

## **HR-387 Soft Photogrammetry for Highway Engineering**

**Key Words:** SoftPlotter, Photogrammetry,

### **Abstract**

The SoftPlotter, a soft photogrammetric software and Silicon Graphics workstation, was used to evaluate the accuracy of soft photogrammetry and identify applications of this technology to highway engineering. A comparative study showed that SoftPlotter compares well with other software such as Socket and Integraph. The PC software TNT mips is inexpensive but needs further development to be comparable to SoftPlotter.

The Campus Project showed that soft photogrammetry is accurate for traditional photogrammetric applications. It is also accurate for producing orthophoto and base maps for Geographic Information Systems (GISs). The Highway Project showed that soft photogrammetry is accurate for highway engineering and that the technical staff at the Iowa Department of Transportation (IA DOT) can be easily trained in this new technology.

The research demonstrated that soft photogrammetry can be used with low flight helicopter photography for large scale mapping in highway engineering. The researchers recommend that research be conducted to test the use of digital cameras instead of the traditional aerial cameras in helicopter photography. Research that examines the use of soft photogrammetry with video logging imagery for inventory and GIS studies in highway maintenance is also recommended. Research is also warranted into the integration of soft photogrammetry with virtual reality, which can be used in three dimensional designing and visualization of highways and subdivisions in real time.

The IA DOT owns one analytical plotter and two analogue plotters. The analytical plotter is used for aerial triangulation, and the analogue plotters are used for plotting. However, neither is capable of producing orthophotos. Therefore, the researchers recommend that the IA DOT purchase soft photogrammetric workstations for orthophoto production, and if and when required, use it for aerial triangulation and plotting. In the future, the analogue plotters may become obsolete. At that time, the researchers recommend that the analogue plotters be phased out and replaced by soft photogrammetric workstations.