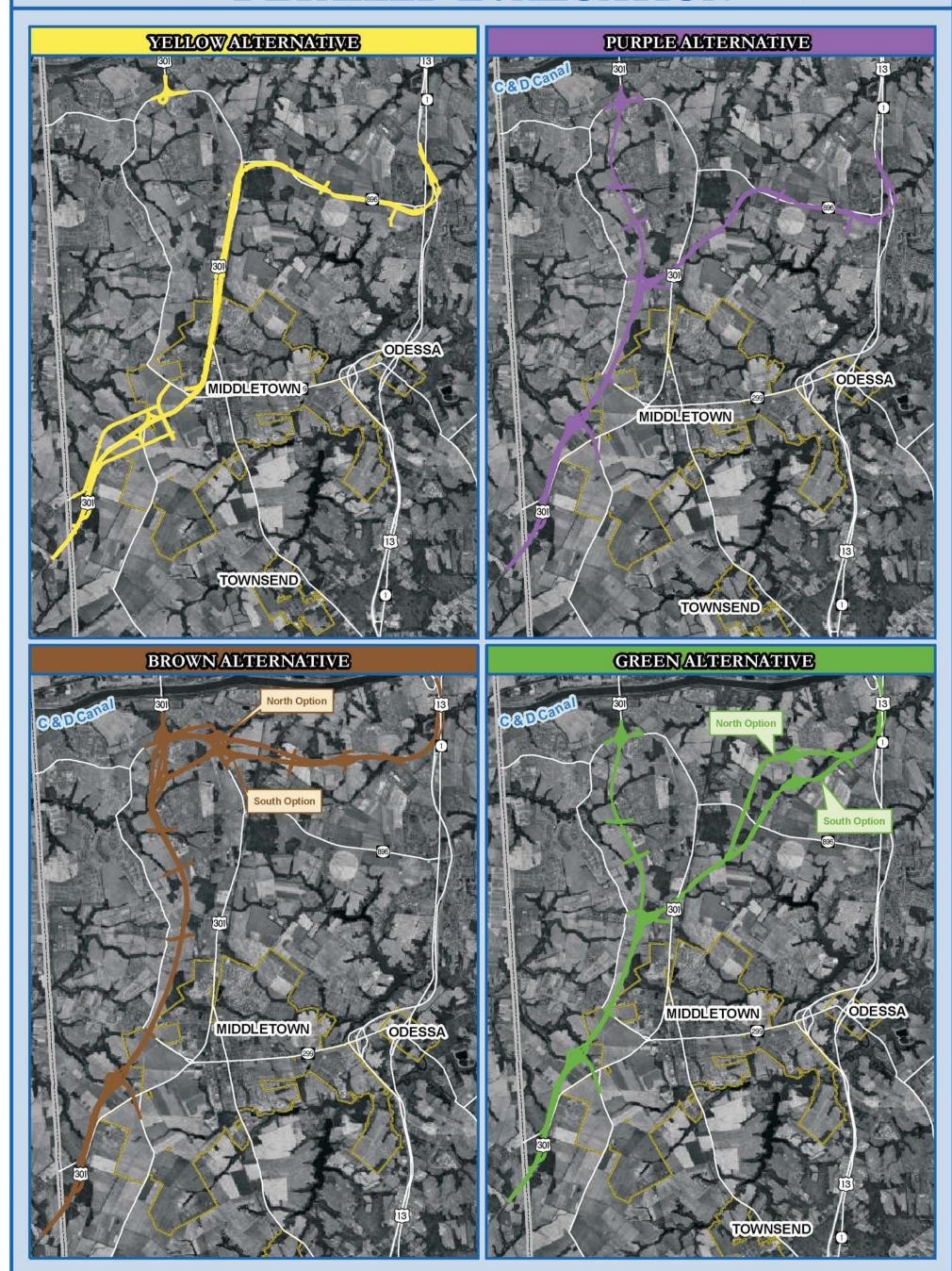


ALTERNATIVES RETAINED for DETAILED EVALUATION









RETAINED ALTERNATIVES - COMPARISON OF ENVIRONMENTAL RESOURCES

	1 11 11	, 20	<u> </u>											
CUS:	YELLOW		PURPLE		BRO	OWN	GREEN							
February 22, 2006 ALTERNATIVES IMPACT MATRIX project development	YELLOW	with spur: interchange option 1	with spur: interchange option 2	with spur: interchange option 3	North	South	North with spur: interchange option 1	North with spur: interchange option 2	North with spur: interchange option 3	South with spur: interchange option 1	South with spur: interchange option 2	South with spur: interchange option 3	IMPACT RANGE	
Total Length of Alternative (miles) Total Area of Limit of Construction (acres)	12.7 1,066	15.3 868	15.3 955	15.3 850	15.5 921	15.9 907	17.5 881	17.5 935	17.5 863	17.3 865	17.3 919	17.3 847	13 - 18 847 - 1,066	
Potential Wetland/Waters of the US Impacts	1,000	000	955	650	921	907	001	935	003	000	919	04/	647 - 1,006	
Total Area of Potential ACOE Wetlands¹ (acres)	54.7	27.8	30.8	31.8	29.0	23.7	31.8	32.8	35.7	27.0	28.0	31.0	23.7 - 54.7	
High Quality	10.2	8.4 3.6	10.6 5.3	9.0 4.2	14.0 5.6	12.5	10.5 4.3	12.0	11.1	11.3	12.6	11.8	8.4 - 14.0	
Palustrian Forested Palustrian Emergent	1.4 3.0	2.2	2.2	2.2	4.4	5.5 2.7	2.2	5.3 2.2	4.9 2.2	3.9	4.8	4.4 2.2	1.4 - 5.6 2.2 - 4.4	
Palustrian Shrub-Scrub	0	0	0	0	0	0	0	0	0	0	0	0	0 - 0	
Palustrian Mixed	5.9 29.0	2.6 9.2	3.1 11.3	2.6 13.7	4.0 6.8	4.2 9.9	4.0 16.7	4.4 17.3	4.0 21.1	5.2 10.2	5.6 10.9	5.2 14.7	2.6 - 5.9	
Medium Quality Palustrian Forested	13.8	6.0	6.4	4.8	4.6	7.7	9.1	8.1	7.9	5.9	4.8	4.7	6.8 - 29.0 4.6 - 13.8	
Palustrian Emergent	2.0	2.2	3.6	7.8	0.8	0.8	1.5	2.9	7.1	1.5	3.0	7.2	0.8 - 7.8	
Palustrian Shrub-Scrub	0	0	0	0	0	1.5	0 6.1	0	6.1	0	3.0	0 2.8	0 - 0	
