

# Fieldwork “Key Tasks” Using a Film or Digital Camera for Photogrammetry

## **Preface:**

Close-Range Photogrammetry is the process of image-based measurement using both film and digital cameras. The principles and mathematics are based on triangulation. Overlapping pictures from different perspective angles are required to compute 3D measurements from the camera’s pictures. This brief, one page document was prepared to discuss the “key points” for fieldwork imaging.

- **DO NOT ZOOM.** If the lens is a telephoto zoom, set it at wide angle, and do not zoom in or out; take all pictures at wide angle.
- Take the pictures with good image overlap. Work in ‘semi rings’ (i.e., ring pattern) and ‘waves’ of pictures. The whole point in the photography work is to ‘see’ the same entities in different pictures, for the photogrammetric triangulation (software) process. *See attachment “A” for an example project – this project was a real world case in Maui.*
- Set the lens focus in manual setting at infinity setting and just snap the shutter. Your focus will be acceptable from about 6 feet to infinity.
- Fill the image viewfinder with the objects of interest that you want to measure. What this means is, your feet are the cameras “zoom”. Don’t stand back e.g., 200’ from the objects of interest. You want to ‘fill the viewfinder’ with objects of measurement interest.
- Record at least one tape-measured distance (two or more distances is better). The tape-pulled distances should be to discrete features that are seen in multiple overlapping images in the pictures. For “crash scenes”, try and get at least one distance between two discrete points that measures 30’. The distance, if it were e.g. 27’ is still fine. The longer the distance, the better, but within reason relative to the pictures that capture these tape-pulled measured distances.
- Make sure there is enough “stuff” in the pictures - even if this “stuff” is not critical to your evidence data gathering, they are import to the *iWitness<sup>TM</sup>* (or any close-range photogrammetry software) to calculate the camera position & orientation. You can use traffic cones, paint on the road to supplement the scene if there is not a lot of discrete features outside of your specific evidence, as you will be viewing it in your cameras viewfinder.
- If it is a film camera, record in your field notes for the case file that you used “camera XYZ” and the focal length (i.e. the wide angle zoom) was eg. 28mm. Note that this is a critical step that makes the photogrammetry process all that much easier when it comes time to measure the pictures.
- If using a digital camera, set the image resolution as e.g., “fine, or SHQ” in JPEG setting.
- If you have the ability in set your digital camera to Manual Focus at Infinity, this is preferred over Autofocus. Autofocus will work, but it is not recommended.
- Lastly, for optimum results, the camera should be calibrated. Contact DCS Inc for more information.

**DCS specializes in the *iWitness* close-range photogrammetry software system. If we can help you with your image-based measurements, please contact us at [sales@iwitnessphoto.com](mailto:sales@iwitnessphoto.com)**