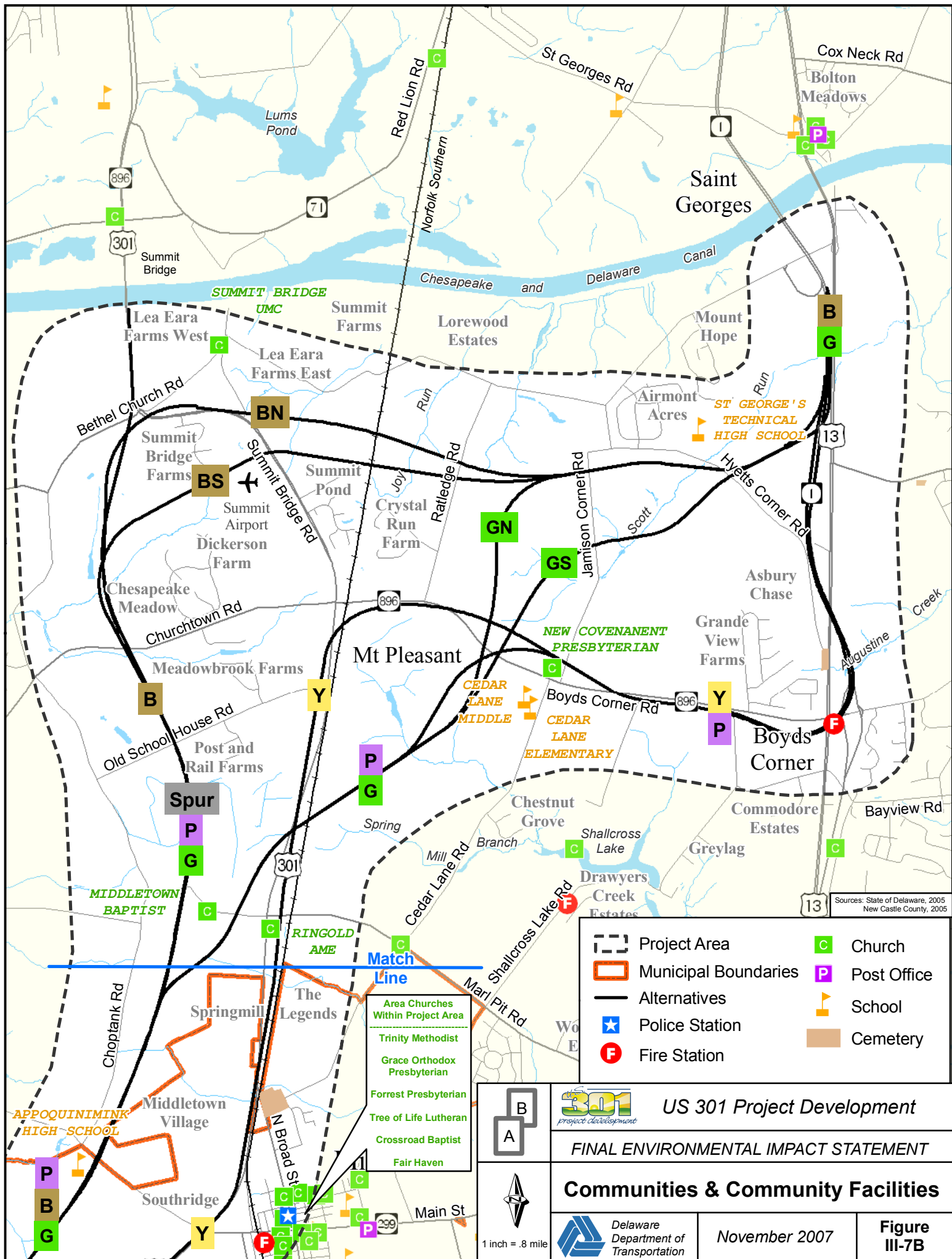
a. *Existing Conditions*

Communities

The existing communities, shown on **Figure III-7**, were identified from an inventory of information from the State of Delaware and New Castle County sources. Within the Town of Middletown, communities include Springmill, Middletown Village, The Legends, Bunker Hill Center, Brick Mill Farm, downtown, and Middletown Commons. Both within and outside of Middletown, there are many communities represented by homeowners associations, including:

Fox Hunter Crossing	Post and Rail Farms	Summit Farms
Matapeake	Springmill	Midland Farms
Grande View Farms	Mount Hope	Augustine Creek (east of SR 1)
Middletown Village	The Legends	Chesapeake Meadow
Airmont	Dickerson Farms	Crystal Run Farms
Summit Bridge Farms	Summit Pond	Back Creek
Westside Hunt	Lea Eara Farms	Asbury Chase





Most of the communities within and surrounding the project area consist of single family homes or town homes. Many of the community residents are active participants in the project development process, have attended Public Workshops and individual community meetings, and have submitted comments about the proposed alternatives. *Chapter IV* discusses the details of community involvement. *Table III-15* provides a profile of the communities in southern New Castle County that are adjacent to or within 1,500 feet of one or more of the alternatives alignments.

Table III-15: Community Profiles and Alternatives Adjacent

Name	# Units	Type of Units	Within 1,500 feet of Alternative					
			Yellow	Purple	Brown North	Brown South	Green North / Preferred	Green South
Airmont	117	Single family			X	X	X	
Asbury Chase	77	Single family	X	X				
Grande View Farms	170	Singe Family	X	X				
Summit Farms	148	Singe family			X			
Lea Eara Farms	132	Single family	X	X	X	X	X (spur)	
Summit Bridge Farms	91	Single family	X	X	X	X	X (spur)	X
Dickerson Farm	92	Singe family				X		
Chesapeake Meadow	69	Single family		X	X	X	X (spur)	X
Meadowbrook Farms	65	Single family	X					
Post and Rail Farms	34	Single family		X	X	X	X (spur)	X
Ratledge Road/ Jamison Corner Road	@ 20	Single family Farming					X	
Springmill	363	Singe-family	X	X	X	X	X	X
The Legends	140	Single family	X					
Middletown Village	291 481	Single Family Town houses	X	X	X	X	X	X
Crystal Run Farms	81	Single family				X	X	
Matapeake	27	Single family		X	X	X	X	X
Summit Pond	67	Single family				X		
Midland Farms	@ 20	Single Family		X	X	X	X	X

Community Facilities

Community facilities, also shown on *Figure III-7*, are located throughout the project area. Community facilities include emergency services (fire, rescue and police), schools, public parks, recreation areas and greenways, churches, cemeteries, libraries, and post offices. Many of the community facilities are identified in *Table III-16*.

Table III-16: Community Facilities in the Project Area

Emergency Services	Municipal Facilities	Airport
Middletown Police (NCC)	Middletown Post Office	Summit Airport
Middletown Volunteer Fire Company No. 27	National Guard Armory	
Southern Patrol Unit & Paramedic Company No. 9	Middletown Town Hall	Golf Courses
Odessa Fire & Rescue Station 4	Delaware Court No. 9	Back Creek
	Appoquinimink Public Library	Frog Hollow
Schools	Churches	Day Care Centers
Appoquinimink High School (under construction)	Summit Bridge Methodist	Middletown Charter School
Silver Lake Elementary School	New Covenant Presbyterian	Day Care
St. Georges Technical High School	Full Gospel Church of Deliverance	8 additional Day Care Centers
Middletown High School	Union Church	
Cedar Lane Elementary School	Immanuel United Methodist	Parks & Recreation Areas
Redding Middle School	Haven United Methodist	Future Water Farm II
Cedar Lane Middle School (under construction)	Mount Calvary Baptist	Middletown Commons
Everett Meredith Middle School	Trinity Methodist	C&D Canal Greenway Trails
Cedar Lane Early Childhood Center	Dales Memorial Methodist	
Groves Adult High School	St Josephs Catholic	Cemeteries
St. Andrews School	Middletown Baptist	Forest Cemetery
Middletown Charter School	Grace Orthodox Presbyterian	St Anne's Church Cemetery
St. Annes School	St. Anne's Church	Asbury Cemetery
Middletown Middle School	St. Anne's Episcopal	
Brick Mill Elementary School	Bethesda United Methodist	
	Forest Presbyterian	
	Ringgold Chapel AME	

In addition to the existing facilities, several public park areas are planned/approved in conjunction with Westown and other developments (see *Section A.2.a* and *Tables III-7* and *III-8* in this Chapter), and Delaware Greenways has proposed the Scott Run Greenway Trail and a series of pathways (non-motorized, on-alignment, separated paved paths) to connect the C&D Canal with the public open space along Marl Pit Road (proposed water farm area). See *Section F.12* and *Figure III-22* of this Chapter for existing and proposed greenways and trails.

b. Environmental Consequences and Mitigation

There will be no direct impacts to communities from the No-Build Alternative. However, inaction will continue to compound congestion and safety concerns on roadways traveled by residents within these communities, affecting travel times and access for residents and businesses.

The Preferred Alternative will avoid physical impacts to communities as a whole, although there will be impacts to individual properties (either relocations or partial takes of land) within communities located adjacent to the alignment. Community impacts will take the form of noise and visual impacts; these impacts will be avoided or minimized through the construction, where possible, of visual earth berms. These berms will provide visual screening from the roadway as well as provide a reduction of noise impacts (in some cases, eliminating the noise impacts altogether). Refer to *Section A.9* of this Chapter for a discussion of visual effects and *Section D.2.b* for a discussion of noise abatement.

The Yellow Alternative would impact the community fabric of Middletown by bisecting the town, affecting local access as well as businesses and residences along existing US 301. All of the build alternatives avoid physical impacts to the remaining communities located throughout the project area, although there may be impacts to individual homes in these communities. Some planned residential developments with approved subdivision plans may also be impacted by one or more of the alternatives.

Within some communities adjacent to one of the build alternatives, residences adjacent to the alignment may be acquired and the owners relocated. These impacts are on the edges of communities, and, therefore, do not impact the communities as a whole, and the fabric of the community would remain intact. Most of the impacts to communities in the project area will be associated with noise and visual impacts and air quality effects caused by the proximity of one of the build alternatives. Air quality is discussed in *Section C*.

There are no impacts to community facilities from the No-Build Alternative. The Preferred Alternative, as well as the Purple, Brown and Green South Alternatives, would require acquisition of a portion of the Appoquinimink High School property, but the acquisition is not anticipated to affect any school activities. Odessa Fire & Rescue Station 4, located at Boyds Corner Road and US 13, may be impacted by the Yellow and Purple Alternatives due to the construction of the US 301 ramps to SR 1, and may require relocation.

There will be no impacts to publicly owned public parks and recreation areas from the No-Build Alternative or from any of the build alternatives, including the Preferred Alternative. All of the build alternatives have been engineered to include structures such as steeper slopes and retaining walls in order to avoid these resources. All of the build alternatives that cross the proposed Scott Run Greenway and associated connecting pathways (refer to *Figure III-22* in *Section F.12*) will be designed to provide for full connectivity of these paths and trails.

Visual impacts to communities from all build alternatives, including the Preferred Alternative, may be minimized by landscaping and grading to provide a buffer screening of natural vegetation. Landscaping would be determined during the final design phase of the project. Earthen berms are proposed for each of the alternatives in several locations to screen the highway from nearby communities (Southridge, Middletown Village, Springmill, Chesapeake Meadow, Summit Bridge Farms (Brown only), Lea Eara Farms (Brown only) and Airmont). Potential noise impacts would also be minimized or eliminated by the berms. Potential noise impacts are discussed in detail in *Section D*.

A summary of affected communities and proposed mitigations is presented in *Table III-17*.

Table III-17: Summary of Residential Community Impacts

Community	Potential Impacts and Proposed Mitigation (DEIS - All Alternatives)	Potential Impacts and Proposed Mitigation (Green North Only - Preferred Alternative)
Airmont	Brown and Green Alternatives right of way would be within 360 to 3,000 feet of the nearest homes and would be 300 feet wide. The roadway elevation would be below to above grade. A visual screening earth berm is proposed along the south side of the community.	The Preferred Alternative right of way would be within 360 feet of the nearest homes and would be 300 feet wide. The roadway elevation would be at grade to below grade (west to east), following natural contours. Impacts include visual changes and noise increases between +5 dBA and +8 dBA. An earth berm is proposed to provide visual screening along the south side of the community where the roadway is above grade.
Grande View Farms	The Yellow and Purple Alternatives right of way would be within 80 to 320 feet of the nearest homes and would be 200 to 225 feet wide. The roadway elevation would be above grade. An earth berm is not feasible due to proximity and influence of other local roadways.	The Preferred Alternative will not impact Grande View Farms.
Lea Earra Farms	All of the build alternatives right of way would be within 0 and 850 feet of the nearest homes and would be at grade, rising to above grade approaching Summit Bridge. Roadway width would be between 220 and 260 feet. An earthen berm is proposed to the south of Lea Earra Farms to screen visual impacts.	The Preferred Alternative right of way would be within 100 feet of the nearest homes where the improvements would tie into Summit Bridge Road south of the Summit Bridge. Existing tree lines would shield the community from visual intrusions. Roadway width would be approximately 220 feet. Noise increases would be barely perceptible (a +3 dBA increase). No mitigation is proposed.
Ratledge Road/Jamison Corner Road	Not Evaluated	The Preferred Alternative right of way (Option 4B Modified) would be close to only two homes (approximately 190 feet and 300 feet) in this community. The roadway would be above grade at existing SR 896 (Boyd's Corner Road) descending to grade north of SR 896. Roadway width would be approximately 325 feet wide. The selection of Option 4B Modified represents an avoidance/ minimization option designed to eliminate impacts to active farms and reduce noise impacts. The Option 4B Modified alignment is within 600 feet of Cedar Lane School complex and would induce a noise impact to the two closest homes. No mitigation is proposed.
Summit Bridge Farms	All of the build alternatives would require right of way acquisition from properties nearest the alignment, which would be between 0 and 300 feet from the adjacent properties. Alignments would be at grade, rising to above grade approaching Summit Bridge. Roadway width would be between 200 and 600 feet. Visual screening berms are proposed except on the north side of the community (affected by Brown North and Yellow Alternatives), where an earth berm is not feasible due to proximity and influence of other local roadways.	The Preferred Alternative right of way for the Spur Road would be 400 feet from the rear property line of the nearest homes on the west side of this community; the alignment (northbound lane only) would be at grade, rising to above grade to cross relocated SR 896. Improvements to SR 896 as it passes the north side of the community would reconstruct SR 896 farther from the community towards the western edge. Noise increases of between +1 dBA and +6 dBA are predicted. No mitigation is proposed.

Table III-17: Summary of Residential Community Impacts

Community	Potential Impacts and Proposed Mitigation (DEIS - All Alternatives)	Potential Impacts and Proposed Mitigation (Green North Only - Preferred Alternative)
Chesapeake Meadow	The Brown, Purple and Green Alternatives right of way would be within 130 to 160 feet of the nearest properties, and the roadway right of way between 260 and 310 feet wide. The roadway would be above-grade at this location. An earth berm is proposed adjacent to the roadway to mitigate visual impacts.	The Preferred Alternative right of way for the Spur Road would be between 150 to 175 feet from the nearest homes on the west side of the community, and the roadway right of way between 260 and 310 feet wide. The roadway would be at-grade to slightly above grade at this location. Churchtown Road would overpass the Spur Road (approximately 30 feet above existing ground) on the south side of the community. Potential impacts include visual and audible changes; noise increases at the first row of homes would be as much as +13 dBA. An earth berm is proposed adjacent to the Spur Road to mitigate visual impacts. The berm would also provide some noise benefit; noise increases will be lowered to no more than +8 dBA. No mitigation is proposed for the Churchtown Road overpass.
Springmill	The Yellow Alternative right of way would be 87 feet from the east side of the community, 525 feet wide and above-grade at this location. An earth berm is not feasible due to proximity and the influence of local roadways and the railroad. The Brown, Purple and Green Alternatives right of way would be between 650 and 1500 feet from the northwest corner of the community, between 260 and 550 feet wide and at to above grade in this location. An earthen berm is proposed to visually screen the community from these alternatives.	The Preferred Alternative right of way would be 650 feet from the northwest corner of the community, between 260 and 550 feet wide and at-grade or above grade in this location. Impacts to the homes nearest the alignment could include visual and noise changes. Predicted noise impacts would raise the noise level between +7 and +8 dBA. Visual changes are minimal due to intervening tree lines. An earth berm is proposed to visually screen the community from the alternative; the visual berm would also provide some noise benefit.
The Legends West	The Yellow Alternative right of way would be 400 feet from the nearest homes on the west side of this community. The roadway right of way would be 400 to 550 feet wide and above grade in this location. An earth berm is not feasible due to proximity and the influence of local roadways and the railroad.	The Preferred Alternative will not impact The Legends West.
Midland Farms	Not evaluated. Location and membership includes individual homes east and west of Choptank Road, along Bohemia Mill Road and Armstrong Corner Road	The Preferred Alternative will cross over Armstrong Corner Road between 1,250 and 1,500 feet east of Choptank Road and then stay elevated as it crosses over existing US 301 and the Norfolk Southern Railroad. Armstrong Corner Road will cross over the Spur Road and return to grade east of Choptank Road. Some individual homes will be physically impacted, requiring total or partial acquisition. Visual impacts are expected, and some individual homes will experience noise increases; no mitigation is proposed as homes are widely scattered.

Table III-17: Summary of Residential Community Impacts

Community	Potential Impacts and Proposed Mitigation (DEIS - All Alternatives)	Potential Impacts and Proposed Mitigation (Green North Only - Preferred Alternative)
Middletown Village	<p>The Yellow Alternative right of way would be 500 feet from the nearest residences and 200 to 400 feet wide east of the community and above grade. An earth berm is not feasible in this location due to proximity and the influence of local roadways. ROW</p> <p>The Brown, Purple and Green Alternatives right of way would be between 200 and 2,000 feet from homes on the west side of the community. The roadway would be 250 to 325 feet wide and below to above grade in this location. An earthen berm is proposed to visually screen the community from these alternatives.</p>	<p>The Preferred Alternative right of way would be approximately 180 feet from homes on the west side of the community. The roadway would be at-grade to slightly above grade and approximately 400 feet wide due to the proposed earth berm in this location. Homes along the westernmost street of the community would experience a noise increase of +12 dBA and visual changes due to the roadway. An earth berm is proposed to visually screen the community from the alternative; the earth berm will also provide some noise reduction.</p>
Southridge	<p>Not evaluated. Although a noise impact was predicted, there were less impacts to residences before the roadway was moved closer to the community (and away from the Appoquinimink High School) during refined engineering.</p>	<p>The Preferred Alternative will pass approximately 120 feet from the nearest homes in this development. The roadway will be slightly above existing grade adjacent to the community. Homes adjacent to the new US 301 would experience an increase of up to +16 dBA over existing conditions. An earth berm is proposed to visually screen the community from the alternative; the earth berm will also provide some noise reduction to all but 14 residences at the southern end of the community.</p>
Matapeake	<p>The Brown, Purple and Green Alternatives right of way would be between 500 and 1,200 feet from homes on the east side of the community. The roadway would be 330 feet wide and would be below grade in this location. No mitigation is proposed at this location.</p>	<p>The Preferred Alternative right of way would be approximately 1,200 feet from homes on the east side of the community. The roadway would be 350 feet wide and would be below grade in this location. Bunker Hill Road would overpass the roadway to the east of the community and east of the new Appoquinimink High School. Visual impacts will be minimal, and no noise impacts are predicted. No mitigation is proposed at this location.</p>

Question 21

Supporting Documentation

21-C

wishing to enter the toll-free ramp would have direct access at the new intersection with the toll-free ramp entrance. A single traffic signal is expected to decrease overall delay.

The disadvantages would be an increased LOD of 33.7 acres, increased right-of-way requirements of 5.7 acres, and a new traffic signal that would be added on US 13 to control the intersection. There would also be increased resource impacts to wetlands (+0.1 acre), ditches (+151.6 linear feet), subaqueous lands (+151.6 linear feet), hydric soils (6.3 acres) and prime farmland soils (4.6 acres), and forest (0.7 acre). The impacted wetlands, ditches, and trees are located mainly in the area between SR 1 and US 13, north of the Biddles Toll Plaza.

