As discussed in Chapter 2, Section 2.7.5, page 2-70, the designation of Alternative 3 as the Preferred Alternative was determined because it would have the least wetland impact, in both acreage and wetland value, lowest cost, least impact to farmland, least impact to potential historic sites, was one of the three preferred by SCDNR and USFWS, and along with Alternative 6, would be the most constructible. Table 2.5 on page 2-31, and pages 2-59 through 2-70 explain in detail each reasonable Build Alternative. Furthermore, each environmental and non-environmental factor was discussed on a comparative basis in Chapter 3 of the DEIS, which has been included as Appendix C in the FEIS.

As stated in Chapter 2, Build Alternatives 2, 3, 5, 6, and 7 were all viable alignments. Although it does state that "Alternative 7 was eliminated primarily because it had such high wetland impacts (492 acres)" it continues on to state that "...but also because of the constructability issues for the portions at the U.S. Route 501 Bypass and at the Little Pee Dee River crossing." Furthermore, each environmental and non-environmental factor including water quality, noise, and habitat fragmentation was discussed on a comparative basis in Chapter 3 of the DEIS, which has been included as Appendix C in the FEIS. Please refer to Appendix C, that explains that although Alternative 3 may have a higher number of stream crossings and greater stream length impacted, Alternative 3 would have less impact with regard to water quality. Alternative 3 would cross four ORW versus nine crossings by Alternative 7. Alternative 3 would also have three crossings of 303(d) impaired streams compared to three crossings by Alternative 7.

The ACT agreed that crossing the Little Pee Dee River parallel to the existing crossing of S.C. Route 917 would be preferred rather than on new location. Originally the existing crossing was not considered because of the location of the Heritage Preserve, but the revision was made based on a decrease in overall wetlands, lower habitat fragmentation potential, and ACT concurrence (refer to the Section 4(f) Evaluation, Appendix E). In addition, the crossing of Lake Swamp was also modified to parallel the exiting crossing of Nichols Highway (refer to Chapter 2, page 2-79).

Please refer to Appendix C, for the discussion that was included in the Draft EIS on farmlands, uplands and wildlife. Many of the other factors, such as economic impacts, were determined to be so similar as to not be helpful in making a selection of a Preferred Alternative.

such as bear corridors, should be included in the DEIS alternatives analysis. In particular, the DEIS should evaluate relative habitat fragmentation of the various alternatives, which is discussed in detail in the following section of these comments.

Because all proposed routes would have a similar level of anticipated direct wetland impacts, especially considering that further minimization efforts will occur for the selected alternative based on field work, in the permitting process and as a final design is developed, other aquatic and non-aquatic impacts must be given careful consideration in the EIS. Only then can the EIS be useful in the ultimate determination under Section 404 of the "least damaging practicable alternative." Based on the relative number of stream crossings, impacts to important natural areas such as the Vaughn Tract and Lake Swamp, and other environmental impacts, Alternative 7 is clearly preferable from an environmental standpoint.

An additional comment about the overall DEIS alternatives analysis is worthy of note here. The choice of Alternative 3 as the preferred alternative is even less defensible when the two most important non-environmental factors are considered, construction cost and relocations of residences and other structures. The estimated costs of construction of Alternative 3 and Alternative 7 are the two lowest of the eight alternatives, and virtually identical, 1.29 billion versus 1.35 billion. (Table 2.5.). The project's projected cost at this stage can only be a rough estimate, making a small percentage difference irrelevant. Also, Alternative 7 would have lower community impacts, with far fewer business and residential relocations than any of the others, 51 versus, for example, 88 for Alternative 3 (Table 2.5.). From an environmental, economic and human perspective, Alternative 7 is the preferred alternative based on the information provided in the DEIS.

2. The DEIS fails to evaluate the alternatives based on relative habitat fragmentation, ignoring or discounting corridors that maximize the use of, or are routed in close proximity to, existing major highway corridors.

