

Chapter 3

Crime Scene Fundamentals

Overview

During the processing of a crime scene, several tasks and procedures must be accomplished by investigators. Documentation of the scene and its evidence with photography is only one part of the investigation of a crime scene. Photography must be employed at the correct times, and with the correct methods, during the processing of the scene.

Crime Scene Fundamentals

Since virtually all crime scenes have physical evidence, the documentation of a crime scene has the potential to play a critical role in the investigation and resolution of a suspected criminal act. Crime scene investigators must approach each crime scene as if it will be their only opportunity to recover and preserve important physical evidence.

All crime scenes are unique. While most agencies have policies or guidelines for the processing of crime scenes, the judgment of investigators at the scene will ultimately determine how the scene is processed.

Scenes should be processed in a methodical manner. Generally, crime scenes are processed in the following steps:

Step 1: Crime scene is secured

The first step in documenting a crime scene is the securing of the scene. The scene must be preserved with minimal disturbance of the evidence. The first responder is the one most likely to assume the responsibility for securing the scene. Once the first responder has taken whatever actions are necessary to save lives and arrest suspects, he must secure the crime scene to prevent destruction or alteration of evidence.

The boundaries of the crime scene must be established to prevent contamination of the scene and destruction of evidence. The area is controlled with the use of crime scene tape or other barriers and the establishment of one entrance to the scene.

Boundaries should normally be made larger than first thought. Later the area can be reduced in size if needed.

Step 2: Documentation of the scene begins with field notes

Every observation and activity at the crime scene must be documented. It is important that this documentation be done as each observation and activity occurs in order to accurately preserve information.

Documentation begins with notes and logs. Every detail is recorded. Notes are valuable in documenting things that will not appear in photographs or sketches, such as actions taken by investigators, statements made by witnesses, odors noticed, and locked or unlocked doors and windows. Many investigators use a small tape or digital voice recorder, instead of a notebook, to record notes and observations.

A crime scene log is usually used at major crime scenes. A crime scene log is a form used to document, chronologically, the actions taken by investigators and the names of those who enter and exit the scene.

Step 3: Crime scene assessment

Once preliminary notes have been taken, and a crime scene log has been started, the investigators at the scene must assess the scene to determine the level of investigation that should be conducted. This may include a scene walk-through for the investigation team conducted by the lead investigator. The assessment will include



Investigators assess the scene to determine the level of investigation to be conducted.

determination of what types of documentation are necessary, including notes, photography, video, measurements and sketches or diagrams. A plan is made for documenting the scene, identifying evidence and the collection of evidence.

Step 4: Documentation of the scene continues with photography

Once the crime scene has been secured, preliminary notes have been taken and the scene has been assessed, photography should begin. Photography is begun early in the investigation since, when properly applied, it is a nondestructive technique. At this point in the investigation no evidence should be disturbed. A complete set of overview photographs should be taken as soon as possible.

The Three Step Approach

When photographically documenting a crime scene, it is usually best to use a three step approach:

1. Show the overall scene with *overview photographs*.
2. Show the location of evidence with *mid-range photographs*.
3. Show the details of evidence with *close-up photographs*.

Using this three step approach, working from the outside of the scene in toward the smallest items of evidence, will normally provide a complete photographic documentation of the crime scene and its related evidence.

The purpose of overview photographs is to enable others to visualize the scene as you, the photographer, first saw it. Plan your photographs with this in mind. Take at least one complete set of photographs before the scene is altered or disturbed. If something was moved before you arrived, do not try to reconstruct the scene before the photography. The photographs should show the scene as you found it.

Do not let investigators or crime scene equipment appear in the photographs. Be careful not to disturb or destroy any evidence while taking the photographs. This can be a difficult matter since some evidence can be difficult to see, such as dusty footwear impressions on a floor.

Outside the scene

In cases involving crime scenes located within buildings, begin the overview photographs with the exterior of the building. In some cases you may need to photograph a large portion of the surrounding area, such as vehicles parked on streets or in parking lots, alleys, or escape routes. One of the exterior overview photographs should include an identifying landmark such as a street sign or address plaque. The series of exterior photographs should normally include all doors, windows, and other means of entrance or exit to and from the building.