Agency Coordination, Public Input and Decision

The initial refinement, as presented at the March 23, 2009 Public Workshop, was presented to the agencies at the February 19, 2009 meeting (see figure in **Appendix H** on page 25 of the Agency Meeting PowerPoint). The initial refinement proposed a four-way intersection with a relocated Port Penn Road approximately 1,150 feet south of the ROD location. Most of the public comments favored the relocation of the toll-free ramp and Port Penn Road to a single, signalized intersection with US 13. One comment suggested a flyover ramp between northbound US 13 and the northbound toll-free ramp, and one suggested DelDOT barrier-separate the turning lane to the ramp from US 13 to prevent weaving. The public clearly favored the single intersection. Further traffic studies indicated that the modification would result in backups on northbound US 13 that would extend through the Port Penn Road intersection. Consultation with the SHPO indicated that the relocation of Port Penn Road may affect additional historic resources, resulting in an expanded APE to the east of US 13.

A second modification, which provided a single intersection at the existing US 13/Port Penn Road intersection, displayed in **Figure 10** and shown on the additional PowerPoint information slides 40-41 in the September 19, 2011 Agency Meeting in **Appendix H**, was proposed at the June 9, 2011 Interagency Meeting, presented at the September 6, 2011, Public Workshop, and reviewed at the September 19, 2011 Agency Meeting. Two public comments received at the September 6, 2011 Workshop were concerned with the relocated toll-free access road: one favored the four-way intersection plan, and one opined that the new location to the south might increase traffic on St. Georges Bridge (US 13). The advantages of this refined design and a comparison of impacts as compared to the initial refinement was discussed at the June 19, 2011 Agency meeting. Consultation with the SHPO resulted in concurrence that the current modification would not have an effect on two additional historic resources within the expanded APE. Information regarding this consultation is included in **Appendix C**. At the September 19, 2011 meeting, the agencies did not object to the second modification, and DelDOT has included the refinement into the project design.

Design Refinement 4 – Hyetts Corner Road Closure during Construction of the US 301 Bridges over Scott Run and the Hyetts Corner Road Bridges over Scott Run and US 301

Refinements have been proposed for the design of the existing Hyetts Corner Road bridge over Scott Run (Bridge 1-6), the new US 301 bridges over Scott Run (Bridges 1-7N and 1-7S) in the vicinity of Hyetts Corner Road, and the design of the Hyetts Corner Road overpass of US 301 (Bridge 1-5). The Scott Run bridge refinements are shown in **Figure 11**, excerpted from the Section 1 Roll Plan displayed at the September 6, 2011 Public Workshop.

The Hyetts Corner Road and US 301 bridges over Scott Run were evaluated to determine optimal placements of piers and abutments as well as to determine the optimal type of bridges or culverts that would minimize impacts to Scott Run and the surrounding wetlands.

The Hyetts Corner Road bridge over Scott Run (Bridge 1-6) is proposed to be reconstructed in the exact location of the present roadway, thus requiring the closure of Hyetts Corner Road during construction. Although there is a ROD commitment to keep the roadway open, DelDOT proposes the closure to enhance safety, reduce environmental impacts, facilitate timely construction, and reduce costs.

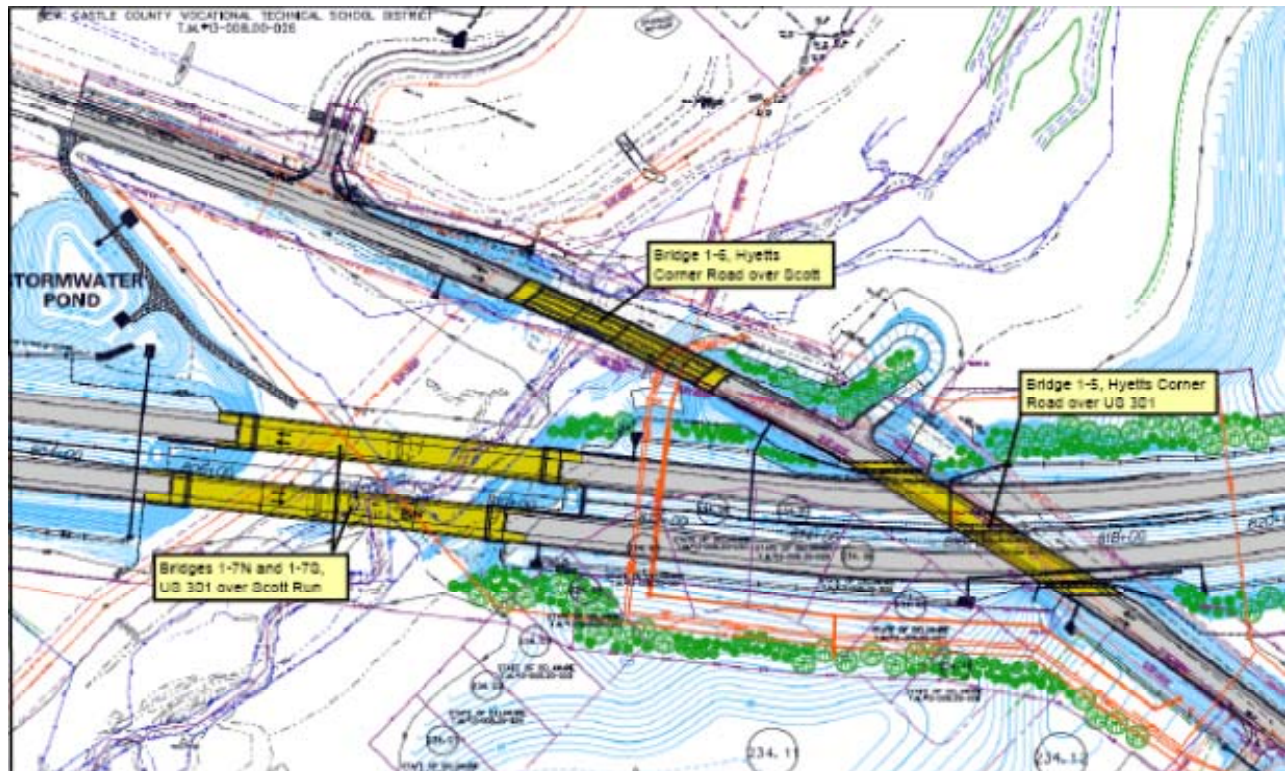


Figure 11: Design Refinement 4- Modification of Bridges 1-5, Hyetts Corner Road over US 301, and Bridges 1-6 and 1-7, Hyetts Corner Road and US 301 over Scott Run

Advantages/Disadvantages and Impacts

Closing Hyetts Corner Road during construction would eliminate the need to construct a temporary haul road through the wetlands associated with Scott Run, avoiding substantial impacts to this important habitat area. Creating and maintaining a temporary road through the wetland, which is opposed by the resource agencies, would not only cause temporary damage, but could cause permanent damage to the wetland system. Hyetts Corner Road is a critical component of US 301 mainline construction and would be used for a major earth hauling effort, which includes having a continual stream of off-road large haul vehicles carry approximately 740,000 cubic yards (CY) of material from borrow sites on the east side of Scott Run to the west side.

The disadvantage to this refinement is that users of Hyetts Corner Road would be required to detour around the closure for the duration of construction, about three years. DelDOT is committed to providing improvements to Jamison Corner Road, Road 412A, and a section of Hyetts Corner Road between Jamison Corner Road and St. Georges Technical High School, to provide a suitable detour route for school buses and the public, prior to closing Hyetts Corner Road. **Figure 12** shows the proposed detour route. Emergency response officials did not express objection to the proposed detour route.

Closing Hyetts Corner Road to passenger traffic would eliminate safety conflicts between construction vehicles and passenger vehicles, reduce construction costs, reduce construction time by approximately 15 months and reduce project financing costs (capitalized interest) by approximately \$20 million.

Regardless of the haul route, closing Hyetts Corner Road would be necessary to construct the Hyetts Corner Road overpass embankments, retaining walls, and bridges over Scott Run and the new US 301 Mainline. Concurrent construction would provide expedited construction times.

As there is anticipated to be considerable construction disturbance of the area surrounding the stream and embankments during construction, wetland and stream channel restoration is proposed for this area. The existing culvert under Hyetts Corner Road has affected the stream's location, and DelDOT would replace the culvert with a bridge and restore the channel to a more natural location (stream restoration of Scott Run is part of the mitigation package). Extensive channel reconstruction is anticipated, and, during the March 9, 2009 field review, the agencies expressed a desire to remove an old upstream dam during the restoration to open up the valley floor and floodplain.

The refinement of the design of the Hyetts Corner Road bridge over Scott Run (Bridge 1-6) and the new US 301 bridges over Scott Run (Bridges 1-7N and 1-7S) would minimize the increase in impacts to wetlands to 0.6 acre and to streams to 412.2 linear feet; increase impacts to hydric soils (+0.95 acre) and forest (+0.55 acre); and reduce impacts to prime farmland soils (-0.5 acre). The total limit of disturbance would increase by 28.1 acres, largely due to a portion of the potential Scott Run borrow site and the staging area south of US 301, which are located in this general area but not the result of this design refinement, being included in this calculation. The design refinement itself (not including the roadway supporting areas) would result in an increase in the total limit of disturbance of 4.56 acres.

Agency Coordination, Public Input and Decision

This refinement was not presented at the March 23, 2009 workshop. The agencies were first apprised of the benefits of closing Hyetts Corner Road during the February 19, 2009 agency meeting. Closure was again discussed during the field review on March 5, 2009. Elements of the bridge refinements and the stream restoration project were discussed at agency meetings on March 26, 2009, July 7, 2009, June 24, 2010, and June 9, 2011. The agencies concurred/did not object to the inclusion of this design refinement at the September 19, 2011 agency meeting.

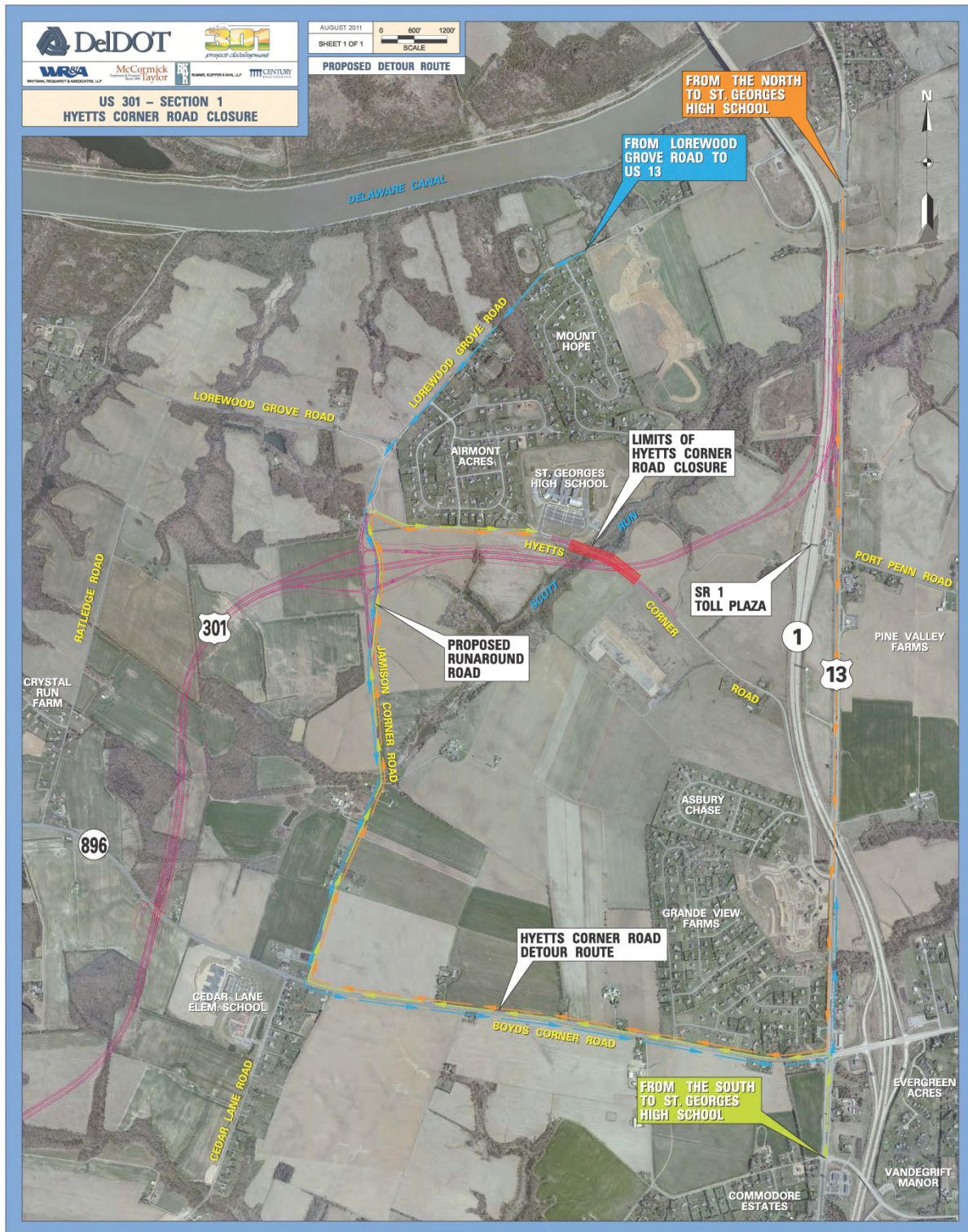


Figure 12: Proposed Hyetts Corner Road Detour Route

This refinement was presented at the Airmont/Mount Hope pre-workshop community meeting as well as to the public at the September 6, 2011 Public Workshop. Citizens at the Airmont/Mount Hope community meeting raised concerns about potential additional neighborhood cut-through traffic while the detour is in place, and requested that the duration of the detour be minimized. The same comment was received during the Public Workshop. DelDOT is continuing to work with the community to address this issue. The residents of the community have been provided ballots. Assuming 2/3 of the responding residents vote “yes,” DelDOT will take appropriate action, coordinated with emergency management services providers, to close Airmont Drive at Hyetts Corner Road during US 301 construction in the area.

Design Refinement 5 – Jamison Corner Road Interchange Roundabouts

At the proposed diamond interchange at Jamison Corner Road, the ROD proposed stop-controlled intersections would be replaced with roundabouts (see **Figure 13**). A larger figure showing the roundabouts and the Jamison Corner Road interchange may be found in **Appendix H** on page 21 of the PowerPoint of the February 19, 2009 Agency Meeting.

Advantages/Disadvantages and Impacts

Including roundabouts rather than stop-controlled intersections would provide several advantages including providing continuous flow of traffic at the ramp intersections and reducing delays to the traveling public. The design would reduce the width of the proposed Jamison Corner Road bridge over US 301, thus reducing costs; easily accommodate traffic growth as surrounding parcels are developed; improve safety through reduced speeds and the elimination of left turn and right angle conflicts; and be more convenient for drivers during off-peak hours. The interchange would be designed to accommodate future widening of Jamison Corner Road from new US 301 to north of Boyds Corner Road (a separate DelDOT project that would include bicycle lanes that would be part of Delaware Greenways; see <http://www.delawaregreenways.org/index.html>). The refined design with roundabouts would increase the LOD by 5.2 acres and result in impacts to an additional 0.2 acre of prime farmland soil; forest impacts would decrease by -0.06 acre.

Agency Coordination, Public Input and Decision

This refinement was first presented at the February 19, 2009 agency meeting and presented to the public at the March 23, 2009 Workshop. The design was reviewed again and recommended by DelDOT to be included in the Refined Design at the March 26, 2009 agency meeting. In their August 9, 2009 letter to the US 301 project stakeholders (included in **Appendix F**), DelDOT advised the public that this refinement would be incorporated into the final design for the new US 301. At the September 15, 2009 agency meeting, the agencies reiterated their acceptance of this refinement. The refinement is included in the Refined Design. There were no comments received from the public during the March 2009 or September 2011 Public Workshops objecting to the design of roundabouts for the Jamison Corner Road Interchange.

Airmont Questions and Concerns as to 301 Project

APRIL 4, 2013

<p>22. Water Pollution (NEPA Issue)</p> <p>22-A: DEIS, pgs. III-108 to III-118</p> <p>22-B: FEIS, pgs. III-129 to III-139</p> <p>22-C: Proposed Drainage Area Map 1</p> <p>22-D: Proposed Drainage Area Map 2</p> <p>22-E: Airmont Groundwater Table Elevation</p>	<ul style="list-style-type: none"> - NEPA <u>requires</u> all proposed highway projects to evaluate and fully consider such adverse <u>effects of water pollution to the impacted communities.</u> - Most of the impacted communities have private wells as their water source. - DelDOT failed to address in any of their reports as to risk of water pollution and any impact upon these wells. - DelDOT is obligated to prepare a detailed report of the expected/potential disruption to such wells, and the effect upon the impacted residents. - DelDOT will need to prepare a supplemental EIS. <p><i>The effects of the project on groundwater and surface water / water quality are addressed on pages III-108 to III-118 of the DEIS and pages III-129 to III-139 of the FEIS.</i></p> <p><i>The Airmont community is separated from US 301 by a natural ridge line, which runs almost parallel and to the south of Hyetts Corner Rd, then continues north of Jamison Corner Road. As such, the entire runoff from US 301 discharges in a different subwatershed than the community. The runoff north of the proposed landscaped visual earth berm (closer to the community) will be conveyed to the south in a series of clean water ditches and pipes to an existing wetland. There is no man-made diversion of drainage areas. In the proximity of the community, there are three Points of Study (POS) where hydrology and hydraulic computations were conducted, in order to evaluate the effect of new impervious areas on the quality and quantity of the runoff in the subwatershed, before it leaves DelDOT right of way. These Points of Study are POS #770, #787 and #810. All US 301 related stormwater are treated in proposed stormwater management facilities in the corridor through proposed biofiltration swales, infiltration trenches, and wet ponds located within these Point of Studies before runoff leaves DelDOT's right-of-way.</i></p> <ul style="list-style-type: none"> • <i>Point of Study #770 is located on the northern extended portion of the Jamison Corner Rd. It discharges into a body of water tributary to Scott Run. This POS includes runoff from the proposed extension of Jamison Corner Road. There are 1.08 acres of new impervious area in this POS. Within the area of POS #770, water quality treatment is achieved in vegetative filter strips. Quantity management is not required since the outfall is tidally influenced.</i> • <i>Point of Study #787 is located at the outfall of an existing 24" ductile iron pipe which discharges into a tributary to Scott Run. It includes runoff from the proposed interchange, ramps, and portions of the north and south of Jamison Corner Road. There are 12.20 acres of new impervious area in this POS. Within the area of POS # 787, there are 5 biofiltration swales, varying in length from 100' long to 150' long, and 2 infiltration trenches, 50' and 60' each, to provide water quality treatment. There is also one pond to provide quantity management.</i> • <i>Point of Study #810 is located at the outfall of a proposed pond discharging into Scott Run. It includes runoff from the proposed mainline. There are 3.14 acres of new impervious area in this POS. There are 2 biofiltration swales, each 200' long each, proposed to treat for water quality. There is also one pond to provide quantity management.</i>
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Airmont Questions and Concerns as to 301 Project

APRIL 4, 2013

Regarding the comment above that notes, “Most of the impacted communities have private wells as their water source”; the majority of existing and proposed communities and schools in the area of the US 301 mainline alignment have a public utility as their water source. The Airmont and Mt. Hope communities appear to be the exceptions, with individual wells.

COMMUNITY/SCHOOL	PUBLIC WATER UTILITY (P) OR INDIVIDUAL WELLS (I)
<i>Spring Arbor</i>	<i>P</i>
<i>Appoquinimink High & Elementary Schools</i>	<i>P</i>
<i>Middletown Village</i>	<i>P</i>
<i>Spring Mill</i>	<i>P</i>
<i>Edward Waters Middle & Cedar Lane Elementary</i>	<i>P</i>
<i>Village of Bayberry</i>	<i>P</i>
<i>Airmont</i>	<i>I</i>
<i>St. Georges Technical High School</i>	<i>P</i>
<i>Mt. Hope</i>	<i>I</i>
<i>Crossland</i>	<i>P</i>
<i>Windsor South at Hyetts Corner</i>	<i>P</i>
<i>Windsor North at Hyetts Corner</i>	<i>P</i>
<i>Proposed Windsor Commons at Hyetts Corner</i>	<i>P</i>
<i>Proposed Whitehall Villages</i>	<i>P</i>

Groundwater elevation data from the Delaware Geological Society indicates that groundwater in the Airmont subdivision is at a high point and the groundwater flows away from Airmont towards the US301 project ([see attached Airmont area groundwater elevations graphic](#)).