Prior the inception of the EIS process, we urged the SCDOT to carefully evaluate the use of existing highway corridors to be upgraded as a potential corridor for I 73. We pointed out that North Carolina DOT has taken this approach to the location I 73 and I 74 in that state, resulting in lower cost, lower environmental impacts and faster construction times. While we are pleased that all proposed routes in the DEIS make use of SC 22 as the final leg of the project, we are disappointed that none of the eight corridors currently under consideration maximizes the use of exiting highways. Further, there is no explanation in the document as to why such alternatives were not even considered. This shortcoming in the DEIS is even more noteworthy given that there are multiple four lane divided highways in existence or currently the subject of widening projects between I 95 and the Myrtle Beach area, at great cost to South Carolina taxpayers, including SC 38, US 501 and SC 9.

Of the five potential routes identified in the DEIS alternatives analysis as "viable," the corridor that makes greatest use of existing highway corridors is Alternative

Comment noted.

Comment noted.

The consideration of existing transportation infrastructure was evaluated, quantified, and compared (refer to Chapter 2, page 2-11). Text has been added to Chapter 2, page 2-11, to further explain the evaluation of alternatives that closely followed existing roadways. Of the 25 preliminary Build Alternatives presented to the ACT, approximately nine utilized portions of U.S. Route 501, four utilized a portion of S.C. Route 9, three alternatives used portions of S.C. Route 917 and one alternative utilized existing S.C. Route 38. Of the seven reasonable Build Alternatives designated by the ACT, three utilized portions of U.S. Route 501 near Aynor, South Carolina, and two utilized a portion of U.S. Route 501 east of Marion. The remaining alternatives that would utilize existing roadway infrastructure were eliminated from further evaluation based on one or more of the following: higher wetland impacts, longer length, greater cost, and that the alternative would not meet the purpose and need of the project as well as other alternatives due to minimal length in Marion County, which would provide minimal economic development opportunity. Please refer to the *Alternative Development Technical Memorandum* for further information.

7. This is because it uses the existing Marion Bypass for several miles of the alignment. Consequently, this alternative is in much closer proximity to existing major highway corridors (SC 38 and US 501 in Dillon and Marion Counties), and local population centers including Latta, Marion and Aynor. In contrast, Alternative 3 is much more of a "greenfields" route. It cuts across a largely undeveloped landscape midway between the two existing major highway corridors to the beach, SC 38/US 501 and SC 9. This route also bisects the largely undisturbed natural corridor along the Little Pee Dee River half way between the US 501 and SC 9 crossings.

The I 73 southern project as proposed would be a 45 mile long stretch of highway cutting through a sparsely developed area consisting mostly of fields, forests and swamps. It would create a substantial barrier to wildlife migration of all types, not just bears and all other fauna. In a word, *fragmentation* is a key reason why Alternative 3 is more environmentally damaging than Alternative 7. "Habitat fragmentation is defined as the breaking of a habitat type into pieces, with consequent loss of connectivity." Richard T.T. Forman et. al. 2003. Road Ecology: Science and Solutions (Island Press), p. 15.

"As species populations become increasingly fragmented, the probability of extinction of local populations increases, especially if dispersal between populations is hindered." Id at p. 136. In fact, "road kill" is the single largest human induced cause of wildlife loss in the United States today and a significant safety concern for the motoring public. An estimated one million vertebrates are killed daily (a rate of one every 11.5 seconds) on roads in the U.S. [1] Add to animal mortality the interruption in foraging, breeding and migration patterns for those species which avoid crossing several lanes of concrete or don't use the occasional "critter crossings" and it is easy to see why this is such an important environmental issue for this project. [2]

Fragmentation of habitat of all types is increasingly recognized by wildlife biologists, ecologists and other scientists as one of our greatest environmental challenges overall and the most pervasive long term environmental consequence of major rural highway projects. "Emerging issues such as habitat fragmentation and connectivity for wildlife, critical habitats, increasing numbers of threatened and endangered species, and secondary and cumulative impacts have further complicated matters for the transportation industry. Because of the linear nature of transportation projects, the potential for involvement with a variety of habitats and wildlife is high."[3] "Roads contribute to

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[1] J. Lalo, The problem of roadkill, *American Forest* , 50 (1987).

[2] Studies have consistently shown that black bears not only crossed roads at low rates, but tended to avoid habitats adjacent to major roads. A.J. Brody & M.R. Pelton, Effects *of Roads on Black Bear Movements in Western North Carolina*, Wildlife Society Bulletin 17, 5 (1989). Stephen C. Trombulak & C.A. Frissell, *Review of Ecological Effects of Roads on Terrestrial and Aquatic Communities*, Conservation Biology 14, 18 (2000).