Palustrian Mixed Low Quality	13.1 14.5	1.1	1.3 3.6	1.1 3.5	1.5 8.2	1.3	4.2	6.3	3.2	2.8 5.4	4.5	4.5	1.1 - 13.1 1.3 - 14.5	
Palustrian Forested	0	0.9	0	0	0.9	0.7	0.9	0	0	0.9	0	0	0.0 - 0.9	
Palustrian Emergent	8.8	3.6	3.6	3.5	7.3	0.6	3.3	3.2	3.2	4.6	4.5	4.5	0.6 - 8.8	
Palustrian Shrub-Scrub Palustrian Mixed	0 5.2	0	0	0	0	0	0	0	0	0	0	0	0 - 0 0 - 5.2	
Other Wetlands														
Type and/or quality undeterminded to date	1.0	5.6	5.3	5.6	0	0	0.3	0.3	0.3	0.0	0.0	0.0	0 - 6	
Number of Wetlands Impacted Number of Wetland Crossings	45	46	55 7	55	38	32 6	7	50	7	8	50	42 8	32 - 55 2 - 9	
Number of Wetlands with Complete Fragmentation	10	4	6	5	2	3	4	5	5	5	6	6	2 - 10	
Waters of the US (non-wetland)	21,282	15,114	15,297	14,063	13,879	13,178	13,959	13,907	12,902	14,810	14,994	13,759	12,902 - 21,282	
Streams (linear feet)	215	271	271	271	923	1,898	355	355	355	532	532	532	215 - 1,898	
Ditches (linear feet) Open Waters (ponds, SWM) (acres)	21,067 4.1	14,843 3.3	15,027 3.3	13,793 3.3	12,955 3.0	11,280 5.6	13,605	13,552 3.0	12,547 3.0	14,278 3.0	14,462 3.0	13,228 3.0	11,280 - 21,067 3.0 - 6	
DNREC Sub-Aqueous Lands (linear feet)	5,921	4,693	5,659	4,693	7,958	8,019	6,405	6,918	6,403	6,970	7,482	6,970	4,693 - 8,019	
Area of DNREC State of Delaware Tidal Wetlands¹ (acres)	0.6	0.6	0.6	0.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	0.6 - 1	
Recharge Areas (acres) Tax Ditches (linear feet)	629 81	536 624	582 608	520 51	484	476 192	458 624	506 608	441 51	477 624	525 608	460 51	441.3 - 629 0.0 - 624	
Tax Ditch Watershed area (acres)	12	58	55	33	28	55	58	56	33	58	56	33	11.8 - 58	
Area of Hydric Soils (acres)	156	125	141	133	117	112	132	145	139	125	138	132	112.4 - 156	
Potential Floodplain Impacts - FEMA				200										
