February 2007

ALTERNATIVE RETAINED FOR DETAILED STUDY - BROWN ALTERNATIVE (EAST BYPASS)

US 113 North / South Study

DESCRIPTION OF THE BROWN ALTERNATIVE

The Brown Alternative begins at the existing split between SR 1 and US 113. It follows the existing SR 1 bypass of Milford as far south as Wilkins Road, including the addition of one lane in each direction to existing SR 1 in this area. (An interchange is proposed at NE Front Street as part of a separate project.) The alignment then curves to the southwest, with adjacent interchanges with SR 1 and SR 30. Curving to the west, the alignment crosses near the intersection of Elks Lodge Road and Wilkins Road, heading almost due west to the north of Lincoln. It bridges over Marshall Street, the railroad, and South Walnut Street. It then curves to the south along the south side of Herring Branch, tying into US 113 at a full interchange just north of Johnson Road.

NATURAL ENVIRONMENT

Advantages

- Moderate wetlands impacts
- Relatively low potential Federally listed RTE impacts
- Low State Natural Area and Resource Area impacts
- Removed from area next to Cubbage and Clendaniel Ponds
- No potential affect on wellhead protection areas
- Moderate forest impacts

Disadvantages

- Impacts high quality wetlands - Herring Branch
- Fragments high quality wetland/forest habitat - Herring Branch
- High Waters of the US impacts
- Potential effect on excellent groundwater recharge area (Herring Branch) and adjacent good/fair recharge area

CULTURAL RESOURCES

Advantages

- No direct impacts to National Register of Historic Places architectural properties
- Moderate potential indirect effects on National Register of Historic Places architectural properties (approximately 4 properties)
- Low impact to areas with potential high sensitivity for later historic-period archeological resources
- Low impact to areas with potential high and moderate sensitivity for early historic-period archeological resources

Disadvantages

- Moderate to high impact to areas with potential high and moderate sensitivity for prehistoric archeological resources
- Impacts a known archeological site

COMMUNITY / ENGINEERING / TRAFFIC

Advantages

- Favored by Greater Lincoln Community
- Eliminates impact on Greentop community (compared to Green & Purple)
- Reduced effect on Lincoln community (compared to Green & Purple)
- Low number of affected properties
- Moderate acres of affected properties
- Takes advantage of existing SR 1 - shorter length of construction on new alignment
- Good consistency with Livable Delaware
- Moderate cost alternative
- All existing roads remain open, passing over or under the alternative
- Moderate number of existing communities (8) are within 900 feet of the Brown Alternative (4 are along existing SR 1)
  - Central Parke (under construction)
  - Lincoln Village
  - Hudson Mill
  - Hudson Pond Acres
  - Woods Haven
  - Meadows at Shawnee
  - Knollac Acres II
  - Matlinds Estates
- Lowest number of existing residential properties (20) would be acquired
- Access modified to a moderate number of residential properties (14), commercial properties (6) and farm properties (8)
- Moderate number of commercial properties (6) would be acquired
- No lots in approved subdivisions would be acquired

Disadvantages

- Greater overall length than other alternatives
- Property belonging to the New Hope Baptist Church is within 900' of the centerline
- Two school properties lie within 900 feet of the Brown Alternative
- High number of residential properties (502) and farm properties (76) are within 900 feet of the Brown Alternative. Note: 418 residential and 34 farm properties are along existing SR 1

STUDY OF BROWN ALIGNMENT OPTIONS

Discussions with the Agencies

- September field view: The agencies expressed concern regarding impacts to Herring Branch area
  - Wetland acreage impacted is somewhat greater than Green and Purple
  - Herring Branch wetlands and adjacent forest, which is of higher quality than the wetland area impacted by Green and Purple (un-named tributary to Cedar Creek (all 3) and un-named tributary to Cubbage Pond (G&P); forms one contiguous habitat
- September/October: DelDOT evaluated options to move Brown out of the Herring Branch area
  - Moving Brown south would place it much closer to Lincoln than either Green or Purple (This was not considered viable)
  - Moving Brown north would impact Central Parke, a 700+ unit development that is currently under construction
- Implications of impacting Central Parke:
  - Purchase the entire parcel in 2007: about $30-35 million (including land, improvements, engineering, etc.) ... OR ...
  - Purchase about 100 homes after they are complete and relocate residents: about $50-60 million, plus compensation for financial impacts related to community facilities
  - DelDOT does not consider either of these approaches or solutions viable
- November/December: DelDOT looked at options to keep Brown in the Herring Branch area, but reduce its impact
  - Narrower cross section
  - Removed or relocated ramps
- December: The agencies indicated that even though the options reduced impacts in the Herring Branch area, the impacts of the Brown Alternative remained greater than those of the Green and Purple Alternatives.