Aerial photographs

Aerial photographs of the scene and the surrounding area can be useful in some types of cases. Aerial photography is effective for showing overviews of large outdoor crime scenes, to show how multiple crime scenes are related to one another, to show escape routes taken by suspects, and other large scale areas possibly related to the crime scene.



When taking photographs from aircraft, either fixed wing or helicopter, use a zoom lens in order to compose your photograph without having to direct the pilot to make slight changes in altitude. Photograph through an open window or door and use exposures with relatively fast shutter speeds to reduce camera movement.

Inside the scene

Plan your interior overview photographs to show how things would appear to anyone walking through the scene. For each room or area begin with a view of the entrance. Photograph the room or area, as it appears when you first step inside. Take overview photographs from each corner of the room to show the layout of the room. A wide-angle lens is usually used for interior overview photographs. In large rooms you may need to take additional photographs from other locations for complete coverage.



View of the entrance into the scene of a gunshot suicide



Overview photograph 1 — taken from the first corner of the room (corner nearest the entry door)



Overview photograph 2 — moving clockwise, taken from second corner of room



Overview photograph 3 — moving clockwise, taken from the third corner of room



Overview photograph 4 — moving clockwise, taken from the last corner of the room

These overview photographs, along with mid-range photographs, should also show the positions of any potential items of evidence. If the overview photographs do not show the location of a specific item of evidence, take a mid-range photograph or an additional overview photograph from another angle to show the location of the evidence. Continue with photographs of other rooms connected with the crime scene. If the crime scene is an apartment, hotel, or office, you may also want to take photographs of hallways, stairwells and similar areas.

Step 5: The crime scene diagram

A crime scene diagram is started. The general area is sketched and some crime scene dimensions are recorded. Additional details, including the locations of each item of evidence, will be added to the diagram as evidence is located during step six in processing of the crime scene.

Diagrams are important because they “fill in the gaps” in the documentation of crime scenes by documenting aspects of the scene that are difficult or impossible to document with notes and photographs. Photographs show selected views while diagrams can be drawn to show a “bird’s-eye view” of the entire scene. Distances are frequently misleading in photographs while diagrams are usually drawn to scale and include specific measurements. Furthermore, diagrams can be drawn to show the location of small items, making them as obvious as larger items of evidence, when their locations may be difficult to see in photographs.

Step 6: Locate, document, and collect evidence



Mid-range photograph — taken to establish the location of evidence in the crime scene



Close-up photograph — shows the details of the evidence

As each item of evidence is located within the crime scene, the evidence is documented by adding it to the notes, photographing it, and adding it to the diagram. When photographing evidence at the scene you must first show where in the scene the evidence is located. This is usually done with a mid-range photograph to establish the location of evidence and the relationship of evidence and items in

the crime scene. This is followed with a close-up photograph to show the details of evidence at the crime scene.

Additional considerations

While photographing the crime scene the photographer must be aware of the theories under consideration by investigators. Many times theories can be tested through photography. One example is the view of suspects, witnesses, or victims during the incident. The photographer can place the camera at a subject's viewing position and, using a 35mm lens, demonstrate what the subject could have seen.

The Role of the Crime Scene Photographer

The crime scene photographer is a member of the crime scene investigation team. In some large agencies the crime scene photographer will only be responsible for the photographing of scenes and their related evidence as well as specialized photography away from the scene (e.g., laboratory and autopsy photography). In small to medium sized agencies the crime scene photographer may be responsible for other duties at a crime scene including diagramming and evidence collection.

The crime scene photographer has a crucial role in the documenting of crime scenes and evidence. The photographs the crime scene photographer takes will be the only remaining views of a scene or evidence that can be studied days, weeks and even years after the suspected criminal act. Crime scene photographers must use their training and experience in both photography and forensics to complete a series of photographs that can be used by investigators, attorneys, and ultimately, in a court of law to clearly demonstrate what the scene and evidence looked like shortly after the crime occurred. Even if an investigator points out to the crime scene photographer what items need to be photographed, the crime scene photographer must make most of the decisions on what angles of view are needed and which techniques to use to accurately photograph the scene.