Area of 100-Year Floodplain (acres) Potential Agricultural Impacts	1.7	1.7	1.7	1.7	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	1.7 - 2.5	
Agricultural Districts - Ten-Year (number)	1	1	1	1	1	1	1	1	1	1	1	4	1.0 - 1.0	
Area (acres)	14.1	29.2	29.5	29.2	29.2	29.2	29.2	29.5	29.2	29.2	29.5	29.2	14.1 - 29.5	
Number of Agricultural Districts within 3 miles of Alternative	9	7	7	7	6	6	6	6	6	6	6	6	6 - 9	
Agricultural Preservation Easements - Permanent (number) Area (acres)	0	6.1	6.1	6.1	9.4	11.7	6.1	6.1	6.1	6.1	6.1	6.1	0 - 1 0 - 11.7	
Number of Agricultural Easements within 3 miles of Alternative	3	3	3	3	2	2	2	2	2	2	2	2	2 - 3	
Agricultural Suitability (Land Evaluation Site Assessment Model)	141							100					0 - 0	
Total LESA Model (score)	195	205	206	205	199	203	213	213	213	205 217	207	205	195 - 213	
LESA Model without existing and planned development (score) Prime Farmland Soil Area (acres)	222 194	224 419	224 442	224 405	202 428	209 438	224 469	226 491	224 455	431	220 452	218 416	202 - 226 194 - 491	
Ratio of prime farmland to total prime farmland in New Castle County (percent) (74,454 acres total)	0.26	0.56	0.59	0.54	0.58	0.59	0.63	0.66	0.61	0.58	0.61	0.56	0.3 - 0.7	
Potential Hazardous Waste Impacts														
Number of EPA Sites Number of Sites identified as potential sources of contamination	0 8	0 8	0 8	0	7	7	5	5	0	5	5	5	0 - 0 5 - 8	
Number of NPDES Locations	0	0	0	0	0	0	0	0	0	0	0	0	0 - 0	
Potential Natural Resource Impacts	2272					2624								
Natural Areas Inventory (acres) State Resource Areas ⁴	0.2 2.7	0.2 2.7	0.2	0.2	0	0	0	0	0	0	0	0	0 - 0 0 - 3	
Protected (acres)	0	0	0		0	0	0	0	0	0	0	0	0 - 0	
Proposed (acres)	2.7	2.7	2.7	2.7	0	0	0	0	0	0	0	0	0 - 3	
Forestland: 2002 Land Use Deciduous (acres)	39.5 23.1	46.8 46.1	43.6 42.2	41.6 40.9	42.1 40.4	55.4 51.1	52.4 51.7	48.6 47.3	47.2 46.5	45.1 44.5	41.4	40.0 39.3	39.5 - 55.4 23.1 - 51.7	