RESOURCE & REGULATORY AGENCY COMMENTS

Because the Brown Alternative impacts and divides the higher quality wooded wetland and habitat complex around Herring Branch and the Green and Purple Alternatives directly impact less and lower quality natural resources, the Brown Alternative is considered a more environmentally damaging alternative.

The environmental resource and regulatory agencies consider the Green and Purple Alternatives preferable to the Brown Alternative.

The Brown Alternative is generally more likely to affect areas with a higher probability to contain prehistoric archeological sites than the Green and Purple Alternatives.

PUBLIC COMMENTS TO DATE

- Working Group favors the East Bypass Alternatives and requested the Brown Alternative be evaluated
- Greater Lincoln Community favors the Brown Alternative and opposes the Green and Purple Alternatives

Comparison of Retained Alternatives

	No-Build	Yellow	Orange	Blue	Green	Purple	Brown
Wetlands and Waters of the US							
Wetlands (acres)	0	1.4	8.5	10.6	1.0	1.4	4.1
Waters of the US (linear feet)	0	689	1,149	1,262	521	346	1,050
Historic Resources							
Number of Historic Properties within Study Area [1]	0	18	6	7	3	4	4
Number of Properties Potentially Subject to Section 4(f) [2]	0	8	0	0	0	0	0
Number of Cemeteries [3]	0	1	0	0	1	0	0
Archaeological Resources							
Number of Known Archaeological Sites in the Limit of Disturbance [4]	0	1	1	1	1	1	1
Prehistoric Sensitivity in the Limit of Disturbance [5]							
High Sensitivity Area (acres / %)	0	7 (1.8%)	16 (2.3%)	19 (3.8%)	4 (1.1%)	3 (1.0%)	8 (2.0%)
Moderate Sensitivity Area (acres / %)	0	45 (12.1%)	70 (10.4%)	59 (11.7%)	22 (5.5%)	22 (5.9%)	55 (14.6%)
Low Sensitivity Area (acres / %)	0	54 (14.3%)	144 (21.2%)	124 (24.8%)	38 (9.7%)	46 (12.0%)	66 (17.4%)
Slight Sensitivity Area (acres / %)	0	270 (71.8%)	449 (66.1%)	297 (59.7%)	332 (83.7%)	310 (81.1%)	250 (66.0%)
Early Historic-Period Sensitivity in the Limit of Disturbance [6]							
High Sensitivity Area (acres / %)	0	2 (0.4%)	5 (0.8%)	20 (4.1%)	8 (2.1%)	6 (1.5%)	6 (1.7%)
Moderate Sensitivity Area (acres / %)	0	9 (2.3%)	34 (5.0%)	26 (5.2%)	8 (1.9%)	8 (2.0%)	11 (3.0%)
Low Sensitivity Area (acres / %)	0	<1 (0.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Slight Sensitivity Area (acres / %)	0	365 (97.2%)	639 (94.2%)	453 (90.7%)	380 (96.0%)	368 (96.5%)	362 (95.3%)
Later Historic-Period Sensitivity in the Limit of Disturbance [7]							
Extant Locations [8]	0	39	34	26	19	17	16
High Sensitivity Locations	0	152	42	48	30	33	42
Moderate Sensitivity Locations	0	5	4	5	3	3	4
Low Sensitivity Locations	0	14	19	18	9	13	11
Section 4(f) Properties							
Number of Publicly-Owned Parks and Recreation Areas	0	0	0	0	0	0	0
Number of Publicly-Owned Wildlife and Waterfowl Refuges	0	0	0	0	0	0	0
Number of Historic Properties [1]	0	8	0	0	0	0	0
Section 6(f) Properties							
Properties purchased by Land & Water Conservation Fund (LWCF) (number)	0	0	0	0	0	0	0
Area (acres)	0	0	0	0	0	0	0
Properties purchased by Delaware Trust Fund (DTF) (number)	0	1	0	0	0	0	0
Area (acres)	0	1	0	0	0	0	0
Natrual Areas							
State Resource Areas	0	1	33	36	1	1	1
Natural Areas	0	1	29	30	1	1	1
Rare, Threatened and Endangered Species							
Potential Rare, Threatened and Endangered Species Areas (acres) [9]	0	1	9	11	1	1	4
Other Considerations							
Agricultural Districts (Ten-Year) (number of properties)	0	0	4	2	1	1	0
(acres within properties)	0	0	39	11	0	0	0
Agricultural Preservation Easements (Permanent) (number of properties)	0	3	3	3	4	5	3
(acres within properties)	0	12	12	12	21	33	12
Forestland: 2002 Land Use (acres)	0	17	79	79	19	18	26
State Forest Lands	0	0	0	0	0	0	0
Property Impacts							
Properties affected (numbers of)	0	342	291	258	194	146	127
Properties affected (total acres)	0	272	664	409	382	370	419
Access Rights							
Acquisitions (numbers of affected properties)	*0*	*76*	*59*	*76*	*70*	*61*	*43*
Residential: total (existing residences/approved lots)	0	29 (29/0)	52 (51/1)	59 (58/1)	59 (28/31)	48 (32/16)	20 (20/0)
Agricultural	0	12	5	5	9	10	17
Commercial	0	35	1	11	3	3	6
Other	0	0	1	1	0	0	0
Modified Access (numbers of affected properties)	*0*	*96*	*6*	*6*	*34*	*26*	*28*
Residential	0	30	3	0	27	20	14
Agricultural	0	11	2	2	5	4	8
Commercial	0	53	0	4	2	2	6
Other	0	2	1	0	0	0	0
Cost							
Preliminary anticipated cost range ($ millions)	0	$418 - $512	$420 - $513	$324 - $395	$299 - $365	$337 - $411	$339 - $415
Livable Delaware							
Consistency with State Strategies and local comprehensive plans [10]	N/A	VERY POOR	FAIR	POOR	GOOD	GOOD	GOOD [10]
Engineering							
Existing US 113/SR 1 length (miles)	12.2	12.2	1.7	6.4	9.9	9.9	11.1
Proposed US 113 off-alignment length (miles)	0.0	0.0	10.8	7.2	4.6	4.6	4.0
Total length of alternative (miles)	12.2	12.2	12.5	13.6	14.5	14.5	15.1

