ABSTRACT

An archaeological predictive model has been prepared for the proposed study area associated with the various design alternatives under consideration for the U.S. 301 Project Development in St. Georges and Pencader Hundreds, New Castle County, Delaware. The model is intended to serve as a planning tool to assist in the development of the designs for the various alternatives under consideration for the project and to aid in the assessment of their relative potential impacts on archaeologically sensitive areas. Both prehistoric and historic archaeological potential are considered in this model. Characterization of the environment has been accomplished using data available in a Geographic Information System (GIS) format, and GIS has been used to compare the relative significance of the relevant criteria within the various parts of the study area. Historic and modern ground disturbances were modeled to qualify the areas of archaeological potential relative to their likely integrity.

Because this model is a representation of probabilities rather than absolutes, it cannot specify that an archaeological site will fall within a certain location and not another. Rather, its purpose is to define areas of greater or lesser archaeological sensitivity. It is also not able to anticipate all areas within which sites might be found. Relevant hydrological or topographical information that is smaller in size than the limiting cell resolution of GIS, such as the locations of remnant drainages or small knolls, will be invisible in GIS. This shortcoming can be resolved in part by supplementing the model's characterization of a particular area with a pedestrian reconnaissance. When field testing is underway, the field archaeologists should have the latitude to reassess its relative archaeological potential in order to assure that a particular area will be tested appropriately.

Even with this provision, the model may not be able to identify all areas of interest. Because of the epistemological limitations inherent in any attempt to reconstruct the reasoning behind the choices made by Native Americans during the prehistoric period, any model will at best only represent an approximation of their thinking. Recent scholarship about the earliest European settlements in the interior of Delaware suggests that orthodox theory regarding the location of

these sites may be in error, although alternatives have yet to be formulated. In order to better evaluate the effectiveness of the model, the field testing strategy during the survey phase should include a provision to survey a substantial component of the preferred alternative's associated area of potential effect using a high probability testing interval. This should provide both a test of the model and a mechanism for collecting data that can be used to refine our understanding of the site selection criteria used by Native Americans and early European settlers.