Evergreen (acres)	10.2	0.0	0.7	0.0	1.0	3.7	0	0.7	0.0	0.0	0.7	0.0	0 - 10.2	
Mixed (acres)	6.3	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7 - 6	
State Forest Lands State-Owned State Forest Properties (acres)	0	0	0	0	0	0	0	0	0	0	0	0	0 - 0 0 - 0	
Conservation Easement Properties (acres)	0	0	0	0	0	0	0	0	0	0	0	0	0 - 0	
Potential Rare, Threatened and Endangered Species Areas	tbd	tbd	tbd		tbd	tbd	tbd	tbd	tbd	tbd	tbd	tbd	0 - 0	
Habitat Areas (Wildlife & Plant) (acres)	46.3	52.5	50.9	48.9	67.5	57.0	54.3	51.9	50.6	47.6	45.0	43.9	43.9 - 67.5	
Potential Planning Resources Strategies for State Policy and Spending (acres)														
Strategies for State Policy and Spending (acres) Level 1	53	0	0	0	0	0	0	0	0	0	0	0	0 - 53	
Level 2	407	205	202	205	202	209	234	234	234	218	218	218	202 - 407	
Level 3	314	422	456	420	513	480	406	437	404	406	437	404	314 - 513	
Level 4 Potential Section 4(f) Properties	83	203	215	187	159	185	203	218	187	203	218	187	83 - 218	
Number of Publicly-Owned Parks and Recreation Areas	0	0	0	0	0	0	0	0	0	0	0	0	0 - 0	
Acres of Publicly-Owned Parks and Recreation Areas	0	0	0	0	0	0	0	0	0	0	0	0	0 - 0	
Federally Owned State Owned	0	0	0	0	0	0	0	0	0	0	0	0	0 - 0	
State Owned County Owned	0	0	0	0	0	0	0	0	0	0	0	0	0 - 0	
Municipal Owned	0	0	0	0	0	0	0	0	0	0	0	0	0 - 0	
Number of Publicly-Owned Wildlife and Waterfowl Refuges	0	0	0	0	0	0	0	0	0	0	0	0	0 - 0	
Number of Historic Properties ⁷ Date of Alternative Design Update	01/12/06	0 01/12/06	01/12/06	01/12/06	11/18/05	11/18/05	01/12/06	01/12/06	0 01/12/06	01/12/06	0 01/12/06	01/12/06	0 - 4	
Date of Attendance Design opera		02/12/06	02/12/06	02/12/06	02/12/06	02/12/06	02/12/06	02/12/06	02/12/06	02/12/06	02/12/06	02/12/06		

