STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
P.O. Box 778
DOVER, DELAWARE 19903

OFFICE OF THE
DIRECTOR

TELEPHONE: 739-3826

PUBLIC INFORMATION HANDOUT

NEW CASTLE AND KENT COUNTY CORRIDOR STUDIES

ARCHAEOLOGY FROM 900 KILOMETERS UP IN THE SKY

Most people associate archaeology with excavations below the earth's surface, but new research by the Delaware Department of Transportation and the University of Delaware Center for Archaeological Research has found ways to use satellites circling the earth at an altitude of more than 900 kilometers to look for prehistoric archaeological sites. Archaeologists have used aerial photographs to look for ruins, mounds, and other signs of prehistoric archaeological sites since the 1920s when Charles Lindberg photographed many Indians of the Southwestern United States. However, use of satellite imagery is a new application in archaeology.

The Delaware Department of Transportation's interest in applying satellite technology to archaeology began when it was faced with the planning and development of a large highway corridor which traversed an area known to have a high potential for prehistoric archaeological sites. In order to minimize the impact of the highway on prehistoric archaeological sites and to minimize excavation and mitigation costs, it was necessary to develop accurate predictions of archaeological sites. These predictions would then be used to guide highway design studies.

Over the past few years, the University of Delaware Center for Archaeological Research had been studying applications of LANDSAT satellite data to archaeological survey techniques. The LANDSAT satellite circles the earth at an altitude of 900 kilometers and records various types of energy reflected from the earth's surface. The data recorded by LANDSAT can then be used to map out various types of environments. In Delaware, LANDSAT data have been used to map out various types of marshes, woodlands, and soil types.

LANDSAT data can then be applied to archaeology by correlating the environments mapped by LANDSAT with known archaeological site locations. After patterns of association between site locations and environments mapped by LANDSAT are noted, other similar environmental zones with high potential for archaeological sites can be noted. Research at the University of Delaware Center for Archaeological Research developed the computer programs needed to analyze the LANDSAT and archaeological data and to map out areas with high probabiliites of archaeological site locations.

These techniques were then applied to the 40 mile long and 7 mile wide ROUTE 13 corridor and a series of specific high and medium probability zones were plotted on USGS 7.5' quadrangle maps. Field tests of the predictions showed a 90% accuracy rate. These maps are now being used to guide design alternatives of the highway.