A supplemental EIS is not required. See response to question 13 on pages 13-4 and 13-5.

Question 22

Supporting Documentation

22-A

from general maintenance or accidental spills could impact soil chemistry and vegetation growth. These potential indirect impacts apply to all alternatives.

Impacts to soil resources could be minimized through design and construction techniques. The location of stormwater management facilities could be placed to limit the extent of direct soil impacts. Best management practices during construction (such as the implementation of DNREC-approved erosion and sediment control guidelines, the development of comprehensive grading plans, and the use of sediment and soil stabilization techniques) could greatly minimize soil impacts. A comprehensive replanting effort will be implemented during construction to quickly reestablish vegetative cover for erosion control, and immediately after construction to provide long-term tree and shrub revegetation. While the creation of stormwater management facilities would directly impact some soil resources during construction, they would decrease uncontrolled runoff, widespread erosion on adjacent lands, and provide protection to surface water resources.

4. Groundwater

a. Existing Conditions

Groundwater is an important resource and commodity for the State of Delaware, especially south of the C&D Canal where public surface water supply systems are absent and groundwater is used for both domestic supply and farm irrigation. In addition to domestic and farm water supply, wetland dependant wildlife, including the bog turtle, relies on groundwater to create wetland seep habitat. On average, Delaware receives 40 to 44 inches of local rainfall per year, but not all of this water is available for use. From this yearly rainfall supply, approximately 20 inches evaporates, 3 inches is transpired by plants, and 4 to 5 inches is lost to surface runoff. The remaining 13 to 15 inches makes its way into the ground where it is naturally stored in a system of groundwater aquifers that underlie most of the state.

The Columbia Formation, a relatively thin layer of predominantly sands and gravels that unconformably overlies the older dipping coastal plain sediments presumed to have originated from streams created in the last ice age by melted flowing waters, covers almost all of the Coastal Plain of the state. The Columbia Formation is a groundwater source for water yields ranging from less than 10 gallons per minute (gpm) to excellent water yields greater than 500 gpm where sufficient formation thickness and saturation rates exist. The water yields typically increase in quantity in a general north to south direction, which correlates to formation thickening. This formation also serves a source of recharge for the underlying aquifers.

The Rancocas Group consists of the Vincentown and Hornerstown Formations. These minor aquifers produce well yields adequate for domestic use, but are of little value for large scale water production. The Mount Laurel and the Englishtown Formations, likewise, are capable of producing enough water for domestic use, but are not generally considered to have consistent water supply potential. The Magothy Formation consists of clean sand and it underlies the more recent deposits described above. This aquifer is a major aquifer, but in some areas the depth makes the cost to drill wells prohibitive.

The Potomac Formation is used for water supply in northern Delaware, but not in southern Delaware due to the depth of the aquifer and the groundwater being brackish in nature. Other major aquifer systems that overlie the Potomac Formation are also commonly used.

In the project area, groundwater depths are unusually deeper than what is normal for the Columbia Formation. Vertical recharge is slow even though surface recharge areas cover most of the region; **Figure III-16** shows the aquifer recharge areas. There is little to no fluctuation in water levels throughout the year which is most likely due to the presence of the C&D Canal and the surrounding creeks and rivers, particularly Drawyer Creek and its tributaries, located north of Odessa, and the Appoquinimink River and its tributaries, located south of Odessa. These streams and rivers act as natural drains for the water table which dampen any groundwater fluctuation. The following is a summary of groundwater conditions along each of the alternatives:

Yellow Alternative

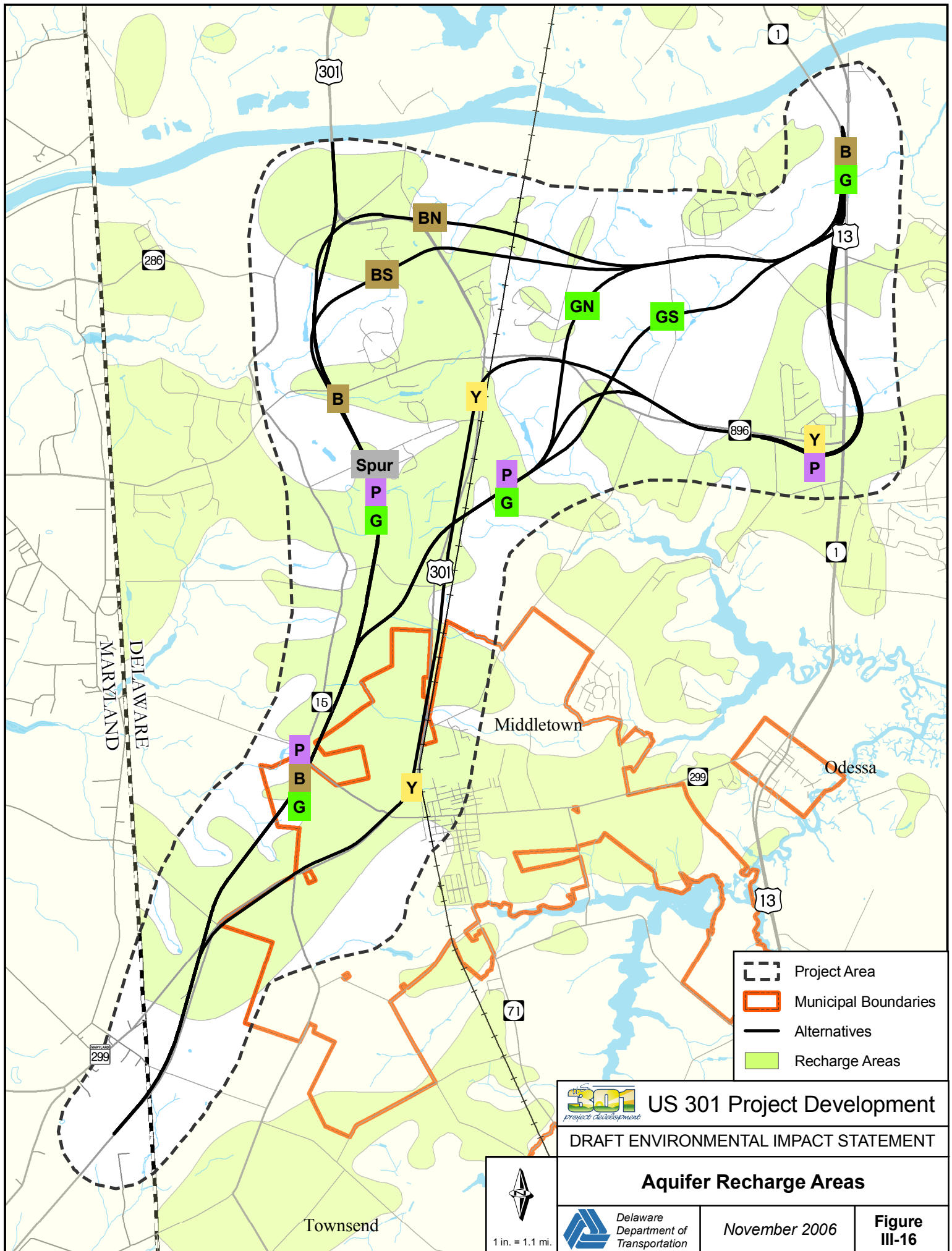
- In the west segment from the state line to about Levels Road, groundwater is present at depths approximately 60 feet or greater becoming as shallow as about 50 feet near Bunker Hill Road and then becoming as deep as 60 feet near Armstrong Corner Road.
- In the mid-section segment, groundwater is present at depths of approximately 40 feet.
- In the east segment from the intersection with SR 896 to the merge with SR 1, groundwater is present at depths ranging from approximately 20 to 40 feet.
- At the Augustine Creek crossing, groundwater is present at depths less than approximately 20 feet below the existing ground surface.
- Approximately 50 percent of the alignment crosses groundwater recharge zones.

Purple Alternative

- In the south end segment from the state line to the merge with SR 896, groundwater is present at depths of approximately 40 to 60 feet.
- At the Sandy Branch crossing, groundwater is present approximately 40 feet or less in depth.
- More than 75 percent of the alignment crosses groundwater recharge zones.

Brown Alternative

- In the south end segment from the state line to Sandy Branch, groundwater is present at depths of approximately 40 to 60 feet. Minor tributaries for Back Creek are located in this segment.
- In the mid-section segment, groundwater is present at depths of approximately 40 feet.
- From the Scott Run crossing to the merge with US 301, groundwater is present at depths less than approximately 20 feet below the existing ground surface.
- Approximately 50 percent of the alignment crosses groundwater recharge zones.



Green Alternative

- In the southwest segment from the state line to about Sandy branch, the depth to groundwater ranges from 40 to 60 feet.
- In the mid-section segment, groundwater is present at depths of approximately 40 to 60 feet; south of Bohemia Mill Road the depth to groundwater becomes as deep as 60 feet.
- In the northeast segment from the crossing with Drawyer Creek to the merge with US 301 the depth to groundwater becomes shallower ranging from 40 to 20 feet, respectively.
- Approximately 40 percent of the alignment crosses groundwater recharge zones.

b. Environmental Consequences

As an unconfined aquifer, the Columbia Formation is vulnerable to contamination from the ground surface. Construction activities involving excavation may encounter and/or affect areas with shallow groundwater depths, especially those located near proposed crossings at bodies of surface water. Any excavations that encounter the groundwater may increase the potential for contamination being introduced into the ground water system. All of the proposed alternatives contain water crossings.

The ground surface areas that have been characterized as recharge zones for the aquifer may also allow for introduction of pollutants into the groundwater through permeation during construction. This is an important concern, considering that a high percentage of the proposed alternative routes are located within the recharge zones. The Purple Alternative has the highest percentage of potential roadway located on recharge zones, followed by the Yellow and Brown Alternatives, then the Green Alternatives.

Introducing impervious surface into groundwater recharge zones may also affect recharge rates and percentage of water infiltration. Decreased infiltration may affect the size and quality of groundwater-created wetland seeps that create habitat for some wetland dependant species.

Once construction of the roadways is complete, it is expected that runoff conditions will develop, possibly causing erosive conditions. Runoff conditions can also introduce undesirable materials, including solid particles and chemicals, into the water table by way of infiltration. Stormwater management facilities and drainage ditches assist in catching much of this runoff; they will be properly designed to prevent groundwater contamination in shallow aquifers.

5. Surface Water and Water Quality

a. Surface Water

Existing Conditions - Watersheds

Five different watersheds are located within the project area, including the C&D Canal East Watershed, C&D Canal West Watershed, Bohemia Creek Watershed, Sassafras River Watershed, and the Appoquinimink River Watershed (**Figure III-17**). Land use within these

watersheds includes agricultural, forest, wetland, urban/residential, shrubland, and other undefined land uses. According to DNREC, primary watershed concerns include the presence of pathogens, nutrient loading, physical habitat condition, and protection of water supply.

The Chesapeake & Delaware (C&D) Canal East and West Watersheds

The Chesapeake and Delaware Canal is a man-made navigation channel connecting the Delaware River to the Chesapeake Bay. The C&D Canal East and West Watersheds have a combined drainage area of approximately 41,000 acres. The C&D Canal East Watershed drains into the Delaware Bay Basin, while the C&D Canal West Watershed drains into the Chesapeake Bay Basin.

The C&D Canal East Watershed extends south from the SR 40/Porter Road area to approximately SR 896 and from an area outside the project area on the east to approximately US 301 on the west. The C&D Canal West Watershed extends from SR 40/Porter Road on the north to approximately one mile south of Back Creek, and from the vicinity of US 301 on the east, out of the project area into the State of Maryland to the west.

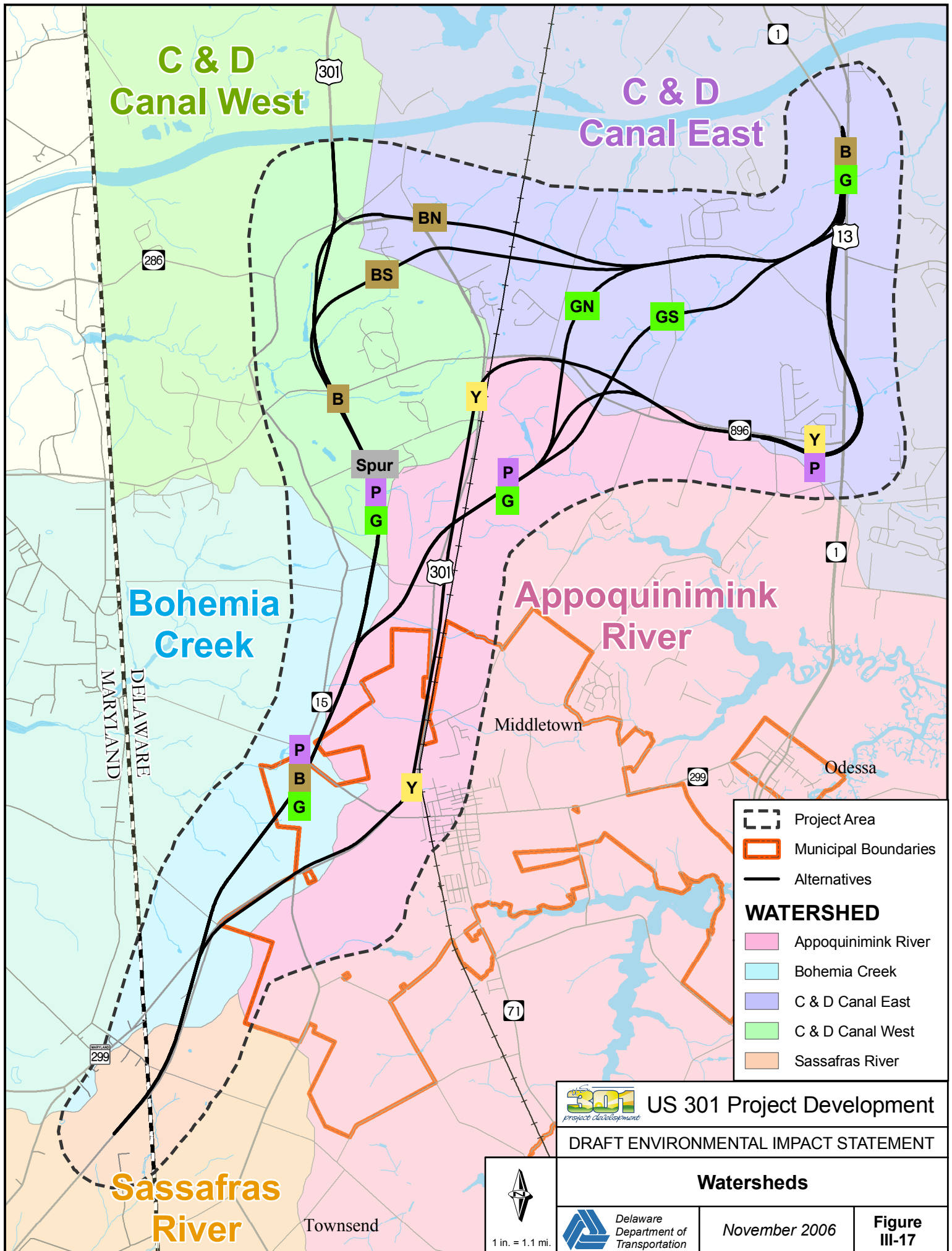
Major surface water bodies in the C&D Canal East Watershed include the C&D Canal and its unnamed tributaries, Crystal Run, Joy Run, Scott Run and its unnamed tributaries and Augustine Creek. Major surface water bodies in the C&D Canal West Watershed include the Chesapeake and Delaware Canal and its unnamed tributaries and Back Creek and its unnamed tributaries.

Lands adjacent to both watersheds consist of federal reservation land currently designated as a wildlife area. Land use within these watersheds is comprised of 56 percent agricultural, 14 percent forest, 10 percent wetland, 9 percent brushland, 4 percent urban/residential and 7 percent other.

Appoquinimink River Watershed

The Appoquinimink River Watershed drains approximately 30,000 acres within the Delaware Bay Basin in southern New Castle County, Delaware. The Appoquinimink River Watershed extends from the C&D Canal East Watershed on the north to approximately one-half mile south of Wiggins Mill Pond on the south, and from an area outside of the project area on the east to an area slightly east of SR 15 on the west.

Major water bodies within the Appoquinimink River Watershed include the main stem of the Appoquinimink River, Drawyer Creek and its unnamed tributaries, Spring Mill Branch and Dove Nest Branch. Man-made ponds and lakes include Shallcross Lake, Noxontown Lake, Silver Lake and Wiggins Mill Pond.



The major land use category in this watershed is agricultural (69 percent) with the remainder consisting of wetland (12 percent), forest (11 percent), urban/residential (3 percent) and other (5 percent). The area is experiencing significant residential growth near its three residential/urban centers, Middletown, Odessa, and Townsend.

Bohemia Creek Watershed

The Bohemia Creek Watershed drains approximately 12,000 acres of western New Castle County, Delaware and eastern Cecil County, Maryland into the Chesapeake Bay Basin. The Bohemia Creek Watershed is bordered by the C&D Canal West Watershed on the north and extends southward to the Sassafras River Watershed approximately one-half mile south of an unnamed tributary of Sandy Branch. The watershed's eastern boundary is located slightly east of SR 15 and extends to the west, outside of the project area, into the State of Maryland. Major surface water bodies within this watershed include Great Bohemia Creek and its unnamed tributaries and Sandy Branch and its unnamed tributaries.

The major land use category in this watershed is agricultural land with forests, wetlands, and residential areas making up the remaining land uses. Pathogens, nutrient loading, physical habitat condition, and water supply are the primary watershed concerns.

Sassafras River Watershed

The Sassafras River watershed drains approximately 48,300 acres within western New Castle County, Delaware and eastern Cecil County, Maryland. The watershed is bordered by the Bohemia Creek Watershed to the north and extends south, outside of the project area. The watershed's eastern boundary roughly parallels SR 15 and extends westward out of the project area into the State of Maryland.

Major surface water bodies within the Sassafras River Watershed include the Sassafras River and several of its unnamed tributaries.

The major land use categories within the watershed include agricultural (68 percent), forest (26 percent), residential (4 percent) and wetlands (2 percent). Pathogens, nutrient loading, physical habitat condition, and water supply are the primary watershed concerns.

Environmental Consequences

The No-Build Alternative would result in no impacts to watersheds within the project area. Impacts to surface water features could potentially result from construction and operation of each build alternative. These impacts include: bridge and/or culvert construction at stream crossings, accidental spills of hazardous materials, sedimentation, bridge shading, removal of riparian vegetation, surface water diversions, potential dewatering, lack of surface water recharge along stream headwaters and new roadway construction and expansion.

The greatest impact to watersheds within the project area would be from the increase in impervious surfaces created during the construction and expansion of new roadways. A substantial increase in the amount of imperviousness would greatly affect hydrologic conditions including the frequency, intensity and quantity of surface water runoff within the watershed (**Table III-48**). An increase in impervious surface area would also facilitate the introduction of hazardous materials, sediment and erosion into the watershed through increased surface runoff.

Table III-48: Alternatives Impervious Surface Additions

	Yellow	Purple	Brown North	Brown South	Green North	Green South
Acres of Additional Impervious Surface	246	226	217	222	216	220

The most potential impacts would occur during construction and operation of the Yellow Alternative. A total of 38 potential surface water impacts would occur under this alternative. The Purple Alternative and Brown Alternative North Option would have the same number of surface water feature impacts (37). The North and South Options of the Green Alternative have 34 and 33 potential impacts respectively. The Brown Alternative South Option has the least amount of potential impacts with 28.