Photo Log

Notes should be taken to identify what photographs were taken and what each photograph was intended to show or accomplish. This record will assist the photographer in remembering what he/she was trying to demonstrate with each photograph. It will also assist others who view the photographs at a later time in understanding the photographs. For example, photographs of two similar bedrooms at a scene are differentiated with entries in the photo log.

| PHOTOGRAPHIC REPORT | | CASE NO. | Scene No. | |
|---|---------------------------|---|-----------|------|
| | | Media Card No. | Page No. | |
| Date | | Location | Offense | |
| Make and model camera, lens, light source | | | | |
| Frame No. | Description of Photograph | Camera lens or light source (if different from above), filter, etc. | Date | Time |
| 1 | | | | |
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| 26 | | | | |
| 27 | | | | |
| 28 | | | | |
| 29 | | | | |
| 30 | | | | |
| Comments | | | | |
| Photographer | | Approving Supervisor | Date | |

It is recommended a form, such as the one on the previous page, be used at the time photographs are taken. One form is used for each memory card or roll of film. The photographer records the equipment and film used as well as the lighting method that will be used for most of the photographs on that roll (e.g., electronic flash). The photographer then records a brief description of each photograph and the time each photograph was taken. A note is recorded when the photographer changes to a different lens (such as a wide angle lens for overview photographs), changes the light source or uses a technique that should be explained (e.g., camera at ground level).

It is not necessary to record f-stops or shutter speeds on the photo log. Such detail is not required for court. However, if the photographer is attempting a new technique, testing new equipment, or just learning the basics of photography, it is important to record additional details about each photograph, including f-stop and shutter speed, in order to learn from each new type of photographic technique or situation. If using a film-based camera these additional notations can be recorded in another notebook. By looking at the photograph and the notes the photographer can determine what adjustments need to be taken for similar photographs in the future.

If using a digital camera it is unnecessary to write down camera settings. Digital cameras record information about the picture elements along with date and time the photograph was taken and camera identification and settings (shutter speed, aperture, ISO, lens focal length, flash settings, etc.). This information, also known as metadata, is stored as part of the image in a collection of data fields called the file header. This metadata can be checked to see what camera settings were used for a digital image.

Using Video to Record the Crime Scene

Videotaping is valuable for showing an overview of the crime scene and should be considered in major cases. While video cannot replace still photographs due to its lower resolution, videotaping does provide an easily understandable viewing medium that shows the layout of the crime scene and the location of evidence. Video tapes of crime scenes are not often used in court, but they are valuable illustrations for explaining the scene to other investigators and are often used to refresh the memory of those who were involved in processing the crime scene.

Video tapes are considered evidence. You should record only one scene on a video tape and the original video tape should not be edited.

Crime scene videotaping techniques

When videotaping crime scenes, you should start the videotape with a brief introduction presented by an investigator. The introduction should include the date,

time, location, type of crime scene, and any other important introductory information. The introduction should also include a brief description of the rooms and evidence that will be viewed in the videotape. The investigator may want to display a basic diagram as an illustration during the introduction.

Following the introduction the recording is paused and the microphone is turned off. This will prevent any distracting sounds from recording on the video tape during the taping of the scene.

Begin videotaping the crime scene with a general overview of the scene and surrounding area. Continue throughout the scene using wide angle and close up views to show the layout of the scene, location of evidence, and the relevance of evidence within the crime scene. While videotaping, use slow camera movements such as panning, and zooming.

Tools of the Trade

Crime scene photography kit



The following items should be available to the crime scene photographer in order to photograph most scenes and evidence:

- **Camera**

Most crime scene photographers use a high quality digital camera or 35mm camera. Digital cameras which have ten megapixel, or greater, image sensors and manual exposure settings (in addition to any automatic or programmed exposure modes) are usually suitable for crime scene and evidence photography.

