

Sec. 5.08 Helicopter Photography

VDOT has begun utilizing photography taken from a helicopter in an effort to promote safety for the survey personnel, and produce higher accuracy from Photogrammetric DTMs. Helicopters can fly at lower altitudes, and hover over the ground, unlike fixed-wing aircraft that must maintain a minimum airspeed and altitude to avoid disaster.

The photography produced from helicopter flights increases the accuracy of Photogrammetric measurements and data collection. Helicopter photography is typically taken from three hundred to eight hundred feet (**300-800 ft**) above the ground. This produces photo scales ranging from 1:600 to 1:1600. This scale range produces a theoretical measurement accuracy of .03' to .08' respectively.

The helicopter has a hovering capability which allows it to hold position until the camera operator is ready to take the photo. This is particularly useful when working in areas of heavy traffic when vehicles are often driving across and obscuring the aerial targets.

Helicopter photography will not replace fixed-wing aircraft photography, nor will it replace the need for a field survey party, but it will provide a high-accuracy supplement for the survey data produced by traditional Survey and Photogrammetry methods.

Helicopter Photography Aerial Targets

“X” or “Cross”[◊] targets must be used to mark all helicopter-photography Photogrammetry control points. The aerial targets used for helicopter photography are smaller than traditional targets, and can be configured in the shape of an “X” like the larger targets. See **Figure 5-D**, below for helicopter-photography target illustrations. See **Figure 5-E**, for recommended helicopter-photography target dimensions. A PK Nail should be set at the appropriate location as indicated in **Figure 5-D**. The Photogrammetrist will actually be able to read the top of the nail, so careful attention must be made to place the nails at the appropriate location. The nails **MUST** be driven flush with the pavement. See **Figure 5-F**. The surveyor must read the center of the top of the PK nail as the control point location.

[◊] April 2014