Table III-49: Potential Impacts to Surface Waters

Alternative		Yellow	Purple	Brown North	Brown South	Green North	Green South
C&D Canal East	Ditches	13	14	2	2	5	5
	Streams	2	2	8	7	6	5
C&D Canal West	Ditches	1	0	7	0	0	0
	Streams	1	0	6	5	0	0
Appoquinimink River	Ditches	7	8	0	0	7	7
	Streams	3	1	0	0	3	3
Bohemia Creek	Ditches	1	2	2	2	1	1
	Streams	0	3	3	3	3	3
Sassafras River	Ditches	6	6	6	6	6	6
	Streams	2	2	3	3	3	3
Total Surface Water Feature Impacts	Ditches	28	30	17	10	19	19
	Streams	10	7	20	18	15	14

NOTE: Ditches and Streams are waters of the US not included in wetlands

Construction of bridges or culverts over stream crossings could affect surface water features by altering stream morphology and stream bank stability. Spills of hazardous materials on roadways and during construction may directly enter surface waters. Sediment from construction activities and improper erosion controls after construction may lead to grade changes, and increased erosion in surface waters. Bridge shading and riparian vegetation removal can result in a change to the amount and type of riparian habitat cover and affect water temperature potentially leading to a change in the thermal chemistry of the stream. Surface water diversions could potentially affect stream base flow and increase the possibility of flash

flood storm events. Impacts along headwater streams may result in a loss of surface water recharge to a stream system or potential dewatering of headwaters. The construction of new roadways and the expansion of existing road surfaces along surface water features could potentially decrease the amount of vegetated riparian buffer and increase the amount of impervious surface.

Additional impacts to surface water features may occur as a result of activities related to each of the build alternatives including: increased stormwater runoff from impervious surfaces, greater influx of pollutants including sediment into surface water features, temporary disturbance resulting from construction activities, and increased stream velocities and bank erosion rates.

The construction of new road surfaces will increase the amount of impervious surface area within the watershed and also the amount and intensity of stormwater runoff entering surface water features within the project area. The increased traffic on these new roadways may lead to a greater amount of water pollution. Pollutants such as oil, grease, heavy metals, sediment, organics, and nutrients transported from road surfaces via stormwater runoff can be released into nearby streams. During construction activities related to the project, temporary impacts may result due to the disturbance of adjacent land areas and in-stream activities. The disturbance of stream banks and an increase in the amount of runoff can result in a dramatic increase in stream velocities, stream discharge rates, erosion potential and other hydrologic stream functions.

Mitigation options for watersheds that may be used include the construction of stormwater management facilities to handle the increased stormwater runoff that will occur due to more impervious surface areas. These stormwater management facilities manage the flow and discharge of stormwater into the streams and rivers located in the project area and reduce the possibility and effects of increased pollution, erosion, and morphological stream changes. In order to meet the stormwater management requirements for the project, a combination of structural and non-structural stormwater management facilities will be utilized. To the extent practicable, the project will incorporate the use of "Green Technology" Best Management Practices (BMP's) in fulfilling the stormwater management requirements for the project. Green Technology practices include filter strips, biofiltration swales, bioretention, and infiltration trenches. More traditional facilities such as wet and dry ponds will be utilized where the use of Green Technologies are not feasible to meet the stormwater management requirements. Due to right-of-way, utility or environmental constraints, the use of underground stormwater treatment structures, such as filtration structures, hydraulic separators and catch basin inserts may be utilized.

In order to prevent stream degradation, water quality impairment, and flooding associated with construction projects, Delaware's Sediment and Stormwater Regulations require that stormwater management measures (BMPs) be implemented. DNREC has delegated approval authority for stormwater management to DelDOT for DelDOT projects. South of the C&D Canal, runoff must be limited to predevelopment levels for the 2-year and 10-year design storms to prevent flooding and channel erosion, referred to as *quantity* management. To address water *quality* impacts of construction, the runoff from the lesser of the one-year, 24-hour design storm, or one inch, must be treated in BMPs to reduce sediment, nutrient, and toxics loadings to waterways.

Stormwater management BMPs require additional right-of-way and may sometimes need to be located within wetland or other sensitive areas. Therefore, the six alignment alternatives were assessed to determine stormwater management requirements for each, and identify the size and location of potential stormwater management sites, and resulting effects on the project limits of disturbance.

The US 301 roadway typical section includes 4-foot wide side ditches, which, along with the proposed 4:1 side slopes and available safety grading, provide an adequate section for water quality treatment using non-structural BMPs such as bioswales, in keeping with the DNREC preference for 'green design' type BMPs. Additional structural BMPs are required for quantity management. Potential SWM pond locations were identified based on topography and proposed roadway horizontal and vertical alignments. Wherever possible, wetlands and historic properties were avoided. Using an adaptation of the methods recommended in Maryland SHA Highway Hydraulic's Division April 2003 *Stormwater Management Concept Report Guidelines*, the required stormwater pond sizes were estimated as described below:

- Runoff volumes were estimated for the 2-year and 10-year storm events, assuming a Runoff Curve Number of 90 within the roadway cut/fill limits
- Storage volume was estimated for each storm, using 50% of the runoff volume for the 2-year event, and 40% of the runoff volume for the 10-year event, both with a safety factor of 1.3.
- Surface area requirements were computed for each storm, assuming 2 feet of depth for the 2-year volume, and 3 feet of depth for the 10-year volume
- The required pond/structural BMP area was estimated as the larger of the 2-year and 10-year computed surface area, times 1.25

Potential SWM facility locations and sizes are shown in **Appendix B** for all alternatives, along with the project limits of disturbance. Using the method outlined above, the approximate area required for stormwater management facilities would be 7% of proposed area for each alternative.

Bridge construction over surface water features is a minimization method that reduces the amount of impact to a narrow area. By constructing bridges over sensitive features, the amount of impact to adjacent resources can be avoided completely or greatly decreased.

During construction activities, the implementation of best management practices (BMPs) such as limiting the period allowed for instream construction work can reduce potential impacts to streams and watersheds.

Additional mitigation would include riparian buffer restoration. Riparian buffers protect surface waters by reducing thermal impact and attenuating surface runoff. Riparian vegetation would be planted along stream corridors to create new riparian buffers or to enlarge existing undersized buffers.

b. Water Quality

Existing Conditions

The Delaware Water Quality Standards Program has defined “designated uses” for each water body as specified in the water quality standards. Designated use standards require that potential uses of water are protected, even if they are not currently being attained. There are currently nine designated uses of water in the State of Delaware as follows:

- Public Water Supply
- Primary Contact Recreation (Swimming)
- Secondary Contact Recreation (Wading)
- Agricultural Water Supply
- Industrial Water Supply
- Fish Aquatic Life and Wildlife
- ERESE Waters (Waters of Exceptional Recreational and Ecological Significance)
- Cold Water Fish
- Harvestable Shellfish Waters

DNREC has obtained water quality data for several of the surface water features located within the project area (**Table III-50**). Water bodies in this area are routinely monitored for typical water quality parameters (*i.e.*, pH, temperature, dissolved oxygen (DO), etc.). Water quality data for the Sassafra River and Great Bohemia River were not collected by DNREC. DNREC has also conducted habitat and biological assessments of surface water features in the project area. Based upon these assessments, the water quality of these surface water features has been determined to range from severely degraded to excellent.

Surface water quality data reveal that the leading causes of diminished aquatic life uses in Delaware are increased nutrient influx, low dissolved oxygen, and biological and habitat degradation. The main sources of the degradation of biological quality and aquatic habitat are the result of non-point source pollution from agricultural and urban runoff.

Although pathogenic indicators are the most widespread contaminant source found throughout the state, nutrients and toxics pose the most serious threat to surface water quality, aquatic habitat, and human health. Toxic contaminants are released into surface water features as the result of pollution from urban and industrial areas. Non-point sources, primarily runoff from agricultural and urban land, and municipal and industrial point sources remain the primary contributors of both nutrients and toxics to surface water features.

Question 22

Supporting Documentation

22-B

c. Farmland Conversion Impact Rating

The submission of Form CPA-106 in compliance with the Farmland Protection Policy Act (FPPA), as amended in 1984 and 1994, is discussed in **Section A.4** of this Chapter. [NOTE: Correspondence with the Natural Resources Conservation Service (NRCS) is ongoing. An initial Farmland Conversion Impact Rating (FCIR) Form was submitted to the NRCS on July 12, 2007, and was returned for completion on August 28, 2007, in accordance with the procedure. The NRCS applied a relative value of 90.7 (on a scale of 0-100 points) to the farmland to be converted (Land Evaluation Criterion Relative value of Farmland to Be Serviced or Converted). A copy of the completed form (returned to NRCS) is included in **Appendix G**. The criteria assessment resulted in a final score of 196 out of a maximum possible score of 260 points.

4. Groundwater

a. Existing Conditions

Groundwater is an important resource and commodity for the State of Delaware, especially south of the C&D Canal where public surface water supply systems are absent and groundwater is used for both domestic supply and farm irrigation. In addition to domestic and farm water supply, wetland dependant wildlife relies on groundwater to create wetland seep habitat. On average, Delaware receives 40 to 44 inches of local rainfall per year, but not all of this water is available for use. From this yearly rainfall supply, approximately 20 inches evaporate, 3 inches are transpired by plants, and 4 to 5 inches are lost to surface runoff. The remaining 13 to 15 inches of rainfall are absorbed into the ground and naturally stored in a system of groundwater aquifers that underlie most of the state.

The Columbia Formation, a relatively thin layer of predominantly sands and gravels that unconformably overlies the older dipping coastal plain sediments presumed to have originated from streams created in the last ice age by melted flowing waters, covers almost all of the Coastal Plain of the state. The Columbia Formation is a groundwater source for water yields ranging from less than 10 gallons per minute (gpm) to excellent water yields greater than 500 gpm where sufficient formation thickness and saturation rates exist. The water yields typically increase in quantity in a general north to south direction, which correlates to formation thickening. This formation also serves a source of recharge for the underlying aquifers.

The Rancocas Group consists of the Vincentown and Hornerstown Formations. These minor aquifers produce well yields adequate for domestic use, but are of little value for large scale water production. The Mount Laurel and the Englishtown Formations, likewise, are capable of producing enough water for domestic use, but are not generally considered to have consistent water supply potential. The Magothy Formation consists of clean sand and it underlies the more recent deposits described above. This aquifer is a major aquifer, but in some areas the depth makes the cost to drill wells prohibitive.

The Potomac Formation is used for water supply in northern Delaware, but not in southern Delaware due to the depth of the aquifer and the groundwater being brackish in nature. Other major aquifer systems that overlie the Potomac Formation are also commonly used.

In the project area, groundwater depths are unusually deeper than what is normal for the Columbia Formation. Vertical recharge is slow even though surface recharge areas cover most of the region; *Figure III-16* shows the aquifer recharge areas. There is little to no fluctuation in water levels throughout the year which is most likely due to the presence of the C&D Canal and the surrounding creeks and rivers, particularly Drawyers Creek and its tributaries, located north of Odessa, and the Appoquinimink River and its tributaries, located south of Odessa. These streams and rivers act as natural drains for the water table which dampen any groundwater fluctuation. The following is a summary of existing groundwater conditions along each of the build alternatives alignments:

Green (Preferred) Alternative

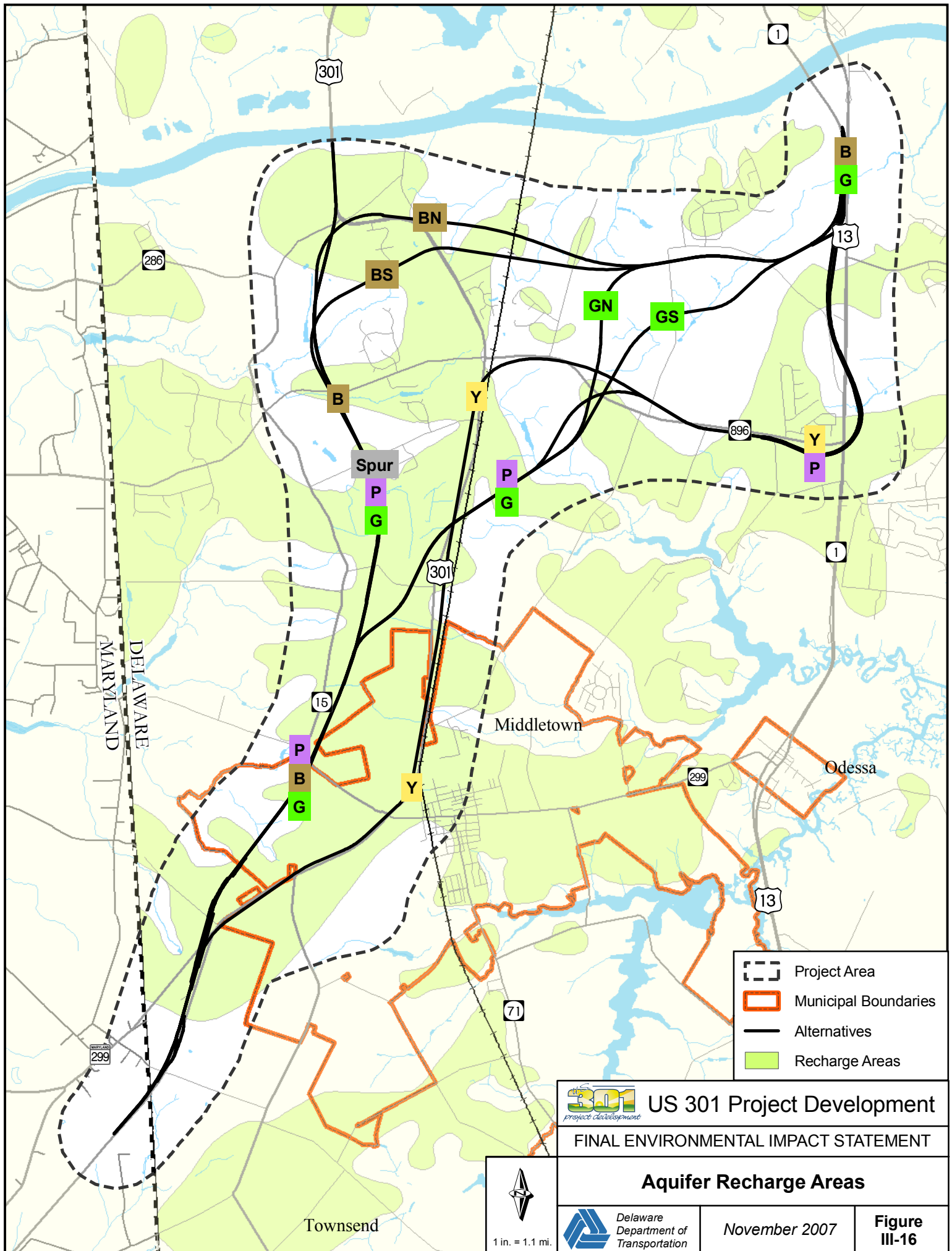
- In the southwest segment from the state line to about Sandy branch, the depth to groundwater ranges from 40 to 60 feet.
- In the mid-section segment, groundwater is present at depths of approximately 40 to 60 feet; south of Bohemia Mill Road the depth to groundwater becomes as deep as 60 feet.
- In the northeast segment from the crossing with Drawyers Creek to the merge with US 301 the depth to groundwater becomes shallower ranging from 40 to 20 feet, respectively.
- Approximately 40 percent of the alignment crosses groundwater recharge zones.

Yellow Alternative

- In the west segment from the state line to about Levels Road, groundwater is present at depths approximately 60 feet or greater becoming as shallow as about 50 feet near Bunker Hill Road and then becoming as deep as 60 feet near Armstrong Corner Road.
- In the mid-section segment, groundwater is present at depths of approximately 40 feet.
- In the east segment from the intersection with SR 896 to the merge with SR 1, groundwater is present at depths ranging from approximately 20 to 40 feet.
- At the Augustine Creek crossing, groundwater is present at depths less than approximately 20 feet below the existing ground surface.
- Approximately 50 percent of the alignment crosses groundwater recharge zones.

Purple Alternative

- In the south end segment from the state line to the merge with SR 896, groundwater is present at depths of approximately 40 to 60 feet.
- At the Sandy Branch crossing, groundwater is present approximately 40 feet or less in depth.
- More than 75 percent of the alignment crosses groundwater recharge zones.



Brown Alternative

- In the south end segment from the state line to Sandy Branch, groundwater is present at depths of approximately 40 to 60 feet. Minor tributaries for Back Creek are located in this segment.
- In the mid-section segment, groundwater is present at depths of approximately 40 feet.
- From the Scott Run crossing to the merge with US 301, groundwater is present at depths less than approximately 20 feet below the existing ground surface.
- Approximately 50 percent of the alignment crosses groundwater recharge zones.

b. Environmental Consequences

The No-Build Alternative would have no impact on project area aquifers. However, as an unconfined aquifer, the Columbia Formation is vulnerable to contamination from the ground surface. Construction activities involving excavation that result from construction of any of the build alternatives (including the Preferred Alternative) may encounter and/or affect areas with shallow groundwater depths, especially those located near proposed crossings at bodies of surface water. Any excavations that encounter the groundwater may increase the potential for contamination being introduced into the ground water system. All of the proposed alternatives contain water crossings.

The ground surface areas that have been characterized as recharge zones for the aquifer may also allow for introduction of pollutants into the groundwater through permeation during construction. This is an important concern, considering that a high percentage of the proposed alternative routes are located within the recharge zones. The Green (Preferred) Alternative has the least amount of roadway area located within recharge zones; the Purple Alternative has the highest percentage of potential roadway located on recharge zones, followed by the Yellow and Brown Alternatives.

Introducing impervious surface into groundwater recharge zones may also affect recharge rates and percentage of water infiltration. Decreased infiltration may affect the size and quality of groundwater-created wetland seeps that create habitat for some wetland dependent species.

Once construction of the roadways is complete, it is expected that runoff conditions will develop, possibly causing erosive conditions. Runoff conditions can also introduce undesirable materials, including solid particles and chemicals, into the water table by way of infiltration. Stormwater management facilities and drainage ditches assist in catching much of this runoff; they will be properly designed to prevent groundwater contamination in shallow aquifers.

5. Surface Water and Water Quality

a. *Surface Water*

(1) Existing Conditions - Watersheds

Five different watersheds are located within the project area, including the C&D Canal East Watershed, C&D Canal West Watershed, Bohemia Creek Watershed, Sassafras River Watershed, and the Appoquinimink River Watershed (**Figure III-17**). Land use within these watersheds includes agricultural, forest, wetland, urban/residential, shrubland, and other undefined land uses. According to DNREC, primary watershed concerns include the presence of pathogens, nutrient loading, physical habitat condition, and protection of water supply.

The Chesapeake & Delaware (C&D) Canal East and West Watersheds

The Chesapeake and Delaware Canal is a man-made navigation channel connecting the Delaware River to the Chesapeake Bay. The C&D Canal East and West Watersheds have a combined drainage area of approximately 41,000 acres. The C&D Canal East Watershed drains into the Delaware Bay Basin, while the C&D Canal West Watershed drains into the Chesapeake Bay Basin.

