EXECUTIVE SUMMARY

Project Title: Archaeological Survey Methodology and Results
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The Ohio Department of Transportation (ODOT) has determined that one of the best ways to optimize Phase I cultural-resource survey data is to test the feasibility of using advanced technology for project planning. This study describes the results of research that explore the advantages of remote sensing and GIS in developing models that forecast, with varying degrees of probability, the locations of prehistoric archaeological phenomena in different kinds of terrain. Specifically, research focuses on creating predictive models that are based on the characteristics of lithic scatters (n = 580) and isolated finds (n = 214) from an area in Fairfield County, OH. Six GIS models forecast the presence or absence of lithic scatters and isolated finds from spatial variation in soil type, land cover, and surface glacial geology. For the same area, a remote-sensing model stresses the spectral characteristics of lithic scatters and isolated finds that are located in two different landcover classes (agricultural fields or uplands) that registered on a 2001 LANDSAT 7 image. Significant patterning was detected in the extent to which either certain combinations of environmental variables or spectral-imaging parameters predict lithic scatters, isolated finds, or neither site type. For instance, lithic scatters, which represent the most common type of archaeological site statewide, are more reliably modeled than isolated finds when landform is held constant. These and other findings suggest that archived archaeological data and remote-sensing imagery hold great promise for ODOT planning, particularly in identifying alternative corridors for future Phase I surveys. However, it remains to be determined whether a GIS-based approach, which requires extensive and time-consuming compilation of disparate (and often incompatible) data files, or a remote-sensing approach, which requires advanced technical knowledge (often involving expensive, proprietary software), is the most cost effective. This report also contains recommendations for evaluating the predictive models’ usefulness and the need for further study to assess how changes in land-use patterns affect the designation of archaeological and environmental phenomena.