RETAINED ALTERNATIVES - COMPARISON OF CULTURAL RESOURCES

project development	February 22, 2006 ALTERNATIVES IMPACT MATRIX	YEL	LOW		RPLE spur	with	RPLE spur nge option 2	with	RPLE spur ige option 3		OWN Option		OWN Option	with	N North spur nge option	interchan	spur	with	N North spur nge option 3	with	N South spur ige option 1	with	N South h spur nge option 2	with	N South spur ige option 3	
Potential Impacts on Cultural Re	sources											-														
Historic Properties ¹																										
Count of Properties to be eva	aluated for Direct Effects ²		4		0	1	0		0	0		0		0 0		0			0	0		0				
Count of Properties to be eva	aluated for Visual and Audible Effects ³		13		12		13		13	9		9		1	10	11			11	11		12		1	12	
Count of Properties to be eva	aluated for this Alternative ⁵		15	1	12		13		13		9		9	10		11		11		11		12		12		
Total Area of Limit of Disturb	pance (acres)	1,	066	8	368	9	55	8	50	9	21	9	07	8	81	9	35	863		865		919		847		
Predictive Model: Pre-Historic Sensitivity in the Limit of Disturbance							77				4								250							
High Sensitivity Area [acres	s % of total area]	15	1.7%	17	2.0%	18	2.1%	17	2.1%	20	2.2%	21	2.3%	19	2.3%	19	2.1%	19	2.3%	21	2.5%	21	2.3%	21	2.5%	
Moderate Sensitivity Area [acres % of total area]	92	10.5%	162	19.1%	166	18.7%	163	19.6%	261	28.6%	254	28.0%	210	24.5%	214	23.6%	211	25.1%	238	28.2%	242	27.2%	239	28.9%	
Low Sensitivity Area [acres	% of total area]	544	62.3%	551	65.1%	577	65.0%	532	64.2%	527	57.8%	504	55.6%	543	63.1%	575	63.5%	524	62.2%	498	59.1%	529	59.4%	479	58.1%	
Nil Sensitivity Area [acres	% of total area]	222	25.4%	116	13.7%	128	14.4%	117	14.1%	103	11.3%	127	14.0%	87	10.1%	98	10.8%	87	10.3%	87	10.3%	98	11.0%	87	10.5%	
Predictive Model: Historic Se	ensitivity in the Limit of Disturbance																									
High Sensitivity Area [acre	es % of total area]	41	4.7%	7	0.9%	9	1.0%	8	1.0%	5	0.5%	5	0.5%	5	0.6%	7	0.8%	7	0.8%	7	0.8%	8	0.9%	8	0.9%	
Moderate Sensitivity Area	a [acres % of total area]	328	37.6%	199	23.5%	228	25.7%	200	24.1%	216	23.6%	212	23.4%	196	22.8%	226	24.9%	198	23.5%	196	23.3%	226	25.4%	198	23.9%	
Low Sensitivity Area [acre	es % of total area]	504	57.7%	641	75.6%	652	73.3%	620	74.9%	691	75.8%	688	76.1%	658	76.5%	673	74.3%	637	75.7%	640	76.0%	655	73.6%	620	75.2%	
Area of Potential Effects					16.										100		77									
Number of Historic Properties ³		- 20	15		12		13		13		9		9	1	10	1	11		11		1		12	1	12	

Potential Section 4(f) Properties													
Number of Historic Properties ⁴		4	0	0	0	0	0	0	0	0	0	0	0
	Date of Alternative Design Update	01/12/06	01/12/06	01/12/06	01/12/06	11/18/05	11/18/05	01/12/06	01/12/06	01/12/06	01/12/06	01/12/06	01/12/06
	Date of Impacts Update	01/12/06	01/12/06	01/12/06	01/12/06	01/12/06	01/12/06	01/12/06	01/12/06	01/12/06	01/12/06	01/12/06	01/12/06

Note 1: Historic Properties are resources Listed on or Determined Eligible for the National Register of Historic Places based on Consultant Recommendations dated 11/23/2005.

This number IS THE SAME as the Number of Properties to be Evaluated for this Alternative (see above).

Note 6: Number of resources Listed on or Determined Eligible for thte National Register of Historic Places (Consultant Recommendation) that may be directly affected by the Alternative (within the limit of disturbance).

Assumes that Archeological Sites are generally exempted from Section 4(f) protection. This number IS THE SAME as the Number of Properties to be evaluated for Direct Effects (see above).