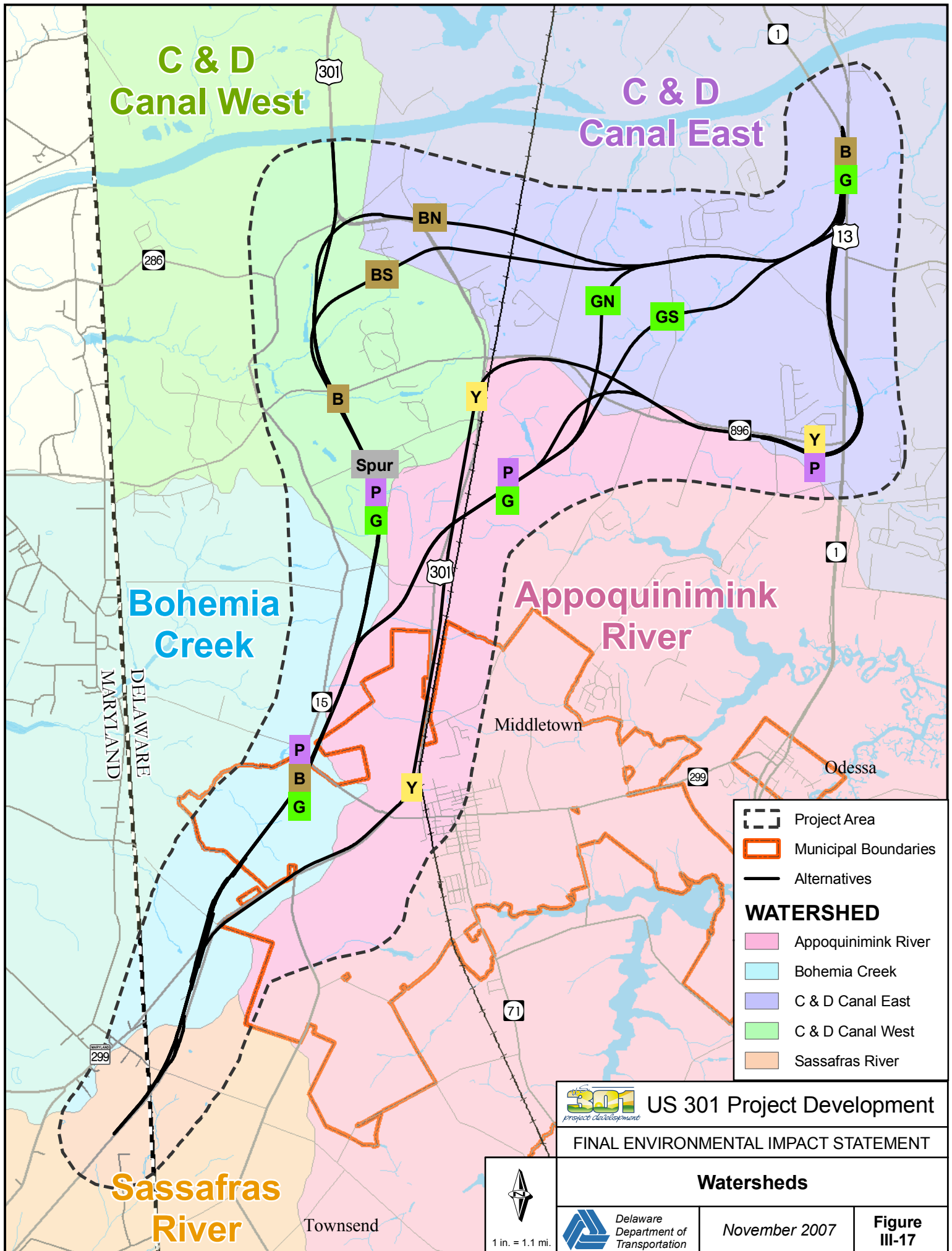
The C&D Canal East Watershed extends south from the SR 40/Porter Road area to approximately SR 896 and from an area outside the project area on the east to approximately US 301 on the west. The C&D Canal West Watershed extends from SR 40/Porter Road on the north to approximately one mile south of Back Creek, and from the vicinity of US 301 on the east, out of the project area into the State of Maryland to the west.

Major surface water bodies in the C&D Canal East Watershed include the C&D Canal and its unnamed tributaries, Crystal Run, Joy Run, Scott Run and its unnamed tributaries and Augustine Creek. Major surface water bodies in the C&D Canal West Watershed include the Chesapeake and Delaware Canal and its unnamed tributaries and Back Creek and its unnamed tributaries.

Lands adjacent to both watersheds consist of federal reservation land currently designated as a wildlife area. Land use within these watersheds is comprised of 56 percent agricultural, 14 percent forest, 10 percent wetland, 9 percent brushland, 4 percent urban/residential and 7 percent other.

Appoquinimink River Watershed

The Appoquinimink River Watershed drains approximately 30,000 acres within the Delaware Bay Basin in southern New Castle County, Delaware. The Appoquinimink River Watershed extends from the C&D Canal East Watershed on the north to approximately one-half mile south of Wiggins Mill Pond on the south, and from an area outside of the project area on the east to an area slightly east of SR 15 on the west.



Major water bodies within the Appoquinimink River Watershed include the main stem of the Appoquinimink River, Drawyers Creek and its unnamed tributaries, Spring Mill Branch and Dove Nest Branch. Man-made ponds and lakes include Shallcross Lake, Noxontown Lake, Silver Lake and Wiggins Mill Pond.

The major land use category in this watershed is agricultural (69 percent) with the remainder consisting of wetland (12 percent), forest (11 percent), urban/residential (3 percent) and other (5 percent). The area is experiencing significant residential growth near its three residential/urban centers, Middletown, Odessa, and Townsend.

Bohemia Creek Watershed

The Bohemia Creek Watershed drains approximately 12,000 acres of western New Castle County, Delaware and eastern Cecil County, Maryland into the Chesapeake Bay Basin. The Bohemia Creek Watershed is bordered by the C&D Canal West Watershed on the north and extends southward to the Sassafras River Watershed approximately one-half mile south of an unnamed tributary of Sandy Branch. The watershed's eastern boundary is located slightly east of SR 15 and extends to the west, outside of the project area, into the State of Maryland. Major surface water bodies within this watershed include Great Bohemia Creek and its unnamed tributaries and Sandy Branch and its unnamed tributaries.

The major land use category in this watershed is agricultural land with forests, wetlands, and residential areas making up the remaining land uses. Pathogens, nutrient loading, physical habitat condition, and water supply are the primary watershed concerns.

Sassafras River Watershed

The Sassafras River watershed drains approximately 48,300 acres within western New Castle County, Delaware and eastern Cecil County, Maryland. The watershed is bordered by the Bohemia Creek Watershed to the north and extends south, outside of the project area. The watershed's eastern boundary roughly parallels SR 15 and extends westward out of the project area into the State of Maryland.

Major surface water bodies within the Sassafras River Watershed include the Sassafras River and several of its unnamed tributaries.

The major land use categories within the watershed include agricultural (68 percent), forest (26 percent), residential (4 percent) and wetlands (2 percent). Pathogens, nutrient loading, physical habitat condition, and water supply are the primary watershed concerns.

(2) Environmental Consequences

The No-Build Alternative would result in no impacts to watersheds within the project area. Impacts to surface water features could potentially result from construction and operation of any of the build alternatives, including the Preferred Alternative. These impacts include: bridge and/or culvert construction at stream crossings, accidental spills of hazardous materials,

sedimentation, bridge shading, removal of riparian vegetation, surface water diversions, potential dewatering, lack of surface water recharge along stream headwaters, and from construction of this project's roadways.

The greatest impact to watersheds from the build alternatives would be from the increase in impervious surfaces created during the construction and expansion of new roadways. The Preferred Alternative would create an additional 238 acres of additional impervious surface area.

A substantial increase in the amount of imperviousness would greatly affect hydrologic conditions, including the frequency, intensity and quantity of surface water runoff within the watershed. Increases in impervious surface area also facilitate the introduction of hazardous materials, sediment and eroded soils into the watershed through increased surface runoff. **Table III-56** shows the amounts of new impervious surface that would be added with each of the build alternatives, as detailed in the DEIS.

Table III-56: Alternatives Impervious Surface Additions

	Yellow	Purple	Brown North	Brown South	Green North (DEIS)	Green South
Acres of Additional Impervious Surface	246	226	217	222	216	220

Potential impacts to surface waters (stream and ditch crossings) could result in potential impacts as discussed in the following paragraphs. The No-Build Alternative would not impact surface waters in the project area. The Preferred Alternative would have 46 impacts to streams and ditches in the project area in the five watersheds impacted by the project (see **Table III-57**).

Table III-57: Numbers of Potential Impacts of the Preferred Alternative to Surface Waters

Watershed			Impacts	Watershed			Impacts
C&D Canal East	Ditches		2	Bohemia Creek	Ditches		5
	Streams		3		Streams		2
C&D Canal West	Ditches		11	Sassafras River	Ditches		8
	Streams		3		Streams		3
Appoquinimink River	Ditches		5	Total Impacts (46)	Ditches		31
	Streams		4		Streams		15

The numbers of impacts of the four build alternatives to streams and ditches, as shown in **Table III-58**, were considered during the evaluation of alternatives and selection of a Preferred Alternative. Potential numbers of impacts to surface waters ranged between 57 for the Yellow Alternative and 39 for the Brown South Alternative. These impacts reflect an update over those shown in the DEIS, because the data were reported for a more preliminary level of engineering detail than was completed for the DEIS.

Table III-58: Potential Impacts of the Retained Alternatives to Surface Waters

Alternative		Yellow	Purple	Brown North	Brown South	Green North (DEIS)	Green South
C&D Canal East	Ditches	16	12	6	5	4	3
	Streams	2	2	10	7	3	4
C&D Canal West	Ditches	5	9	10	6	9	9
	Streams	0	5	4	4	5	5
Appoquinimink River	Ditches	14	1	1	1	4	4
	Streams	1	0	0	0	3	4
Bohemia Creek	Ditches	6	2	2	2	2	2
	Streams	3	4	4	4	4	4
Sassafras River	Ditches	8	8	8	8	8	8
	Streams	2	2	2	2	2	2
Total Surface Water Feature Impacts	Ditches	49	35	27	22	27	26
	Streams	8	16	20	17	17	19
Total Impacts		57	51	47	39	44	45

NOTE: Ditches and Streams are waters of the US not included in wetlands

Construction of bridges or culverts over stream crossings resulting from any of the build alternatives could affect surface water features by altering stream morphology and stream bank stability. Spills of hazardous materials on roadways during and after construction may directly enter surface waters. Sediment from construction activities and improper erosion controls after construction may lead to grade changes, and increased erosion in surface waters. Bridge shading and riparian vegetation removal can result in a change to the amount and type of riparian habitat cover and affect water temperature potentially leading to a change in the thermal chemistry of the stream. Surface water diversions could potentially affect stream base flow and increase the possibility of flash flood storm events. Impacts along headwater streams may result in a loss of surface water recharge to a stream system or potential dewatering of headwaters. The construction of new roadways and the expansion of existing road surfaces along surface water features could potentially decrease the amount of vegetated riparian buffer and increase the amount of impervious surface.

Additional impacts to surface water features may occur as a result of activities related to each of the build alternatives including: increased stormwater runoff from impervious surfaces, greater influx of pollutants including sediment into surface water features, temporary disturbance resulting from construction activities, and increased stream velocities and bank erosion rates.

The construction of new road surfaces will increase the amount of impervious surface area within the watershed and also the amount and intensity of stormwater runoff entering surface water features within the project area. The increased traffic on these new roadways may lead to a greater amount of water pollution. Pollutants such as oil, grease, heavy metals, sediment, organics, and nutrients transported from road surfaces via stormwater runoff can be released into nearby streams. During construction activities related to the project, temporary impacts may result due to the disturbance of adjacent land areas and in-stream activities. The disturbance of stream banks and an increase in the amount of runoff can result in a dramatic increase in stream velocities, stream discharge rates, erosion potential and other hydrologic stream functions.

(3) Mitigation

Mitigation options for watersheds that will be used include the construction of stormwater management facilities to handle the increased stormwater runoff that will occur due to more impervious surface areas. These stormwater management facilities manage the flow and discharge of stormwater into the streams and rivers located in the project area and reduce the possibility and effects of increased pollution, erosion, and morphological stream changes. In order to meet the stormwater management requirements for the project, a combination of structural and non-structural stormwater management facilities will be utilized. To the extent practicable, the project will incorporate the use of “Green Technology” Best Management Practices (BMPs) in fulfilling the stormwater management requirements for the project. Green Technology practices include filter strips, biofiltration swales, bioretention, and infiltration trenches. More traditional facilities such as wet and dry ponds will be utilized where the use of Green Technologies is not feasible to meet the stormwater management requirements. Due to right-of-way, utility or environmental constraints, the use of underground stormwater treatment structures, such as filtration structures, hydraulic separators and catch basin inserts may be utilized.

In order to prevent stream degradation, water quality impairment, and flooding associated with construction projects, Delaware’s Sediment and Stormwater Regulations require that stormwater management measures (BMPs) be implemented. DNREC has delegated approval authority for stormwater management to DelDOT for DelDOT projects. South of the C&D Canal, runoff must be limited to predevelopment levels for the 2-year and 10-year design storms to prevent flooding and channel erosion, referred to as *quantity* management. To address water *quality* impacts of construction, the runoff from the lesser of the one-year, 24-hour design storm, or one inch, must be treated in BMPs to reduce sediment, nutrient, and toxics loadings to waterways. Stormwater management BMPs require additional right-of-way and may sometimes need to be located within wetland or other sensitive areas. Therefore, the build alternatives were assessed to determine stormwater management requirements for each, and identify the size and location of potential stormwater management sites, and resulting effects on the project limits of disturbance.

The US 301 roadway typical section includes 4-foot wide side ditches, which, along with the proposed 4:1 side slopes and available safety grading, provide an adequate section for water quality treatment using non-structural BMPs such as bioswales, in keeping with the DNREC preference for ‘green design’ type BMPs. Additional structural BMPs are required for quantity management. Potential SWM pond locations were identified based on topography and proposed roadway horizontal and vertical alignments. Wherever possible, wetlands and historic properties were avoided. Using an adaptation of the methods recommended in Maryland SHA Highway Hydraulic’s Division April 2003 *Stormwater Management Concept Report Guidelines*, the required stormwater pond sizes were estimated as described below:

- Runoff volumes were estimated for the 2-year and 10-year storm events, assuming a Runoff Curve Number of 90 within the roadway cut/fill limits
- Storage volume was estimated for each storm, using 50 percent of the runoff volume for the 2-year event, and 40 percent of the runoff volume for the 10-year event, both with a safety factor of 1.3.

- Surface area requirements were computed for each storm, assuming 2 feet of depth for the 2-year volume, and 3 feet of depth for the 10-year volume
- The required pond/structural BMP area was estimated as the larger of the 2-year and 10-year computed surface area, times 1.25

Preliminary stormwater management facility locations shown in the DEIS have been refined and modified for the Preferred Alternative. These locations, based on hydrology studies during detailed engineering, are shown on the plan sheets in **Appendix B**, along with the project limits of disturbance. Using the method outlined above, the approximate area required for stormwater management facilities would be 7 percent of proposed area for each alternative.

By constructing bridges over surface water features, the impact is minimized to a more narrow area. By constructing bridges over sensitive features, the amount of impact to adjacent resources can be avoided completely or greatly decreased.

During construction activities, the implementation of best management practices (BMPs) such as limiting the period allowed for instream construction work can reduce potential impacts to streams and watersheds.

Additional mitigation would include riparian buffer restoration and enhancement. Riparian buffers protect surface waters by reducing thermal impact and attenuating surface runoff. Riparian vegetation would be planted along stream corridors to create new riparian buffers or planted adjacent to existing vegetation to enlarge existing undersized buffers.

b. Water Quality

(1) Existing Conditions

The Delaware Water Quality Standards Program has defined “designated uses” for each water body as specified in the water quality standards. Designated use standards require that potential uses of water are protected, even if they are not currently being attained. There are currently nine designated uses of water in the State of Delaware as follows:

- Public Water Supply
- Primary Contact Recreation (Swimming)
- Secondary Contact Recreation (Wading)
- Agricultural Water Supply
- Industrial Water Supply
- Fish Aquatic Life and Wildlife
- ERESE Waters (Waters of Exceptional Recreational and Ecological Significance)
- Cold Water Fish
- Harvestable Shellfish Waters

DNREC has obtained water quality data for several of the surface water features located within the project area (**Table III-59**). Water bodies in this area are routinely monitored for typical water quality parameters (*i.e.*, pH, temperature, dissolved oxygen (DO), etc.). Water quality data

Question 22

Supporting Documentation

22-C

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LEGEND	
	PROPOSED DRAINAGE AREA BOUNDARY
	SUBAREA DRAINAGE BOUNDARY
	PROPOSED STORM DRAIN
	DITCH FLOWLINE
	IMPERVIOUS AREA
	OPEN SPACE
	FARMSTEAD
	WOODS
	WATER
	OFFSITE DIVERTED AREA
	POI LABEL
	BIOFILTRATION SWALE
	INFILTRATION TRENCH
	SOIL BORING AND INFILTRATION TEST
	INFILTRATION TEST
	RIPRAP

SUBAREA 787-OFFSITE A
TOTAL DA: 6.17 AC.
TC: 0.27 HR
RCN: 82
IMPERVIOUS: 0.12 AC.
OPEN SPACE, GOOD COND'N (B): 0.22 AC.
FARMLAND, GOOD COND'N (B): 5.83 AC.

SUBAREA 787-k
BIOFILTRATION SWALE
BMP NO. 743
TOTAL DA: 6.67 AC.
SEE DURMM SPREADSHEET

SUBAREA 787-OFFSITE B
TOTAL DA: 6.00 AC.
TC: 0.29 HR
RCN: 76
OPEN SPACE, GOOD COND'N (B): 1.87 AC.
FARMLAND, GOOD COND'N (B): 4.14 AC.

SUBAREA 787-B
TOTAL DA: 18.40 AC.
TC: 0.47 HR
RCN: 70
IMPERVIOUS: 4.36 AC.
OPEN SPACE, GOOD COND'N (B): 14.04 AC.

SUBAREA 787-h
BIOFILTRATION SWALE
BMP NO. 728
TOTAL DA: 1.29 AC.
SEE DURMM SPREADSHEET

SUBAREA 787-l
BIOFILTRATION SWALE
BMP NO. 729
TOTAL DA: 0.51 AC.
SEE DURMM SPREADSHEET

SUBAREA 787-g
BIOFILTRATION SWALE
BMP NO. 727
TOTAL DA: 1.45 AC.
SEE DURMM SPREADSHEET

SUBAREA 787-n
INFILTRATION TRENCH
BMP NO. 745
TOTAL DA: 1.98 AC.
SEE DURMM SPREADSHEET

SUBAREA 787-A
TOTAL DA: 27.45 AC.
TC: 0.45 HR
RCN: 71
IMPERVIOUS: 6.39 AC.
FARMLAND, GOOD COND'N (B): 1.25 AC.
OPEN SPACE, GOOD COND'N (B): 19.81 AC.

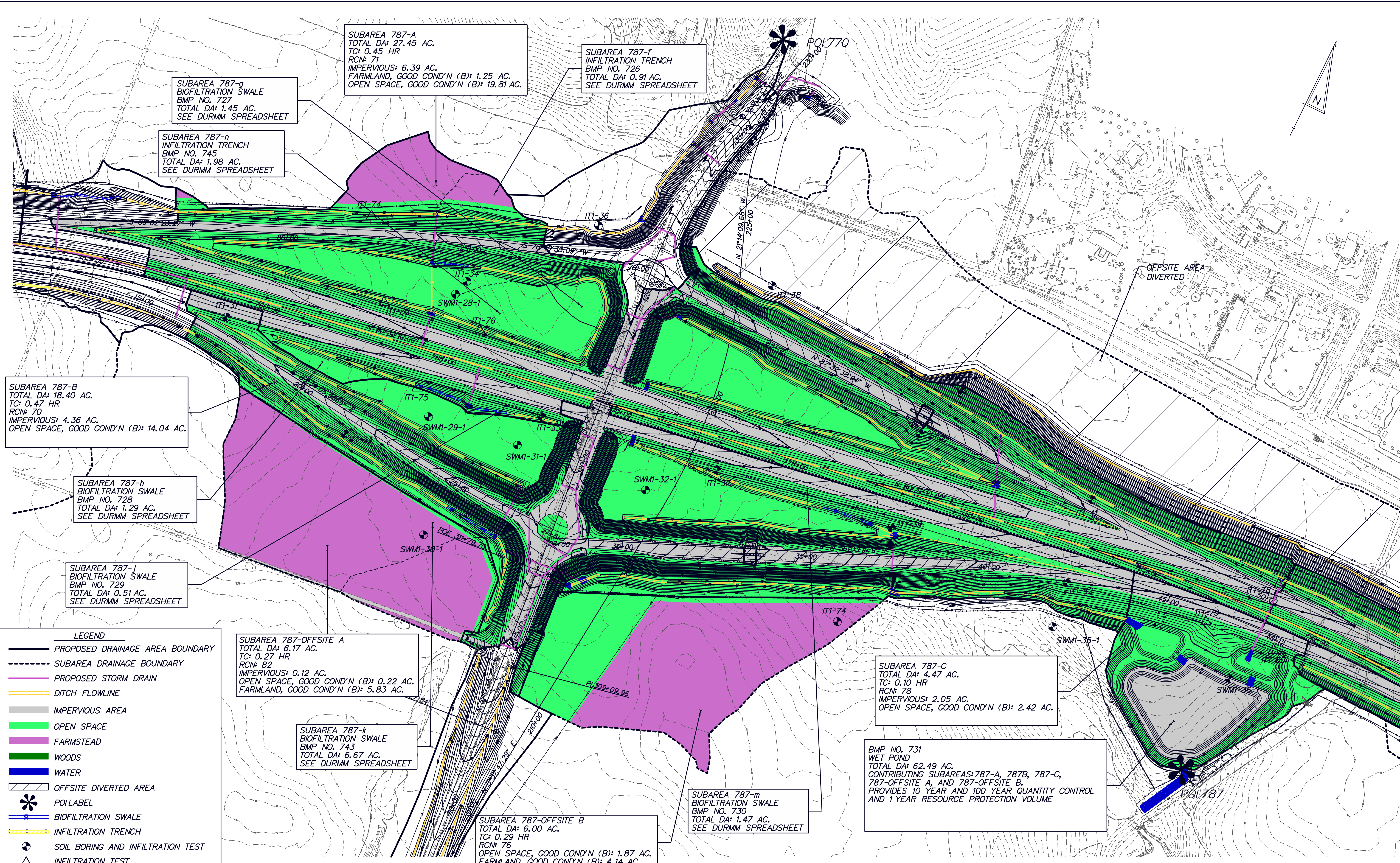
SUBAREA 787-f
INFILTRATION TRENCH
BMP NO. 726
TOTAL DA: 0.91 AC.
SEE DURMM SPREADSHEET

SUBAREA 787-C
TOTAL DA: 4.47 AC.
TC: 0.10 HR
RCN: 78
IMPERVIOUS: 2.05 AC.
OPEN SPACE, GOOD COND'N (B): 2.42 AC.

