Archaeological Predictive Model Set

Project Title: Archaeological Predictive Model Set  
Project No: 120205

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<thead>
<tr>
<th>PennDOT Technical Advisor:</th>
<th>Project Duration:</th>
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<tbody>
<tr>
<td>Ira Beckerman</td>
<td>May 2013 – Nov 2014</td>
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**Project Purpose:**

Project purposes are to:
- Develop the first statewide archaeological predictive model for Pennsylvania.
- Develop a series of regional models that can be used to estimate the likelihood that an archaeological site is present for any specific location.

Because archaeological sites are buried from sight, they are exceedingly difficult to locate without extensive field study. As a result, the population of known archaeological sites is estimated at 3-5% of the sites that exist. One way to take into account archaeological sites without having surveyed the area is to make an educated guess as to whether that spot of ground contains a site or not. The application of geographic information system (GIS) and sophisticated mathematical modeling to this guesswork is known as archaeological predictive modeling. This research project is only the third large-scale model attempted in the United States.

In support of PennDOT’s Strategic Goals:
- Leverage resources to maximize effectiveness
- Continually increase efficiency

**Anticipated Outcomes:**

Anticipated project outcomes include:
- Mathematical models, based largely on environmental variables, to estimate the likelihood of presence of an archaeological site in any location.
- Over a larger area, the models will generate an archaeological sensitivity surface.
- Model results can be used in Linking Planning and National Environmental Policy Act (NEPA) tools for planning individual projects to avoid archaeological sites.
- A model can be useful in developing more accurate expectations for an archaeological survey and treatment during project design, especially with regard to schedule and budget.

**Implementation Plan:**

The models will be used to generate an archaeological sensitivity layer to be used in the Cultural Resources GIS. This layer will allow planners to make predictions in Linking Planning and NEPA on the presence of an archaeological site in a proposed project area, at a higher level of accuracy than at present. As the Department continues to conduct archaeological surveys for projects, the model and layer will be used to continually test and improve the skills of staff archaeologists.

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<tr>
<th>Research Partner:</th>
<th>Principal Investigator:</th>
<th>Project Cost:</th>
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<tr>
<td>URS Corporation</td>
<td>Matthew Harris</td>
<td>$365,900.70</td>
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