[3] Transportation Research Board. National Cooperative Highway Research Program Synthesis 305: Interaction Between Roadways and Wildlife Ecology: A Synthesis of Highway Practice.

Comment noted.

Please refer to Appendix C for the discussion of habitat fragmentation that was included in the Draft EIS. The crossings of Alternatives 1, 2, 4, 5, 7, and 8 would be located at the existing U.S. Route 501 crossing. Although a portion would be situated in the median of U.S. Route 501, where it would cross Back Swamp the mainline of the roadway and associated access ramps, and the shift to avoid impacts to Galivants Ferry Historic District, would contribute to fragmentation of riparian habitats. Alternatives 3 and 6 would cross Back Swamp and the Little Pee Dee River immediately adjacent to the existing S.C. Route 917 crossing and would not contribute to habitat fragmentation. Because of the extent of bridges that would be constructed over the wetland and aquatic habitats, terrestrial species would have unobstructed passage along the corridors.

fragmentation of populations through both increased mortality and modification of behavior that makes animals less likely to cross roads. Fragmentation may be accelerated by roads when spatially critical habitat patches (e.g., "stepping stones") become unoccupied as a result of increased local mortality or reduced recolonization."[4] "As additional road construction and timber harvest activities increase habitat fragmentation across large areas, the populations of some species may become isolated, increasing the risk of local extirpations or extinctions."[5]

The adverse impacts of habitat fragmentation is magnified by the setting of the I 73 project. In Pee Dee Watershed (Hydrologic Unit Code 03040201) there are 311 known rare, threatened, and endangered species community locations.[6] In the Waccamaw Watershed (03040206) in Horry County, there are 318. Many of the direct and most of the indirect impacts of this project will occur in Horry County, which has been recognized as a ecological "hotspot" of national significance.[7] Such areas are recognized as important because they are locations with an historic high level of species diversity which are now under threat from development. SCDOT itself has recognized that the Myrtle Beach area is still home to some of the most pristine natural areas in the southeastern United States.[8] Horry County is home to 59 rare, threatened, and endangered species, including the largest population of Black Bears in South Carolina.[9]

Unfortunately, the fragmentation issue, and its disproportionate impact on rare, threatened and endangered ecosystems and species is completely ignored in the DEIS alternatives analysis. For this reason alone, the proposal to select Alternative 3 as preferred must be reconsidered and the alternatives analysis substantially revised.

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[4] Stephen C. Trombulak & Christopher A. Frissell, *Review of Ecological Effects of Roads on Terrestrial and Aquatic Communities*, 14 Conservation Biology 18, 21 (2000).
[5] Mark L. Watson, Habitat Fragmentation and the Effects of Roads on Wildlife and Habitats, 1, 3 (2005). Cited in Reed F. Noss & Allen Y. Cooperrider, Saving Nature's Legacy: Protecting and Restoring Biodiversity (Defenders of Wildlife, Island Press 1994).
[6] USDA: Natural Resources Conservation Service, 1998. South Carolina: Unified Watershed Assessment and FY 1999-2000 Watershed Restoration Priorities. Available at http://www.scdhec.net/EQC/water/pubs/uwafull.pdf
[7] Daniel T. Rutledge et. al., *Dynamics of Endangered-Species Hotspots*, Conservation Biology 15, 475 (2001).
[8] South Carolina DOT Carolina Bays Ecosystem Initiative, http://www.fhwa.dot.gov/environment/ecosystems/sc05.htm
[9] List from Horry County Rare, Threatened and Endangered Species Inventory, May 18, 2006. http://www.horrycounty.org/envision/docs/Natrual%20Resources%20Element.pdf

Please refer to Appendix C for the discussion of habitat fragmentation that was included in the DEIS and Chapter 3, Section 3.14.4, beginning on page 3-182.

3. The DEIS treats Section 4(f) issues inconsistently in the alternatives analysis, giving preferential consideration to a route with such impacts, despite the existence of viable alternatives without significant Section 4(f) impacts.