BMP NO. 731
WET POND
TOTAL DA: 62.49 AC.
CONTRIBUTING SUBAREAS: 787-A, 787B, 787-C,
787-OFFSITE A, AND 787-OFFSITE B.
PROVIDES 10 YEAR AND 100 YEAR QUANTITY CONTROL
AND 1 YEAR RESOURCE PROTECTION VOLUME

SUBAREA 787-m
BIOFILTRATION SWALE
BMP NO. 730
TOTAL DA: 1.47 AC.
SEE DURMM SPREADSHEET

OFFSITE AREA
DIVERTED



ADDENDUMS / REVISIONS



Question 22

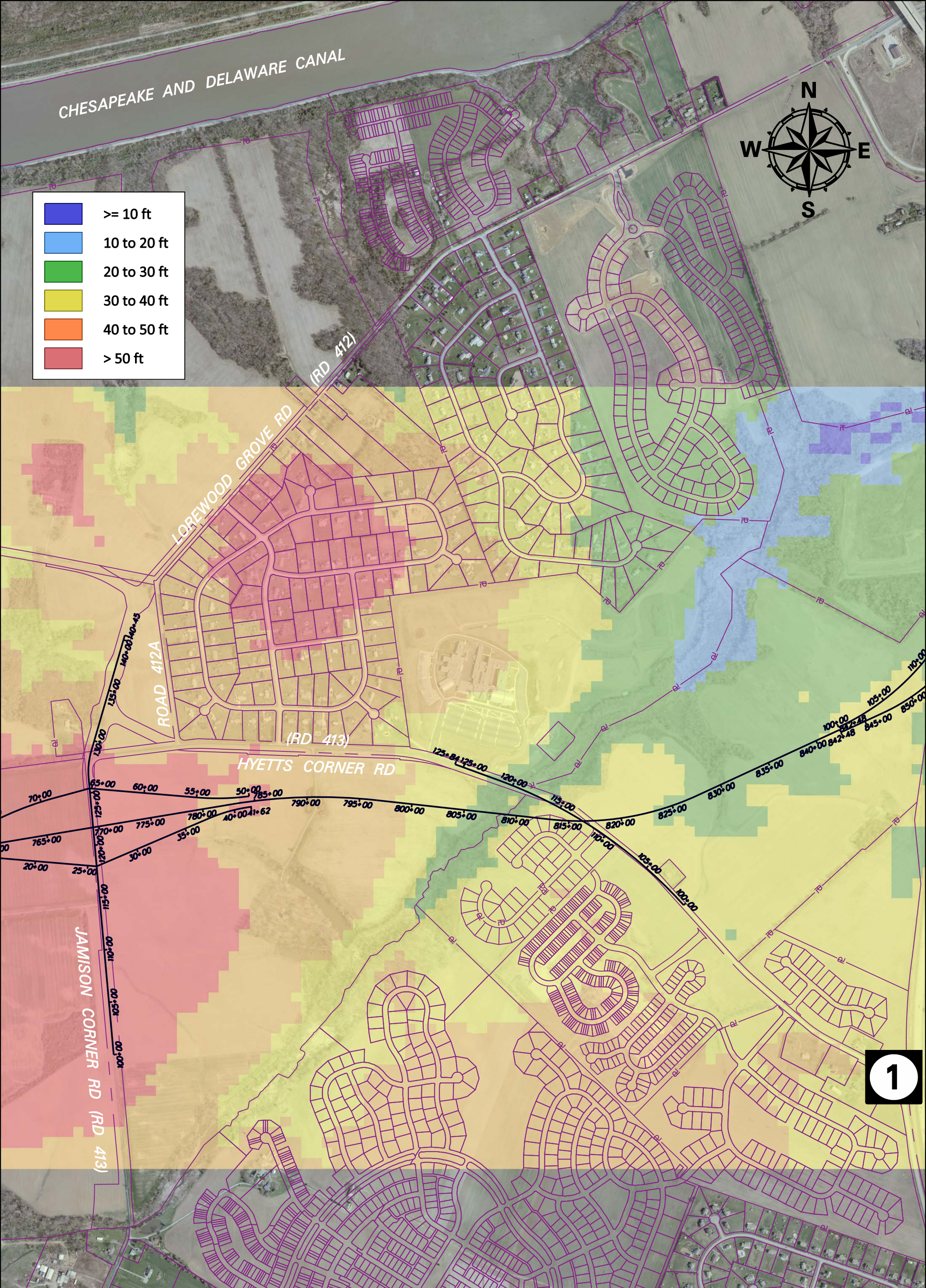
Supporting Documentation

22-D

Question 22

Supporting Documentation

22-E



Source: The map projection and coordinate system are Universal Transverse Mercator, Zone 18 North (UTM18) with an NAD83 Datum and units of meters. Grid values for elevations are in feet relative to the NAVD 1988 datum. Files are in ESRI, Inc., grid format. REFERENCES CITED Andres, A. S., and Martin, M. J., 2005, Estimation of the water-table surface for the Inland Bays watershed, Delaware: Delaware Geological Survey Report of Investigations No. 68, 20p. ESRI, 2004, ArcMap v. 9, Redlands, California. Sepulveda, N., 2003, A statistical estimator of the spatial distribution of the water-table altitude: Ground Water, vol. 41, p. 66-71.

GROUNDWATER TABLE ELEVATION US 301 NEAR AIRMONT SUBDIVISION

DRAFT 03/15/13

SCALE



Airmont Questions and Concerns as to 301 Project

APRIL 4, 2013

<p>23. Impact Upon, Destruction or Disruption of Man-Made and Natural Resources, and Aesthetic Values (NEPA Issue)</p>	<ul style="list-style-type: none"> - NEPA <u>requires</u> all proposed highway projects to evaluate and fully consider such adverse <u>effects and impacts upon, destruction or disruption of man-made and natural resources, and aesthetic values.</u> - Most of the impacted neighborhoods are in the midst of open fields, and as such, have a high aesthetic value due to such locations. - DelDOT failed to address in any of their reports any impacts for this topic. - DelDOT is obligated to prepare a detailed report of the expected/potential effects and impacts upon, destruction or disruption of man-made and natural resources, and their requisite aesthetic values, and the effect upon the impacted residents. - DelDOT will need to prepare a supplemental EIS.
<p>23-A: DEIS Pages III-40 and III-41</p>	<p><i>The effects of the project on man-made and natural resources are evaluated and the results presented in Section III of the DEIS and FEIS.</i></p>
<p>23-B: Pages III-45 and III-46</p>	<p><i>The aesthetics of adjacent communities have been considered and will be mitigated through the provision of landscaped visual earth berms between US 301 and adjacent communities (see response to question 1). Also, aesthetics are evaluated and the results presented on pages III-40 and III-41 of the DEIS and pages III-45 and III-46 of the FEIS.</i></p> <p><i>Additional berms are proposed for Middletown Village, Spring Arbor, Springmill, Summit Bridge Farms and Chesapeake Meadow.</i></p> <p><i>A supplemental EIS is not required. See response to question 13 on pages 13-4 and 13-5.</i></p>

Question 23

Supporting Documentation

23-A

Completion of any of the build alternatives is anticipated to 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.

Each of the build alternatives would impact a number of existing businesses (refer to Section A.6.a, **Table III-11**) 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 the implementation of a build alternative. The build alternatives may 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.

9. Visual and Aesthetic Characteristics

a. Existing Conditions

Within the project area, the visual landscape can be separated into distinct types. To the south and west of Middletown, the landscape is rural in character, consisting mostly of active farmlands (both cropland and horse farms), interspersed wooded areas, historic and more modern farm buildings clustered around farmhouses, and scattered roadside businesses along two-lane roads. Northward, along the ridge route, the look and feel of rural farmland persists, changing toward the northern portion of the project area to include a landscape of modern, single family housing developments intermixed with productive farming areas and open space. Housing developments are clustered close to the Summit Bridge and along the south side of the C&D Canal in the northern portion of the project area, in between existing active farmlands and open fields. This landscape persists along SR 896 (Boyds Corner Road).

The heart of the project area includes the Middletown townscape. An historic district centered at the intersection of Main Street (SR 299) and Broad Street (SR 71) is surrounded by progressively modern structures and well-kept older buildings. The town's landscape still retains a small, rural town feel, although the landscape is continually changing. A new Town Hall and Fire Department are among the latest additions. Newly constructed business and medical centers and small retail centers/strip malls line the main routes that access the town (US 301, SR 299, SR 71). The Norfolk Southern Railroad alignment parallels SR 71 through a portion of the town. North of Middletown, along existing US 301, the landscape is a rural/suburban mix of housing types, historic homes, forested land, and businesses that front the roadway. The Summit Airport covers a large parcel of land north of the town, south of the C&D Canal, in the midst of farms (corn is grown on a portion of the airport's land) and other business enterprises.

There is a new visual aspect and feeling in the project area that is associated with the many newer housing developments that proliferate. Mostly single family homes on modest-sized lots, these new developments have contributed new elements to the disappearing rural farm country

that was once southern New Castle County. New schools under construction include Cedar Lane Middle School, the St. Georges Technical High School on Hyetts Corner Road, and Appoquinimink High School at the southern end of Choptank Road. The Brick Mill Elementary School has enrolled two years. New shopping centers and service-oriented businesses have accompanied this phenomenal residential growth.

b. Environmental Consequences

The No-Build Alternative will have no effect on the visual or aesthetic quality of the project area. Except for the effects of increasing congestion on the roadways, the landscape will continue to evolve from its former rural character to a more suburban nature.

All of the build alternatives would change the aesthetic view of the landscape and the viewsheds that surround them. The construction of a four-lane limited access freeway within the rural and suburban landscape will affect the visual quality of the views of properties immediately surrounding the new roadway as well as other views that are somewhat distant. Although designed to limit impacts to existing natural land cover, farmlands, forests, and open spaces will change in character. In many places, the views of farm fields will be replaced by concrete roadway and traffic, such as along the length of the spur road (Purple and Green Alternatives). The visual effects of the roadway cannot be quantified, but the new roadway will be visible from numerous homes, some of which are historic.

New US 301 will be designed to be at-grade or below grade in most areas, but will be elevated up to 25 feet above grade at overpasses and as high as 30 feet above grade at the interchange with SR 1. In some locations, such as adjacent to the Grande View Farms development, the roadway will remain elevated for over 2,000 feet with the Yellow and Purple Alternatives. Earthworks, graded and landscaped, will support overpassing roadways and access ramps wherever possible, and stormwater management ponds will be designed with sensitive native and wetland plantings. Low bridge structures will cross streams and sensitive wetland areas.

Additional visual impacts along US 301 will result from the installation of overhead signage and toll collection facilities that include a toll plaza near the Delaware/Maryland line and collection facilities on north-serving ramps.

c. Mitigation

Earth berms are proposed to be constructed in several locations along US 301, including adjacent to the communities of Southridge, Middletown Village, Springmill, Chesapeake Meadow, Summit Bridge Farms, residences on Ratledge Road, Lea Eara Farms and Airmont, in order to screen these residential areas from the new roadway construction. The proposed berms would be between 1,400 feet and 2,840 feet long and would be between six feet and 16 feet high. In addition, visual and aesthetic effects to historic properties would be evaluated and considered for mitigation, which could be in the form of earthen berms, privacy screens or fencing. Mitigation will be considered in coordination with the Delaware SHPO and affected property owners but has not yet been determined.

Question 23

Supporting Documentation

23-B

9. Visual and Aesthetic Characteristics

a. Existing Conditions

Within the project area, the visual landscape can be separated into distinct types. To the south and west of Middletown, the landscape is rural in character, consisting mostly of active farmlands (both cropland and horse farms), interspersed wooded areas, historic and more modern farm buildings clustered around farmhouses, and scattered roadside businesses along two-lane roads. Northward, along the ridge route, the look and feel of rural farmland persists, changing toward the northern portion of the project area to include a landscape of modern, single family housing developments intermixed with productive farming areas and open space. Housing developments are clustered close to the Summit Bridge and along the south side of the C&D Canal in the northern portion of the project area, in between existing active farmlands and open fields. This landscape persists along SR 896 (Boyd's Corner Road).

The heart of the project area includes the Middletown townscape. An historic district centered at the intersection of Main Street (SR 299) and Broad Street (SR 71) is surrounded by progressively modern structures and well-kept older buildings. The town's landscape still retains a small, rural town feel, although the landscape is continually changing. A new Town Hall and Fire Department are among the latest additions. Newly constructed business and medical centers and small retail centers/strip malls line the main routes that access the town (US 301, SR 299, SR 71). The Norfolk Southern Railroad alignment parallels SR 71 through a portion of the town. North of Middletown, along existing US 301, the landscape is a rural/suburban mix of housing types, historic homes, forested land, and businesses that front the roadway. The Summit Airport covers a large parcel of land north of the town, south of the C&D Canal, in the midst of farms (corn is grown on a portion of the airport's land) and other business enterprises.

There is a new visual aspect and feeling in the project area that is associated with the many newer housing developments that proliferate. Mostly single family homes on modest-sized lots, these new developments have contributed new elements to the disappearing rural farm country that was once southern New Castle County. Two new schools are under construction: Alfred G. Waters Lane Middle School (in the Cedar Lane Campus) and Appoquinimink High School at the southern end of Choptank Road. St. Georges Technical High School on Hyetts Corner Road enrolled its first class in 2006, and Brick Mill Elementary School opened for classes in 2003. New shopping centers and service-oriented businesses have accompanied this phenomenal residential growth.

b. Environmental Consequences

The No-Build Alternative will have no effect on the visual or aesthetic quality of the project area. Except for the effects of increasing congestion on the roadways, the landscape will continue to evolve from its former rural character to a more suburban nature.

All of the build alternatives, including the Preferred Alternative, would change the aesthetic view of the landscape and the viewsheds that surround them. The construction of a four-lane limited access freeway within the rural and suburban landscape will affect the visual quality of the views

of properties immediately surrounding the new roadway as well as other views that are somewhat distant. Although designed to limit impacts to existing natural land cover, farmlands, forests, and open spaces will change in character. In many places, the views of farm fields will be replaced by concrete roadway and traffic, such as along the length of the spur road (Purple and Green Alternatives). The visual effects of the roadway cannot be quantified, but the new roadway will be visible from numerous homes, some of which are historic.

New US 301 will be designed to be at-grade or below grade in many areas, but will be elevated up to 25 feet above existing ground at overpasses and as high as 30 feet above grade at the interchange with SR 1. In some locations, such as adjacent to the Grande View Farms development, the roadway will remain elevated for over 2,000 feet with the Yellow and Purple Alternatives. Earthworks, graded and landscaped, will support overpassing roadways and access ramps wherever possible, and stormwater management ponds will be designed with sensitive native and wetland plantings. Low bridge structures will cross streams and sensitive wetland areas.

Additional visual impacts along US 301 will result from the installation of overhead signage and toll collection facilities that include a toll plaza near the Delaware/Maryland line and collection facilities on north-serving ramps. Highway lighting, planned for installation at toll plazas and ramp/interchanges, will also affect those communities and individual homes close to the roadway.

c. Mitigation

Earth berms are proposed to be constructed in several locations along US 301 under all of the build alternatives, including adjacent to the communities of Southridge, Middletown Village, Springmill, Chesapeake Meadow, Summit Bridge Farms (Brown only), Lea Eara Farms (Brown only) and Airmont, in order to screen these residential areas from the new roadway. The proposed berms would be between 1,400 feet and 2,840 feet long and would be between six feet and 16 feet high. Wherever possible, visual earth berms will be installed prior to roadway construction, to shield communities from construction impacts. In addition, visual and aesthetic effects to historic properties have been evaluated for the Preferred Alternative and will be considered for mitigation, which could be in the form of berms, privacy screens or fencing. Mitigation will be considered in consultation with the Delaware SHPO and affected property owners as detailed in the draft MOA included in ***Appendix H***.

The roadway design includes a wide (66 feet in most places) median with appropriate landscaping. Appropriate tree plantings may be included along the outside of the roadway during the final design, to provide some additional visual screening. Wherever possible, the roadway would be constructed at-grade or below, and, in most locations where overpasses are required, the smaller, local roadway will be elevated to cross over the larger US 301 roadway to lessen the visual impacts on the surrounding community. Roadway lighting, where required for safety considerations, would be designed to focus its effect on the roadway and lessen the visual impact of light on the surrounding landscape. Minimization of roadway lighting effects will be determined during final design.

Airmont Questions and Concerns as to 301 Project

APRIL 4, 2013

<p>24. DelDOT's Obligations in Preparation of Such Reports</p> <p>24-A: "The Daily Journal of the United States Government Notice of Final Federal Agency Actions on Proposed Highway in Delaware"</p>	<ul style="list-style-type: none"> - DelDOT has an obligation to prepare the necessary and required reports in an objective manner. - To date, that has not occurred. <p><i>A supplemental EIS is not required. See response to question 13 on pages 13-4 and 13-5.</i></p> <p><i>The Airmont Community Association (Ms. Wanda James and Mr. Chuck Ott) was provided a copy of the FEIS in November 2007 (see Sections VI, pages VI-5 and VI-6, respectively).</i></p> <ul style="list-style-type: none"> - For example, in the initial ROD/EIS Reports, DelDOT stated as one of the reasons for the new highway was to decrease the risk of accidents. DelDOT is well aware that there is research that exists that clearly shows that while new highways may reduce accidents from congested non-highways, the accidents on the new highways have the potential and will result in more serious injuries due to higher traffic speeds/impacts on the highways. DelDOT did not disclose this research in any of their reports. <p><i>The FEIS presents the safety analysis conducted for the study, including an estimation of the total number of crashes per Million Vehicle Miles Travelled (MVMT) on five (5) of the key roads within the study area (see pages III-191 to 193). Compared to the No-Build condition, the Build alternative is projected to decrease the total number of crashes on these roads by approximately 28%. Additionally, the overall crash rate for these roads, including the new US 301 alignment were projected, and the results indicate that the Build alternative would have a lower overall crash rate than the No Build alternative. The FEIS goes on to say:</i></p> <p><i>"The values presented in Table III-71 and Table III-72 account for all reported accidents, including property damage accidents, personal injury accidents, and fatal accidents. Accident estimates specifically regarding injuries and fatalities are more difficult to quantify. However, it is anticipated that the number of serious accidents would be reduced proportionally as the overall number of accidents is reduced. Furthermore, because each of the build alternatives separates truck traffic from local traffic and the severity of an accident generally increases when a heavy vehicle collides with a smaller vehicle, having a reduced percentage of heavy vehicles in the traffic stream should further reduce the likelihood of injury and fatal accidents under the build alternatives."</i></p> <ul style="list-style-type: none"> - By way of further example, DelDOT conveniently failed to advise the public and legislators that toll plazas by themselves are an inherent safety risk. A review of other States' toll plaza accidents has found that: <ul style="list-style-type: none"> (a) In IL, 49% of state interstate accidents are at toll plazas and three times as many people die in them as in accidents on the road itself; (b) 30% of all accidents on PA toll highway occur at toll plazas; (c) 38% of all accidents on NJ toll highways are toll plaza accidents. <p><i><u>It is true that conventional (cash-only) toll plazas tend to be a higher accident location than other portions of the roadway. However, conventional toll plazas are not proposed for US 301.</u></i></p>
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Airmont Questions and Concerns as to 301 Project

APRIL 4, 2013

Two options are currently under consideration, regarding toll collection facilities; All Electronic Tolling (AET) and Open Road Tolling (ORT + Cash).