- **Normal lens**

A normal lens provides the best perspective for most photographs. A 50mm lens is considered a normal lens for a 35mm camera.

- **Wide-angle lens**

A wide-angle lens is needed when photographing small rooms or other space-constricted areas. A 28mm lens is considered a wide-angle lens for a 35mm camera.

- **Close-up lens or close-up accessories**

Most normal lenses do not focus closer than about three feet. A macro lens or a close-up accessory for the normal lens is needed to photograph small items of evidence. Close-up accessories include 1:1 adapters, extension tubes, bellows, reversing rings, or close-up filters.

- **Filters**

A polarizing filter is often needed for photographing through glass and into water. Colored filters (red, orange, yellow, blue, and green) are useful when photographing certain types of evidence with black-and-white film.

- **Electronic flash**

Electronic flash provides additional light that is often needed when photographing indoors, outdoors at night, filling in shadows in bright daylight scenes and for lighting evidence.

- **Remote sync cord for electronic flash**

A remote sync cord allows the electronic flash to be operated when it is not mounted on camera. Many photographs, especially photographs of certain types of evidence, cannot be photographed with the flash mounted on the camera.

- **Extra camera and electronic flash batteries**

Batteries can expire without warning during the documentation of a scene. Extra batteries for both the camera and electronic flash should be included in the camera kit.

- **Locking cable release**

A locking cable release is used to lock open the camera's shutter during long exposures and when using the "painting with light" technique for

photographing large nighttime scenes. Cameras that have a built-in feature that locks open the shutter do not require a locking cable release.

- ***Tripod***

Tripods are necessary to steady the camera for long exposures and for positioning the camera during certain types of evidence photography.

- ***Film***

Medium speed (ISO 100 or 200) color print film is most often used for crime scene photography. Black-and-white film is used for certain types of evidence photography.

- ***Operation manuals for camera, electronic flash and accessories***

Equipment operating manuals should be carried in the field for reference. With the many features on modern cameras and electronic flash units, it may be necessary to refer to the manuals for specialized photographic techniques.

- ***Photo log, notebook and pen***

A photo log is necessary for recording information about each photograph taken at a crime scene. A notebook is valuable for recording other notes during the investigation.

- ***Scales and tape measure***

A variety of scales, including 6 inch and 36 inch sizes, must be available for photographing different types of subjects. Long tape measures with large numbers are sometimes necessary when photographing large items of evidence or large areas in a crime scene.

- ***ABFO #2 scale***

The ABFO #2 scale is the preferred scale for photographing injuries.

- ***Angle-finder***

An angle finder is used to help position a camera for photographing certain types of evidence at the crime scene.

- ***Color chart or color control patches***

Color chart or color control patches are useful as color references in injury photography

- ***18% gray card***

The 18% gray card is used as an aid in getting accurate exposures.

- ***Index cards and felt pen***

When a number or other identifier is need in a photograph, simply write the number or identifier on an index card and place it in the photograph.

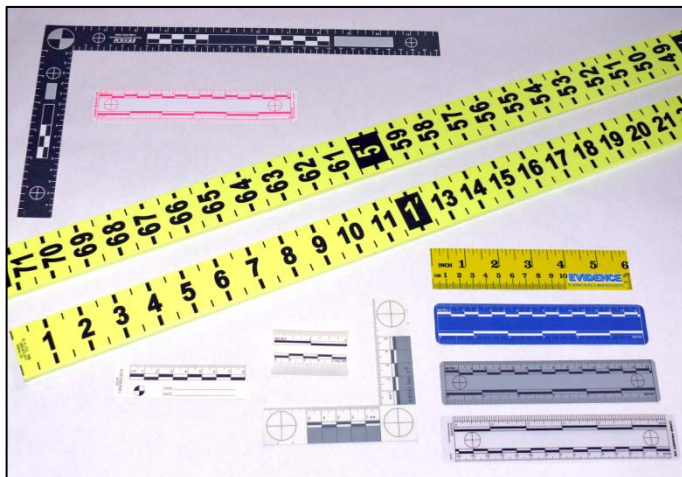
- ***Flashlight***

A flashlight not only helps you see in dark areas, but it is useful for previewing lighting during evidence photography. By shining the light on evidence from different angles you can see where it is best to position the electronic flash for a photograph.