Comparison of Environmental Resources Notes:

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

Note 1: Total Potential ACOE Wetlands equals total of high, medium, low and other quality wetlands. Wetlands are based on field delineations, updated 02-10-2006

Idaal Potential ACUE: Wetlands equals total of high, medium, low and other quality wetlands. Wetlands are based on lield delineations, updated U2-10-2006
ACOE and DNREC Tidal Wetlands should not be added together.
Wetlands are based on field delineations using Global Positioning System (GPS) and partially 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 nating 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 occin character and the state of the score was multiplied by amount of land within the parcel impacted by each alternative vector after a transport of the score for the specific segment of land impacted.

The same math was applied to each parcel affected; the acre-weighted total 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 represente 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.

Note 2: Properties to be evaluated for Direct Effects include any property within the limit of disturbance for the Alternative, and also include situations where demolition of all or some of the contributing components to the resource is proposed.

Note 3: Properties to be evaluated for Visual and Audible Effects are located within 600 feet of the centerline of the Alternative.

Note 4: Number of Properties to be evaluated for this Alternative reflects the unique number of historic properties with potential direct, visual or audible effects. Because some properties will be evaluated for more than one effect type, this number IS NOT the total of the three lines above it.

Note 5: Number of properties Listed on or Determined Eligible for the National Register of Historic Places (Consultant Recommendation) that may be directly, visually, or audible affected by the Alternative (within 600 feet of the centerline).