AET would completely remove all toll booths from the mainline plaza. Under this scenario, ALL vehicles would continue travelling at highway speeds through the toll plaza, eliminating the need for vehicles to stop and pay a toll, thereby also eliminating congestion or associated safety risks at the toll plaza.

The second option, ORT lanes and satellite cash collection lanes, are similar to the design of the mainline toll plazas on SR 1 and the recently reconstructed toll plaza on I-95 near the MD/DE state line. These plazas allow vehicles equipped with E-ZPass, which represent the majority of vehicles on the road, to continue travelling at highway speeds through the toll plaza, eliminating the need for them to stop and pay a toll. As a result, these vehicles would face no additional safety risk as they traveled through the toll plaza than they would elsewhere along US 301. ORT would offer an uncongested, non-stop alternative for motorists with E-ZPass, expected to be 60-80% of the total traffic on US 301, to pay the toll electronically at highway speed. Only the remaining traffic that chooses not to use E-ZPass would be required to stop to pay a toll. As a result, the volume of traffic using the satellite cash-collection toll booths is projected to be sufficiently low that only minimal queuing is projected at those booths, reducing the risk of crashes.

The safety record of the mainline toll plazas on SR 1 is far different than the examples cited from IL, PA and NJ. In Delaware, less than 3% of all crashes occurring on SR 1 in the 3-year period from 2010 through 2012 occurred at the Dover or Biddles toll plazas. Again, tolls on US 301 will either be collected using AET, which would completely eliminate all mainline toll booths from the project, or with ORT+Cash, which would be designed and operated similar to the Dover and Biddles mainline toll plazas on SR 1.

With regard to the ramp toll plazas, again, AET would completely remove all toll booths from the ramps. Under this scenario, there would be no need for vehicles to stop and pay a toll, thereby eliminating any risk of toll-plaza related crashes. With the second option, ORT + Cash, the ramps would be designed in a very similar manner to the tolled ramps on SR 1; vehicles equipped with E-ZPass, which represent the majority of vehicles on the road, would be permitted to travel through the toll plaza without stopping. A cash collection lane would also be provided for the remaining vehicles, whose drivers would use automated toll payment kiosks. Crash rates and severity would be expected to be low at these ramp plazas, as speeds are significantly lower on ramps than on the freeway, and drivers expect to decelerate and stop at freeway ramp termini. It should be noted that the ramp exiting southbound US 301 to Jamison Corner Road is on an upgrade, aiding in deceleration. Ramps are designed with relatively straight approaches to the ramp toll plazas, providing good visibility of the toll booths.

Question 24

Supporting Documentation

24-A

The Daily Journal of the United States Government

Notice

Notice of Final Federal Agency Actions on Proposed Highway in Delaware

A Notice by the [Federal Highway Administration](#) on [09/18/2008](#)

Summary

This notice announces actions taken by the FHWA and other Federal agencies that are final within the meaning of [23 U.S.C. 139](#)(1)(1). The actions relate to: a proposed highway project, the U.S. 301: MD/DE Line to SR1, South of the CD Canal, New Castle County, Delaware, including the new 13 mile long U.S. 301 mainline on new alignment between the Delaware/Maryland state line and State Route (SR) 1, and the new 3.5 mile long Spur Road, on new alignment from proposed U.S. 301 in the vicinity of Armstrong Corner Road to the Summit Bridge, south of the Chesapeake and Delaware (CD) Canal, State of Delaware. Those actions grant approvals for both parts of the proposed project.

SUPPLEMENTARY INFORMATION:

Notice is hereby given that the FHWA and other Federal agencies have taken final agency actions by issuing licenses, permits and approvals for the proposed construction of new U.S. 301 in the State of Delaware that is described below. The actions by the Federal agencies on the project, and the laws under which such actions were taken, are described in the Final Environmental Impact Statement (FEIS) for the project approved on November 30, 2007 and issued on December 14, 2007 (FR Vol. 72, No. 240, p. 71138) and in the FHWA Record of Decision (ROD) issued on April 30, 2008, and in other project records. The FEIS, ROD, and other records for the project are available by contacting the FHWA or the Delaware Department of Transportation at the addresses provided above. In addition, the FEIS and ROD can be viewed and downloaded electronically from the project Web site, <http://www.deldot.gov/information/projects/us301/>, or viewed at public libraries and other public venues in the relevant project area.

This notice applies to all Federal agency decisions on the listed project as of the issuance date of this notice and all laws under which such actions were taken. The laws under which Federal agency decisions were made on the project include, but are not limited to:

1. *General:* National Environmental Policy Act (NEPA) [[42 U.S.C. 4321](#)-4351]; Federal-Aid Highway Act [[23 U.S.C. 109](#)].

2. *Wetlands and Water Resources*: Clean Water Act [[33 U.S.C. 1251](#)-1377] (Section 404, Section 401, Section 319); TEA-21 Wetlands Mitigation [[23 U.S.C. 103](#)(b)(6)(m), 133(b)(11)]; Coastal Zone Management Act [[16 U.S.C. 1451](#)-1465].

3. *Air*: Clean Air Act [[42 U.S.C. 7401](#)-7671(q) and applicable regulations promulgated under [40 CFR 93](#)].

4. *Wildlife*: Endangered Species Act [[16 U.S.C. 1531](#)-1544 and Section 1536]; Bald Eagle Protection Act [[16 U.S.C. 668](#)-668d]; Migratory Bird Treaty Act [[16 U.S.C. 703](#)-712].

5. *Historic and Cultural Resources*: Section 106 of the National Historic Preservation Act of 1966, as amended [[16 U.S.C. 470](#)(f) *et seq.*]; Archaeological Resources Protection Act of 1977 [[16 U.S.C. 470](#)(aa)-(ii)]; Archaeological and Historic Preservation Act [[16 U.S.C. 469](#)-469(c)]; Native American Grave Protection and Repatriation Act (NAGPRA) [[25 U.S.C. 3001](#)-3013].

6. *Land*: Farmland Protection Policy Act (FPPA) [[7 U.S.C. 4201](#)-4209]; Section 4(f) of the Department of Transportation Act of 1966 [[49 U.S.C. 303](#)].

7. *Social and Economic*: Civil Rights Act of 1964 [[42 U.S.C. 2000](#)(d)-2000(d)(1)]; The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended [[23 CFR 450.318](#)].

8. *Executive Orders*: Executive Order (E.O.) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations; E.O. 11593, Protection and Enhancement of Cultural Resources; [E.O. 13175](#), Consultation and Coordination with Indian Tribal Governments; E.O. 11514, Protection and Enhancement of Environmental Quality; E.O. 11990, Protection of Wetlands; E.O. 11988, Floodplain Management; [E.O. 13112](#), Invasive Species.

The project subject to this notice is: U.S. 301: MD/DE Line to SR1, South of the CD Canal. Project Location: New Castle County, Delaware. Project Reference number: 52-0599112.

Project Type: The Selected Alternative will provide a four-lane, tolled, limited access roadway on a new location, extending generally northward from the Maryland/Delaware state line, west of Middletown, to the vicinity of Armstrong Corner Road, where the new U.S. 301 mainline alignment will curve and extend northeast, crossing over existing U.S. 301, the Norfolk Southern Railroad, and existing SR 896 (Boyd's Corner Road) before curving and extending east and tying into SR 1, north of the Biddles Corner Toll Plaza and south of the CD Canal. Near Armstrong Corner Road, a two-lane, limited access, tolled Spur Road will extend north from new U.S. 301, on a new location to interchange with SR 15/SR 896 south of Summit Bridge and the CD Canal. The U.S. 301 portion of the Selected Alternative will provide two 12-foot wide lanes in each direction and interchanges with: Levels Road, existing U.S. 301 north of Armstrong Corner Road, Jamison Corner Road, and SR 1 north of the Biddles Toll Plaza and south of the CD Canal. The Spur Road portion of the Selected Alternative will provide one 12-foot lane in each direction and interchanges with new U.S. 301 near Armstrong Corner Road and SR 896/Bethel Church Road Extended (toll free), south of Summit Bridge. The Selected Alternative includes

interchange Option 2A at existing U.S. 301, north of Armstrong Corner Road, Interchange Option 3B at SR 896/Bethel Church Road Extended, south of Summit Bridge, Alignment Option 4B Modified in the Ratledge Road/Boyd's Corner Road area, and Alignment Option 1 Modified for the local road connection between Strawberry Lane and existing U.S. 301. Tolls will be collected utilizing electronic toll collection at highway speeds at the U.S. 301 mainline toll barrier near the Maryland/Delaware state line and at the interchange ramps to and from the north at Levels Road, existing U.S. 301 near Armstrong Corner Road, and Jamison Corner Road. The ramps to and from the north at the Spur Road interchange with SR 896/Bethel Church Road Extended will be toll free. Traditional cash lanes may also be provided at the toll barriers. Show citation box

(Catalog of Federal Domestic Assistance Program Number 20.205, Highway Planning and Construction. The regulations implementing Executive Order 12372 regarding intergovernmental consultation on Federal programs and activities apply to this program.)

Authority:

[23 U.S.C. 139](#)(1)(1).

Issued on September 12, 2008.

Hassan Raza,

Division Administrator Dover, Delaware.

[FR Doc. [E8-21855](#) Filed 9-17-08; 8:45 am]

BILLING CODE 4910-22-P

Airmont Questions and Concerns as to 301 Project

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<p>25. How is the State of Delaware Going to Pay for Such a Costly Project?</p>	<ul style="list-style-type: none"> - In the ROD (2008), DelDOT proposed that they would issue bonds to cover the cost to the State of DE for the project. <p><i>Attachment J, pgs 28 – 30, of the ROD describe the US 301 Funding Goals and Concepts, Toll Revenue Projection Assumptions, Operation and Maintenance Cost Assumptions, bonds supported by toll revenues, bond debt service / coverage factor, and FHWA preliminary review comments on DelDOT's Draft Initial Financial Plan. Pages 31 – 33 of Appendix J include a copy of FHWA's April 8, 2008 letter / comments on DelDOT's Draft Initial Financial Plan. The FHWA letter concludes that the assumptions, upon which the Draft Initial Financial Plan are based, are reasonable.</i></p> <p>Also in this ROD, DelDOT mentioned in the ROD that they modeled their plan after the State of MD's highway project (I-270).</p> <p><i>Page 30 of Appendix J of the ROD does not indicate that the Financial Plan for US 301 is modeled after Maryland's I-270 project (believe the comment means Maryland's ICC project). The comment is actually contained in FHWA's April 8, 2008 letter (pgs 31 through 33 of Appendix J) and notes that, "Several states currently have projects proposed to be implemented in a manner similar to US 301, for example, Maryland's \$2.4 billion Inter County Connector (between I-270 and I-95)".</i></p> <ul style="list-style-type: none"> - The risk associated with the financing for this project is too great for the State of Delaware. <p><i>DelDOT has utilized a conservative approach in developing the US 301 Financial Plan in a manner that minimizes risk to the State Transportation Trust Fund and to the State of Delaware, as noted below, in the description of the US 301 Funding Concept.</i></p> <ul style="list-style-type: none"> - Other States that have utilized similar funding strategies have suffered staggering shortfalls that placed their overall State's economy at risk. Unlike the Federal Gov't, States have to balance their budget each year. <p><i>The ICC is currently meeting the projected traffic and revenue.</i></p> <ul style="list-style-type: none"> - DelDOT is aware that MD suffered greatly under this funding strategy, which is the same one contemplated by DelDOT in the ROD. Ultimately, MD was left on the hook for over \$1 billion related shortfalls. As such, and to cover shortfalls for the MD ICC toll road and the fact that the State borrowed too much for this project, MD in 2011 <u>proposed toll hikes for the entire State</u>, with one example being that the Bay Bridge <u>toll from \$2.50 to \$8.00</u>. <p><i>In Maryland, a complex funding package was presented and agreed to by the State Legislature in 2005. The package assumed that all Maryland toll roads were part of a common system with all toll revenues contributing to a common fund used to cover all expenses for the toll facilities. The exception was that half of the ICC Construction expense was funded from other than Maryland Transportation Authority funds. Large, future toll increases system-wide were expected as a result of this funding plan and those toll increases were anticipated between approximately 2012 and 2014. This information was disclosed in 2005. It was also disclosed that MDTA would not cover the combined capital, debt and operating expenses from ICC with revenues from the ICC. MDTA was financing <u>TWO</u> mega projects (ICC and the soon-to-be-completed express toll lanes on I-95 north of Baltimore). Many of the MDTA</i></p>
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facilities are also over 50 years old and in need of extensive system preservation. Approximately 1/3 of the recently approved toll increases was for system preservation.

While most MDTA facilities have had toll increases in the past, the Chesapeake Bay Bridge had never had a toll increase; the bridge is over 50 years old. The initial proposal was to achieve a balance of tolls among all MDTA facilities, which would have required an \$8 toll at the Bay Bridge, but MDTA decided that a full balancing was too much, too fast. MDTA's final decision was to raise the toll from \$2.50 to \$6.

- In years past, support from the Federal Gov't has been reliable and steady source of monies for the States.
- Currently and the last few years, and most likely for the foreseeable future, this is no longer the case, with the Congress & President doing short-term funding strategies for any funds from the Federal Gov't.
- Indeed, the Congress and the President are currently at an impasse, which will most likely result in a Federal Gov't shutdown, or a minimum of drastic cuts to funding in the near term.
- The instability to the Federal Gov's funding provides a scenario that is far too risk for the taxpayers of Delaware.
- The State of Delaware can ill-afford to pick up any of the shortfalls that may be bestowed upon the State of Delaware.

The Congress and the President are currently not at an impasse, with respect to transportation funding. On July 6, 2012 President Obama signed "Moving Ahead for Progress in the 21st Century" (MAP-21), which authorized \$105 billion in federal transportation funding for fiscal years 2013 and 2014. DelDOT will receive approximately the same amount of federal funds received in fiscal year 2012 during these two years, i.e. approximately \$130 million per year.

Also, MAP-21 significantly increased the federal funds available for TIFIA Loans to \$750 million in fiscal year 2013 and \$1 billion in fiscal year 2014, providing a lending capacity of \$7.5 billion in fiscal year 2013 and \$10 billion in fiscal year 2014.

- As the funding for the 301 project is suspect, at best, the project should be stopped, or at a minimum, held in abeyance for several years until the budgets for the Federal Gov't and State of Delaware have stabilized.

The US 301 mainline funding concept proposes the project as a self-supporting toll facility. Self-supporting means toll revenues are proposed to fund:

- *Debt service for toll revenue bonds;*
- *Highway and toll facilities Operations & Maintenance (O&M) costs;*
- *Major capital expenditures during term of bonds; and*
- *Repayment of federal TIFIA Loan, if DelDOT is successful in procuring.*

The current funding concept for the construction of the US 301 mainline would include Toll Revenue Bonds, possible TIFIA Loan and GARVEE Bonds proceeds remaining after funding design and right-of-way acquisition.

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DelDOT submitted a TIFIA Letter of Interest (LOI) to FHWA on January 3, 2013. FHWA responded on February 12, 2013 with three technical questions, to which DelDOT responded to on March 14, 2013. DelDOT is waiting on further word from FHWA regarding the TIFIA Loan request. If DelDOT meets all TIFIA requirements, the next step would involve presenting the US 301 funding concept to the rating agencies to secure a preliminary rating for the Toll Revenue Bonds and the TIFIA Loan, i.e. demonstrating the Toll Revenue Bonds are "Investment Grade" and the ability of the US 301 toll project to repay the federal low interest TIFIA Loan.

While not required for the financial success of the US301 project, a benefit of a TIFIA loan is the interest rate on the loan could be lower than that of the Toll Revenue Bonds, resulting in a reduction in the cost of capital and corresponding improvement in debt service coverage and debt capacity.

TIFIA financing offers several potential additional benefits to the US 301 financing, including enhanced debt service coverage for the Toll Revenue Bonds, additional structuring and timing flexibility for the overall Plan of Finance and debt service savings. A number of TIFIA loan terms, which are not offered by the capital markets, could assist in structuring its financing, thus helping to support the US 301 toll revenue bond rating, thereby resulting in savings in debt service cost. In this regard, DelDOT would explore the potential TIFIA benefits related to possible deferral of principal and interest payments during early ramp up years and the improved coverage on or increasing capacity for issuing US 301 Toll Revenue Bond debt.

Toll revenues are anticipated to pay debt service on the Toll Revenue Bonds and the TIFIA Loan, along with O&M costs (highway & toll facilities, including back office) and capital expenses, during the term of the bonds.

A Level 3 "Investment Grade" Traffic & Revenue (T&R) Report dated September 2012 has been prepared (September 2012 T&R Report). The revenue projections contained in the September 2012 T&R report have been revised to reflect a projected change in the opening date for toll revenue service from July 1, 2016 to January 1, 2017.

A Major Projects Cost Estimate Review (CER) of the US 301 Mainline project was conducted by FHWA, DelDOT, and DelDOT's GEC on September 18-20, 2012.

Toll Revenue Bonds, issued by the Delaware Transportation Authority (DTA), on behalf of DelDOT, for new US 301, are currently assumed to be secured by the US 301 toll revenues.

Other Useful Info/Findings:

- DelDOT is well aware that while truck and commercial traffic is very important to the collection of toll amounts to offset the cost of the project, it is virtually impossible to effectively project such collections. (See NCHRP Report, Synthesis 363: Estimating Toll Road Demand and Revenue)

The reference to NCHRP Report 363 appears to be incorrect. We assume the comment refers to Report number 364.

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- The Report compared actual traffic revenue to the revenue projections for 26 different toll facilities in the US for the period of 1996 to 2004, and its findings were stunning:
 - (a) No consistency in the results as to the effectiveness of the projections;
 - (b) One State's actual toll revenue only amounted to 13% of the projected amount;
 - (c) In most cases, the projections failed, and under-projected the actual revenue collected;
 - (d) Toll projections for all of the other States' projects that are similar to 301 Project, the actual revenue was anywhere between 51% to 67% of what was projected; and,
 - (e) That it is an industry-wide trend of over-predicting toll revenues.
- California's toll roads issues, and the resulting "Junk Bonds":
 - (a) In 2011, the actual ridership on the San Joaquin Hills was only 43% as projected;
 - (b) Similarly, in 2012, the actual ridership on the Foothill-Eastern was only 33% as projected;
 - (c) Due to these shortfalls in revenue, State of CA had to restructure its related \$2.1 billion in debt and extended the retirement date of the project's bonds.
 - (d) The bond rating agencies have downgraded the bonds to "junk status"
 - (e) The failure of these projects has severely limited/handicapped the State's ability to execute future funding strategies.

NCHRP 364 report does highlight an inconsistency in the industry. However, partly in reaction to the findings of NCHRP 364 report, the Traffic and Revenue report for US 301 has been revised to even more conservatively account for several of the concerns raised in the NCHRP 364 report. It has also been revised on three different occasions to better account for the economic recession and sluggish recovery.