[1] Historic properties are resources listed on or determined eligible for the National Register of Historic Places; eligibility status is based on consultant recommendations, reviewed by DelDOT and SHPO staff; as of January 2007, consensus has been reached on most recommendations. Study area encompasses all properties on tax parcels within 600 feet of the centerline of the alternative.

[2] Section 4(f) applies to historic properties directly impacted by an alternative; properties evaluated for direct impacts 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.

[3] Includes only those cemeteries directly impacted by an alternative.

[4] Archaeological sites on file with SHPO; most have not yet been evaluated for National Register eligibility; note that the limit of disturbance (here and in subsequent rows) does not include future stormwater management and other needs such as wetland mitigation sites.

[5] GIS inductive model based on known sites and environmental parameters, intended as a planning tool for estimating the relative likelihood for sites to be present in the limit of disturbance; note that potential archaeological significance has not been assessed; current as of May 2005.

[6] GIS model based on environmental parameters and current theory regarding early historic settlement, intended as a planning tool for estimating the relative likelihood for sites to be present in the limit of disturbance; note that potential archaeological significance has not been assessed; current as of May 2005.

[7] Point locations for properties derived from historical maps and documents and assessed for likelihood of survival based on subsequent disturbances; note that potential archaeological significance has not been assessed; includes a 300-foot buffer around each point to account for mapping inaccuracies; current as of May 2005.

[8] Standing historic-period structures.

[9] 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.

[10] Based on consultation with the Office of State Planning Coordination, Kent and Sussex Counties, and the City of Milford; meeting held March 7, 2006. Because the Brown alternative was added after that date, additional consultation is required.