SCDOT concedes that five of the eight alternatives studied in the DEIS are viable options for the project, yet proposes as "preferred" one of the two routes which would significantly impact highly important natural resources protected under Section 4(f) of the Federal Transportation Act. Alternatives 3 and 6 both would bisect the Vaughn Tract of the Little Pee Dee Heritage Preserve. Although the DEIS notes that 30 acres of the preserve would be destroyed by the interstate, it fails to concede the obvious conclusion that this impact would be significant, thus prohibiting the selection of this alternative as a matter of law (DEIS, p. 3-92). In fact, the DEIS hints that such an impact could be rationalized to be *de minimis* if appropriate mitigation were offered to the South Carolina Department of Natural Resources (see DEIS p. 3-89).

Under federal law, a route with significant Section 4(f) impacts cannot be selected if a viable alternative route exists without such impacts. Because Alternative 3 will use Heritage Trust land, it is undisputed that the Secretary of Transportation must issue a "Section 4(f)" determination in connection with this project. The law states:

> [T]he Secretary may approve a transportation program or project requiring the use . . . of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance, or land of an historic site of national, State, or local significance (as determined by the Federal, State, or local officials having jurisdiction over the park, area, refuge, or site) *only if – (1) there is no prudent and feasible alternative to using that land*; *and* (2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.

49 U.S.C. Section 303(c)(1)-(2). A 4(f) determination, in other words, involves a two step process. First, the Secretary must examine whether there are prudent and feasible alternatives that would avoid using a significant park, recreation area, or refuge. If such an alternative exists, the Secretary may not approve or fund a project that would "use" one of these special land types. The 4(f) evaluation, therefore, may be concluded at the first step. But if no prudent and feasible alternative exists – meaning use of a protected land is unavoidable – then the Secretary must ensure, at step two, that all possible measures are taken "to minimize harm" to the land. The DEIS improperly collapses this two step process by concluding that Alternative 3 can be selected if appropriate mitigation is offered, despite the acknowledged existence of prudent and feasible alternatives. Such an approach would be akin to ignoring relative wetland impacts under the theory that they can all be mitigated.

Please refer to Appendix E for the Section 4(f) Evaluation that was prepared due to the impact to the Heritage Preserve.

The seminal case construing the "prudent and feasible alternative" standard in Section 4(f) is Citizens to Preserve Overton Park v. Volpe, 401 U.S. 402 (1971). In Overton Park the Court imposed a strict standard consistent with the Congressional intent behind the law to provide an appropriate level of protection to publicly owned parkland and nature preserves:

> It is obvious that in most cases considerations of cost, directness of route, and community disruption will indicate that parkland should be used for highway construction whenever possible . . . . And since people do not live or work in parks, if a highway is built on parkland no one will have to leave his home or give up his business. Such factors are common to substantially all highway construction. Thus, if Congress intended these factors to be on an equal footing with preservation of parkland there would have been no need for the statute[].
>
> Congress clearly did not intend that cost and disruption of the community were to be ignored by the Secretary. But the very existence of the statute[] indicates that protection of parkland was to be given paramount importance. The few green havens that are public parks were not to be lost unless there were truly unusual factors present in a particular case or the cost or community disruption resulting from alternative routes reached extraordinary magnitudes. If the statute[] are to have any meaning, the Secretary cannot approve the destruction of parkland unless he finds that alternative routes present unique problems.

Id. at 411-13.

Because no such "truly unusual factors" or "unique problems" exist here, and all eight alternatives meet all five of the identified purposes and needs for the I 73 project, Alternative 3 cannot be selected as the preferred alternative. Two alternatives with no 4(f) impacts are identified in the DEIS, Alternatives 2 and 5. In addition, the potential Section 4(f) impact for Alternative 7 is minimal compared to those of Alternative 3, consisting of a single "potentially eligible" archeological site that easily could be avoided or otherwise mitigated. In addition the document contains as yet unsupported speculation that Alternative 7 "might have visual impacts on the Galivant's Ferry Historic District" (DEIS, p. 2-65).

Overall, the draft Section 4(f) evaluation is extremely weak and unconvincing, concluding that none of the alternatives besides the preferred alternative are "prudent," citing for each alternative any negative factor that can be identified no matter how minor to support what appears to be a preordained conclusion that Alternative 3 is the only feasible option. This nonsense is directly contradicted by the DEIS alternatives analysis