US 301 also has many factors that reduce its risk compared to the characteristics of the studies upon which the NCHRP 364 report was based. These factors include:

- *US 301 is an existing route being reconstructed into an improved, tolled facility*
- *Long history of data for the existing traffic on US 301 and on regional toll roads*
- *Traffic has continued to rebound from recession (2008-2012) – total traffic at 1%/yr and truck traffic at 3%/yr, based on continued monitoring of traffic at the MD/DE line*
- *Results of August 2011 Origin & Destination Study were used to update Traffic Model*
- *The alignment is clear and simple. It connects to a well-developed system.*
- *There are few competing non-toll highways*
- *There are high capacity connectors at each end*
- *Trucks will be restricted on immediately adjacent routes*
- *Alternate legal routes for trucks have weight enforcement restrictions*
- *Truck tolls on I-95 in MD will be higher in 2013 and beyond, making US 301 more attractive*
- *The projected tolls are in line with tolls on other facilities in the region*

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- *The projected traffic has a somewhat flat profile, without high seasonal peaks*
- *Traffic growth is not heavily dependent on local population factors*
- *E-ZPass is well established in the region*
- *Tolls are an accepted feature on major highways in the region*

US 301 carries a moderate risk in terms of traffic and revenue forecasting. On the positive side, the facility will convert an existing roadway with known traffic history to a toll road. Real data is available for the existing customer base on US 301 and the existing toll plazas on I-95 and SR 1 in Delaware and on the Chesapeake Bay Bridge and I-95 in Maryland provide real data on toll usage (willingness to pay, sensitivity to toll rate changes, etc.). The construction will provide effective ties to the connecting network. The southern end of the facility actually intercepts existing US 301 approaching from Maryland. There is not a parallel expressway facility as an alternate. The northern end of the facility ties smoothly into SR 1 without bottlenecks. A significant portion of the projected revenue for US 301 will be generated by trucks. There are few viable alternate routes, especially for trucks using this corridor. From all of the agreed-upon measures between Maryland DOT and DelDOT, it will be very difficult to avoid using the new facility since the most efficient non-tolled alternative will not be signed in a manner to encourage long-distance travelers to seek an alternative non-tolled path. Some routes will prohibit through trucks. Due to approved toll rate increases in Maryland, the primary alternate route (I-95) will be more expensive, even with the new toll on US 301.

Additionally, the financial plan that has been developed by the Project Team for US 301 includes a sensitivity analysis to assess the risk of traffic projections being up to 30% below the volumes forecast by the Traffic and Revenue report. This step was taken to ensure that the project would remain financially viable, even if traffic projections did not meet expectations.

- DelDOT's planned use of GARVEE Bonds:
 - (a) DelDOT has the annual debt service would be paid directly from the \$130 million in Federal Aid Highway Funds received annually by DelDOT;
 - (b) However, with the economic conditions, and the unfortunate political climate in Washington, there is serious uncertainty of the Federal Program, which was once a formula-driven program funded on a multi-year basis, has now morphed into a program where future policy is less certain, funding levels are less predictable, and the program is more dependent on frequent action to extend authorization and on general fund transfers that will likely need to continued indefinitely barring an increase in the federal gas-tax or significant reduction in spending.

See response to above, regarding MAP 21 (see pg 25-2).

- Maryland issued similar GARVEE bonds for transportation projects. In Oct. 2012, Fitch rating service affirmed MD's GARVEE bonds, but it was only granted because the State had legislatively mandated a subordinate lien on certain pledged MD Transportation Trust Fund (TTF) tax revenues, which helped offset the potential shortfall in Federal funds.

It is correct that Maryland's GARVEE Bonds are backed by Maryland's Transportation Trust Fund.

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- For 301, DelDOT has proposed to sell \$125 million in GARVEE bonds, with these bonds being backed by DelDOT's future Federal highway funds **and not** by the State's TTF revenues. This lack of a back-up pledge will undoubtedly run the risk of these bonds downgraded. Indeed, many States have become increasingly concerned over the sustainability of the Federal program and the commitments made by the Federal Gov't and the States with respect to such program.

DelDOT requested and the General Assembly approved in January 2010, the sale of \$125 million in GARVEE Bonds for the US 301 project. The GARVEE Bonds were sold in June 2010.

The GARVEE Bond proceeds are funding the remaining final design costs, the remaining right-of-way acquisition and relocation assistance costs and the advance relocation of utilities impacted by the project.

At this time, DelDOT has no plans to sell additional GARVEE Bonds.

The debt service on the \$125 million / 15-year GARVEE Bonds is just under \$11 million / year, paid from federal highway funds received annually by DelDOT. The GARVEE Bonds are NOT backed by the State Transportation Trust Fund. DelDOT receives approximately \$130 million in federal highway funds each year. Thus, there is a healthy coverage factor of over 11 to 1 on the GARVEE Bonds. In Delaware, federal aid funding dates to the early 20th century with the Federal-Aid Highway Act of 1916. This was followed by a series of federal aid programs over the century including the more recent STEA of 1991, TEA-21, SAFETEA-LU and now MAP-21. Even with potential future cuts in federal spending, it is unlikely the cuts would be so significant as to affect the holders of the GARVEE Bonds.

For Virginia, 2012:

- Virginia issued GARVEE bonds to speed up construction projects in the State;
- in March 2012, the US Congress discussed only extending funding, including Federal transportation funding, for only 60 days;

See response above regarding MAP 21 (see page 25-2).

- Today's political climate is no better than March 2012;
- This type of inaction has an indirect effect on GARVEE bonds, as it does not provide certainty to bondholders of guaranteed/expected future funding.

See response above regarding GARVEE Bonds (see page 25-6).

- The main reason that GARVEE bonds were so attractive to bondholders previously is that the expectation that the Federal Gov't will pay its share of the transportation funding. In today's world, that is in jeopardy with such uncertainty and as such, the bonds can be devalued/downgraded at the expense of the States.

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See response above regarding GARVEE Bonds (see page 25-6).

- It should be expected that the next 3 to 4 years, the political climate in Washington will most likely be no better, and quite possible even worse, as President Obama will be moving towards the end of his final term and legislature will continue to be divided. Such indecisiveness places each State's transportation funding in jeopardy, or at least, in limbo until resolved. Such delays in Delaware would be catastrophic to our fragile economic state.

See response above regarding MAP 21 (see page 25-2).

- In 2013, a review of how cost effective and prudent such an approach was for State of MD clearly shows that it was not wise due to (i) tolls did not cover the debt service obligation, (ii) actual toll collections were exceedingly less than the projected toll amounts, and (iii) State of MD had to raise tolls on all of the MD's tollways to cover the additional cost; and (iv) the deficient toll collections has burdened and placed future highway projects at risk for State of MD.

See comments above. Additionally, Maryland Transportation Authority is meeting all required debt service obligations through toll revenues and the facilities are meeting revenue projections. No future highway projects are at risk as a result of toll collections. Furthermore, the funding of the ICC and express toll lanes on I-95 with toll revenue bonds has freed Maryland's Transportation Trust Fund of the burden of funding these projects, thereby making other transportation work possible.

- In DelDOT's amended 2011 report, DelDOT does not even acknowledge this deficiency even though they heavily touted in 2007-08 what a great idea it was.
- Historically, toll projections are typically inflated from actual-received toll collections. Some States have received **only 13%** of the projected amount.

See prior response regarding NCHRP 364 (see page 25-4).

- You ask what is the liability to the companies that prepare such incorrect toll projections? No liability, and they even acknowledge that it is a guess so that the States, namely taxpayers, are left to pick up such amounts.

The Traffic and Revenue forecasts prepared for the US 301 Project are estimates based upon accepted travel demand modeling procedures and are subjected to extensive internal and external reviews during the course of obtaining project financing. These traffic and revenue forecasts may also face the rigors of the TIFIA review process due to the potential use of federal funds as well as the extensive reviews performed by the rating agencies. These reviews will evaluate the overall forecasting process including the toll diversion modeling and will evaluate review the socioeconomic data conditions and network assumptions that are the basis of the forecasts. It should be noted that the rating agencies often require stress tests and/or downside scenarios to evaluate the robustness and stability of revenue forecasts under conditions that would generate less traffic and revenue than the conditions assumed for the base case forecast. DelDOTs financial advisors provide a framework for financing which includes coverage ratios, meaning the

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revenue stream projected must be greater than the principal and interest payments after operations and maintenance costs are paid.

However, it is true that the consultants who prepare the traffic and revenue projections assume no liability for the forecasts, as the forecasts are subject to uncertainty, due to unknown future conditions. As a result, DelDOT has been conservative in developing the financial plan for US 301 by running a sensitivity analysis for less than those projected, e.g. 90%, 80% and 70%.

- DelDOT failed to advise the taxpayers and legislators that the funding for this project is based on highly-suspect data, and potentially could be a risk to the public for this project and substantially limit the State's access to future funding.

See prior response regarding US 301 Funding Concepts (see page 25-2).

Question 25

Supporting Documentation

25-A

Funding Goals and Concept

- ◆ To implement US 301 while minimizing its impact on the Transportation Trust Fund (TTF) and the statewide Capital Transportation Plan (CTP)
- ◆ To not negatively affect DelDOT's strong bond rating (Moody's: Aa3 and S&P: AA+) or its capacity to sell bonds to fund CTP projects
- ◆ To have those who use New US 301 pay for it
- ◆ A funding concept that utilizes bonds, supported by toll revenues, appears to best meet the funding goals

Funding Concept

Estimated Cost		Years of Expenditure
\$32	Final Design	2008-2011
\$119	Right-of-Way	2008-2011
\$553	Construction	2010-2016
\$704	Total*	2008-2016

Sources of Funds	
\$602	Bonds supported by Toll Revenues
\$81	Transportation Trust Funds (TTF)
\$21	Federal-aid Highway Funds
\$704	Total

* **Note:** Total Cost in Year of Expenditure (YOE) millions of dollars, includes projected inflation, based on Joint FHWA/DelDOT Cost Review (January 7-10, 2008).

Financial Analysis Assistance

- ◆ Traffic and Revenue Projections – URS Corp
URS Corp, a nationally recognized firm with experience projecting traffic and revenues and working with bond rating agencies on similar toll projects
URS Corp has prepared prior traffic and revenue reports for the I-95 Newark Toll Plaza and SR 1, for DelDOT's CTP bonds
- ◆ Financial Analysis – Public Financial Management (PFM)
PFM is a nationally recognized independent financial advisory firm to State and Local Governments in the transportation and toll road sector
PFM serves as Financial Advisor to the State and DelDOT
PFM has advised DelDOT on developing the funding concept for US 301

Toll Revenue Projection Assumptions

- ◆ The basic assumptions used in the analysis are noted in the table below:

PROJECT COST	\$704 million
TOLLS	
Mainline Toll Barrier	
2-axle toll – 2016	\$4.00
5-axle toll - 2016	\$9.00
Ramp Tolls	
2-axle toll - 2016	
Levels Road	\$1.00
US 301 (N. of Armstrong Corner Road)	\$0.65
Jamison Corner Road	\$0.35
5-axle toll - 2016	
Levels Road	\$7.90
US 301 (N. of Armstrong Corner Road)	\$7.90
Jamison Corner Road	\$7.90
TRAFFIC GROWTH RATES (Compound, Annual)	
2016 - 2036	3.1%
2037-2056	2.1%
TOLL GROWTH RATES (Compound, Annual)	
2016 - 2036	3.5%
2037-2056	2.0%
O&M (2016 - Inflation Adjusted - 3.25%)	\$5 million
Maint. Cap. Ex. (2016 - Inflation Adjusted - 3.25%) (\$ millions)	\$1.5 million

Tolls at I-95 Newark = \$4.00/\$9.00
(Oct. 2007) = Assumed for US 301
in January 2016

Operation & Maintenance (O&M) Cost Assumptions

- ◆ \$6.7 million has been included for construction of a new maintenance facility for the US 301 project
- ◆ O&M Costs: \$5 million; inflated at 3.25% per year after the road opens
- ◆ Capital Expenses (Major Maintenance): \$1.5 million; inflated at 3.25% per year after the road opens
- ◆ O&M costs would be funded annually from US 301 toll revenues and NOT from DelDOT's Highway Operating budget

Bonds Supported by Toll Revenues

- ◆ 40 years – Term of bonds
- ◆ Net bond proceeds and the interest on the bond proceeds will fund:
 - Cost of the project
 - Interest expense due to bond holders during construction

- Debt service reserve (surety policy)
- Bond insurance policy
- Issuance expenses
- Small contingency
- ◆ Items that could affect the Finance Plan (positive or negative):
 - Total Cost of the project
 - Timing and amount of draws (Design, ROW, and Construction)
 - Interest rates on the bonds
 - Interest rates on the reinvestment of bond proceeds (during construction)

Bond Debt Service / Coverage Factor

- ◆ Bond debt service has been structured proportionately to the projected net toll revenue generated by New US 301
- ◆ Bond debt service increases over time as traffic and revenues grow
- ◆ Net revenues available to pay debt service are at least 125% of the annual debt service requirements for any given year
- ◆ Net toll revenues provide a 25% cushion (coverage factor)

Note: Gross Revenues minus US 301 Operating and Maintenance (O&M) costs and Capital Expenditures = Net Revenues

FHWA Preliminary Review Comments on DelDOT's Draft Initial Financial Plan

- ◆ FHWA considers DelDOT's funding concept for the US 301 project, and the assumptions upon which it is based, to be reasonable (see **pages 31-33** for the April 8, 2008 letter to DelDOT from FHWA)
- ◆ Tolling is but one of the market-driven/transportation pricing concepts supported by USDOT and FHWA
- ◆ Several states currently have projects proposed to be implemented in a manner similar to US 301, for example, Maryland's \$2.4 billion Intercounty Connector (between I-270 and I-95)



U.S. Department
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Federal Highway
Administration

DelMar Division
(302) 734-5323

J. Allen Frear Federal Building
300 South New Street, Suite 2101
Dover, Delaware 19904-6726

April 8, 2008

Refer to: HDA-DE

Robert Taylor, P.E.
Chief Engineer
Delaware Department of Transportation
Dover, Delaware

Subject: Preliminary Review of the US 301 Draft Initial Financial Plan; State Project 25-113-01

Dear Mr. Taylor:

Please reference your December 7, 2007 Draft Initial Financial Plan for US 301 from the DE/MD Line to SR1, south of the C & D Canal, submitted in accordance with Section 1904(a) of SAFETEA-LU and FHWA Financial Plan and Guidance dated January 2007. As you know, FHWA is currently preparing a Record of Decision (ROD) for the Project, therefore we will defer our approval action of the Draft Initial Financial Plan (IFP) until after the ROD. However, based on our preliminary review of the IFP we find that it was prepared in accordance with FHWA guidance and the proposed financing plan is reasonable.

DelDOT is proposing to fund the project using a combination of funding sources that includes bonds supported by toll revenues and Federal and Delaware transportation trust funds. We understand that DelDOT is coordinating the proposed financial plan with the statewide long range transportation plan and the Statewide Transportation Improvement Program. This coordination will evaluate and ensure that there are no adverse impacts to the transportation capital program in the State during the Financial Plan analysis period. Our initial opinion is that since the majority of funding will be coming from the bonds supported by the toll revenues and that in absence of the project these financing sources would not exist, the proposed financing plan would not have an adverse impact on the transportation capital program for Delaware. Once the Long Range Plan has been adopted by WILMAPCO and the 2008 STIP has been amended by DelDOT and approved by FHWA, our preliminary review indicates that the STIP will be fiscally constrained.

Our guidance requires that a Major Project financial plan should not assume any funding sources that require future legislative (local, state and or federal) approval. Based on our discussions with your staff, it is our understanding that DelDOT does not need legislative approval, beyond Delaware's annual budgetary process, to issue toll revenue supported bonds for this project. Therefore, we believe that your proposed financial plan meets this particular requirement of the FHWA guidance.

~~NOV 14 2007~~
**AMERICAN
ECONOMY**

We want to note that the proposed funding approach has been used by other states to mitigate limited transportation revenues. Tolling is but one of the market-driven/transportation pricing concepts supported by USDOT and FHWA. Several states currently have projects proposed to be implemented in a similar manner, for example, over fifty percent of Maryland's \$2,445 million Intercounty Connector (between I-270 and I-95) comes from bonds supported by toll revenues.

We offer the following specific comments regarding the contents of the Draft IFP:

Cost Estimate:

As a result of the FHWA/DelDOT Joint Cost Estimate Review (January 7-10, 2008), the estimated project cost is \$704 million, in Year of Expenditure (YOE) dollars. This figure is noted in the proposed amendments to the RTP, the 2008-2011 TIP and the Draft 2009-2012 TIP. We would suggest that similar FHWA/DelDOT Joint Cost Estimate Reviews be conducted for the US 301 Project at the appropriate times in the future.

Implementation Plan:

We understand the US 301 Project Implementation Strategies Group, in which FHWA has participated, will continue to refine potential construction contract limits and schedules to ensure the implementation of this major project would occur in an effective and efficient manner. The refinements to date would somewhat accelerate the schedule and cash flow indicated in the IFP, thus reducing overall inflation costs. We compliment DelDOT on the efforts to date by the US 301 Project Implementation Strategies Group.

Financing and Revenues:

The sources of funds noted in the IFP are consistent with those reflected in the amendments to the RTP, the 2008-2011 TIP and the Draft 2009-2012 TIP. Current DelDOT projections indicate \$602 million in bonds supported by toll revenues, \$81 million in TTF and \$21 million in Federal-aid Highway Funds, thus traffic and toll revenue projections are a key component of your funding concept.

The IFP indicates that DelDOT has been assisted by a nationally recognized firm with considerable experience projecting traffic and revenues and working with bond rating agencies on similar toll projects. The firm has also prepared prior traffic and revenue reports for the I-95 Newark Toll Plaza, associated with DelDOT's CTP bonds. The IFP also notes assistance from your financial advisor, in preparing the preliminary financial analysis for the US 301 Project.

Cash Flow:

The cash flow provided in the IFP appears appropriate for the preliminary construction contracts, schedule and cost estimate, included therein.

Risk Identification and Mitigation Factors:

This area of the IFP needs additional details. However, we are aware that the US 301 Project Implementation Strategies Group has identified a number of project risks and mitigation factors. These items were also the subject of the FHWA/DelDOT Joint Cost Estimate Review effort. Items such as borrow material, structures, right-of-way acquisition, years of inflation and actual inflation rates, among others, are anticipated risks that would need to be managed. At the same time, identified opportunities to reduce costs include such initiatives as accelerating right-of-way acquisition, using wetland mitigation sites to provide borrow

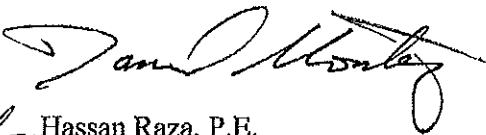
material, taking advantage of lessons learned from SR1 and the use of advanced technology in construction, to name a few.

Summary:

Through our preliminary review of the Draft Initial Financial Plan we find that the assumptions upon which it is based, to be reasonable. We look forward to the next step in the funding analysis process, preparation of the Investment-Grade Traffic and Revenue Report. As you know, the Financial Plan will be subject to yearly updates.

Should you have questions concerning this matter, please contact Dan Montag at 302-734-1719.

Sincerely yours,


for Hassan Raza, P.E.
Division Administrator

cc: Carolann Wicks, Secretary
Kathy English, Director of Finance
Ralph Reeb, Director of Planning
Drew Boyce, Assistant Director, North Project Development
Mark Tudor, Project Director, US 301 Project Development
Project File: 25-113-01
Reading File

Airmont Questions and Concerns as to 301 Project

APRIL 4, 2013

<p>26. Establishment of a 301 Project Committee</p>	<p>-Establish a committee for 301 project that includes the following:</p> <ul style="list-style-type: none"> (a) One person from each impacted neighborhood; (b) Any State Senator, Representative, and Council member of the impacted communities that so chooses to be a member of this committee; (c) DelDOT and governmental body that wishes to join. <p>-Purpose of Committee:</p> <ul style="list-style-type: none"> (a) Obtain, organize and resolve concerns with preparation of necessary reports by DelDOT (i.e., NEPA, Reevaluations, etc.) (b) Organize and resolve all of the impacted communities' concerns prior to and during the 301 project. <p><i>DelDOT will establish a Construction Advisory Group, consisting of representatives from different communities that will meet monthly to discuss and address items such as project status, current construction issues, upcoming construction activities, etc. There may be three separate groups, i.e. one group for each design section, to allow for more focused discussions, in view of the 13-mile length of the project.</i></p> <p><i>During construction, DelDOT will also have contract administration forces located in local Field Offices that are dedicated to the US301 projects. Contact information for the persons in charge of the administration of each US301 project will be made available to the public. In addition, citizens can address any concerns to the DelDOT Public Relations section by e-mail (dotpr@state.de.us) or by calling 800-652-5600.</i></p>
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