Other Equipment to Consider

- **Telephoto lenses**
While telephoto lenses are seldom used in crime scene photography, they are necessary for most types of surveillance photography.
- **Supplementary light meter**
Supplementary light meters are usually more effective than the metering system inside the camera and are most useful for low light level readings, such as ambient light photography at night.
- **Small tools**
Small tools are helpful when emergency camera repairs must be done in the field.
- **Devices for positioning evidence and scales**
Blocks of wood, clothespins, clamps and other devices can be used for positioning evidence and scales for close-up photography.
- **White handkerchief or other flash diffusion material**
A white handkerchief or similar material can be placed over the head of an electronic flash unit to reduce the intensity of the flash.

Scales and measuring devices



A variety of scales should be available for evidence photography. Evidence scales include “L” shaped scales for footwear impressions, the ABFO #2 scale (bottom-center of illustration) for injuries, 6 inch scales for small evidence, and 36 inch scales for tire impressions, vehicle collision damage and bloodstain photography.

impression that will be compared with the shoe of a suspect—since a photograph must be printed to life size. A variety of scales must be available for photographing different types of subjects.

Scales and measuring devices are frequently used in crime scene and evidence photographs. While they are sometime used to orient the viewer of the photograph to the relative size of the object in the photograph, scales are primarily used to serve as a basis for making enlargements to a specified magnification level, such as life size. This is critical for photographs of evidence that later will become the basis for a comparison—such as a photograph of a footwear

- Small self-adhesive scales are used to photograph evidence such as fingerprints and bullet holes in walls.
- 6 inch scales are used for photographing most small to medium sized evidence. Some 6 inch scales have small numbers for extreme close-up photographs and others have large numbers for photographing larger items. The larger numbers allow easy reading of the scale from a greater distance.
- Large “L” shaped scales are frequently used for photographing footwear impression evidence while small “L” shaped scales are used for photographing injuries such as bruises and bite marks.
- Longer scales with large, easy to read numbers are used for photographing tire tread impressions and bloodstain scenes. These long scales can be metal or cloth tape measures or plastic scales.

When using scales in photographs, two photographs of each item of evidence must be taken. One photograph must be taken without the scale in view and one photograph taken with the scale. The first photograph will document that the photographer did not cover or block other evidence with the scale.

Numbering and directional devices



Numbering devices are commonly used to identify similar appearing evidence. Directional devices, most commonly in the form of an arrow, are sometimes placed in photographs to indicate a direction.

Numbering devices are commonly used to identify similar appearing evidence. For example, several bullet holes in a wall would need to be individually numbered. It is usually unnecessary to place numbering devices in a photograph to identify items of evidence that cannot be confused with other items.

When using numbering devices in photographs, two photographs of each view must be taken. One photograph must be taken without the numbering device in view and one photograph taken with the numbering device. The first photograph will document that the photographer did not cover or block other evidence with the numbering device.

Directional devices, most commonly in the form of an arrow, are sometimes placed in photographs to indicate a direction. The direction could be “up” (e.g., fingerprints on a vertical surface) or “north” (e.g., footwear impressions). This helps to show orientation of evidence when the photograph is viewed. Arrows may also be placed in a photograph to point out something that may be difficult to see, such as a lead bullet fragment mixed in with broken glass.

When using directional devices in photographs, two photographs of each view must be taken. One photograph must be taken without the directional device in view and one photograph taken with the directional device. The first photograph will document that the photographer did not cover or block other evidence with the directional device.

Summary

As a member of the crime scene investigation team, the crime scene photographer has a crucial role in documenting the crime scene and its evidence. The photographer must not only know how to take quality photographs, but must know when to take photographs during the different stages of the crime scene investigation. The photographer must have the tools and supplies necessary to adequately photograph the scene and the various types of evidence that is discovered during the processing of the crime scene.