RETAINED ALTERNATIVES - COMPARISON OF ENGINEERING FEATURES

February 22, 2006 ALTERNATIVES IMPACT MATRIX	YELLOW	PURPLE with spur interchange option 1	PURPLE with spur interchange option 2	PURPLE with spur interchange option 3	BROWN North	BROWN South	GREEN North with spur interchange option 1	GREEN North with spur interchange option 2	GREEN North with spur interchange option 3	GREEN South with spur interchange option 1	GREEN South with spur: interchange option 2
General Considerations											
Preliminary Cost (\$ millions) ¹	\$603	\$500			\$543	\$579	\$552	X .	-	\$567	
ENGINEERING CONSIDERATIONS	j									İ.	
Total length of alternative (miles)	12.7	15.3	15.3	15.3	15.5	15.9	17.5	17.5	17.5	17.3	17.3
Total Area of Limit of Construction (acres)	1,066	868	955	850	921	907	881	935	863	865	919
Number of Properties Impacted	323	127			110	111	126	1		124	
Interchange(s)											
Number	3	4	4	4	5	5	5	5	5	5	5
1 Location(s)	Levels Road/SR15	Levels Road/SR15	Levels Road/SR15	Levels Road/SR15	Levels Road/SR15	Levels Road/SR15	Levels Road/SR15	Levels Road/SR15	Levels Road/SR15	Levels Road/SR15	Levels Road/SR15
Туре	Split Diamond	Diamond	Diamond	Diamond	Diamond	Diamond	Diamond	Diamond	Diamond	Diamond	Diamond
2 Location(s)	North of Middletown	North of Middletown	North of Middletown	North of Middletown	SR896 at the base of Summit Bridge	North of Middletown	North of Middletown	North of Middletown	North of Middletown	North of Middletown	North of Middletown
Туре	Slip Ramps	Diamond	Diamond	Diamond	Partial Cloverleaf	Half Diamond	Diamond	Diamond	Diamond	Diamond	Diamond
3 Location(s)	SR1 at Boyds Corner Road	SR1 at Boyds Corner Road	SR1 at Boyds Corner Road	SR1 at Boyds Comer Road	SR896 north of Summit Aviation	SR896 north of Summit Aviation	Jamison Corner Road	Jamison Corner Road	Jamison Corner Road	Jamisons Comer Road	Jamisons Corner Road
Туре	Directional	Directional	Directional	Directional	Partial Cloverleaf	Partial Cloverleaf	Diamond	Diamond	Diamond	Diamond	Diamond
4 Location(s)		SR15/SR896/Choptank Road	SR15/SR896/Choptank Road	SR15/SR896/Choptank Road	Jamison Corner Road	Jamison Corner Road	SR1 North of Toll Plaza	SR1 North of Toll Plaza			
Туре		Diamond	Diamond	Diamond	Diamond	Diamond	Directional	Directional	Directional	Directional	Directional
5 Location(s)					SR1 North of Toll Plaza	SR1 North of Toll Plaza	SR15/SR896/Choptank Road	SR15/SR896/Choptank Road	SR15/SR896/Choptank Road	SR15/SR896/Choptank Road	SR15/SR896/Choptank Road
Туре					Directional	Directional	Diamond	Diamond	Diamond	Diamond	Diamond
6 Location(s) Type											
7 Location(s)											
Type				-							
Overpass(es)											
Number	11	-11	11	11	8	8	9	9	9	9	9
1 Location(s)	Strawberry Lane	Strawberry Lane	Strawberry Lane	Strawberry Lane	Strawberry Lane	Strawberry Lane	Strawberry Lane	Strawberry Lane	Strawberry Lane	Strawberry Lane	Strawberry Lane
2 Location(s)	Middletown Business & Technology Park	Bunker Hill Road	Bunker Hill Road	Bunker Hill Road	Bunker Hill Road	Bunker Hill Road	Bunker Hill Road	Bunker Hill Road	Bunker Hill Road	Bunker Hill Road	Bunker Hill Road
3 Location(s)	Bunker Hill Road	Bohemia Mill/Armstrong Corner Road	Bohemia Mill/Armstrong Corner Road	Bohemia Mill/Armstrong Corner Road	Bohemia Mill Road	Bohemia Mill Road	Bohemia Mill/Armstrong Corner Road	Bohemia Mill/Armstrong Corner Road	Bohemia Mill/Armstrong Corner Road	Bohemia Mill/Armstrong Corne Road	r Bohemia Mill/Armstrong Corner Road
4 Location(s)	Broad Street	US 301 Local	US 301 Local	US 301 Local	Old School House Road	Old School House Road	US 301 Local	US 301 Local	US 301 Local	US 301 Local	US 301 Local
5 Location(s)	Marl Pit Road	Norfolk-Southern Railroad	Norfolk-Southern Railroad	Norfolk-Southern Railroad	Churchtown Road	Churchtown Road	Norfolk-Southern Railroad	Norfolk-Southern Railroad	Norfolk-Southern Railroad	Norfolk-Southern Railroad	Norfolk-Southern Railroad
6 Location(s)	Existing US 301	SR 896	SR 896	SR 896	Norfolk-Southern Railroad	Norfolk-Southern Railroad	SR896	SR896	SR896	SR896	SR896
7 Location(s)	Norfolk-Southern Railroad	Jamison Corner Road	Jamison Corner Road	Jamison Corner Road	Ratledge Road	Ratledge Road	Hyetts Corner Road	Hyetts Corner Road	Hyetts Corner Road	Hyetts Comer Road	Hyetts Corner Road
8 Location(s)	SR896	SR 896	SR 896	SR 896	Hyett's Corner Road	Hyett's Corner Road	Old Schoolhouse Road	Old Schoolhouse Road	Old Schoolhouse Road	Old Schoolhouse Road	Old Schoolhouse Road
9 Location(s)	Jamison Corner Road	Shallcross Lake Road	Shallcross Lake Road	Shallcross Lake Road			Churchtown Road	Churchtown Road	Churchtown Road	Churchtown Road	Churchtown Road
10 Location(s)	SR896	Old Schoolhouse Road	Old Schoolhouse Road	Old Schoolhouse Road							
11 Location(s)	Shallcross Lake Road	Churchtown Road	Churchtown Road	Churchtown Road	i i	1					

Note 1: Cost Estimate includes Right of Way Costs