Criminal Investigation
CRJ141
Matthew McCarty
Chapter 2

Documenting the Crime Scene: Note Taking, Photographing, and Sketching
Note Taking
Investigative Note Taking

• Investigative notes are a permanent written record of the facts of a case to be used in further investigation, in writing reports, and in prosecuting the case.
• Start taking notes as soon as possible after receiving a call for service and continue recording information as it is received throughout the investigation.
• If conditions due not allow for note taking record relevant information in notes as soon as possible. (i.e. driving, weather conditions, or darkness)
• Note taking can distract or intimidate some suspects or witnesses from providing truthful or complete answers. Personal experience will be the deciding factor if notes should be taken while speaking with an individual or documented after the conversation.
• If a person provides the exact wording of what was said you can have them initial that portion of your notes to verify accuracy.
• Record who, what, where, when, why, and how.
What To Record In Notes

• Who?
  – Who were victims, witnesses, and suspects.
  – Provide full description of suspect and vehicles.
    • Age, height, weight, skin color, hair color/style, voice, tattoos, and clothing
    • Obtain as much information as possible for victims/suspects including place of employment
    • Make, model, style, and color of vehicle if possible

• What?
  – What type of crime occurred
  – What damage or injury was caused
  – What happened
  – What was said
  – What evidence was found

• Where?
  – Where did crime occur
  – Where was evidence found
  – Where do victims, witnesses, and suspects live
What To Record In Notes

• When?
  – When did crime occur
    • If exact date/time not know develop time range
  – When were the Police called
  – When did the Police arrive
  – When were suspects arrested

• Why?
  – Why was crime committed at this location
  – Why was crime committed at this time
  – Was there motive or intent
  – Was a specific person or piece of property targeted?

• How?
  – How was crime discovered
  – How did the crime occur
  – How was evidence found
Additional Information To Record

- Weather or light conditions
- Overall scene information
  - Location of vehicles/victims
  - Entry/exit points
- Treatment given by EMS
- Do not include personal opinions
- Include all evidence and statements that may be inculpatory and exculpatory.
- Record information in regards to photographs taken

- The amount of notes taken is decided by the individual but enough information must be taken to complete a detailed report and testify in court.
- When in doubt, record it
Where To Record Notes

• An investigator always needs to have a paper and a pen/pencil with them at all times to record notes.
• Notes can be recorded on loose leaf paper or in a spiral notebook.
• It is much easier to carry a pocket-sized spiral notebook in your pocket.
  – If this method is used remove pages from the notebook and store in separate secure location.
  – If notes are left in the note book the contents of the entire notebook can be available to the defense
How To Take Notes

• Note taking is an acquired skill
• Time does not permit a verbatim transcript of events.
• Select key facts and record them in abbreviated form.
• Write brief, legible, abbreviated notes that others will be able to understand.
• Use standard abbreviations such as MPH, DUI, and AVE. Do not devise your own “Shorthand language.”
• Be specific
  – Instead of tall, fast, or far obtain specific answers such as 6’5”, 80 mph, or 200 feet and record it.
• Ensure clarity
  – Avoid things like “He hit guy in face” and use “Brooks hit Smith in face with fist.”
Tape Recorders

• Use of a tape recorder has many advantages. Actual statements are recorded and nothing can be misinterpreted.

• A disadvantage is the risk of mechanical failure.
  – If a tape recorder is depended upon and fails there are no backups of the information obtained.
  – Take care to check your recorder before and after use to ensure information is stored properly.

• Another disadvantage is the cost and time involved to have recorded conversation transcribed.

• If tape recorder is used the tape or digital file must be kept as evidence along with transcription.
Note Storage

- Departmental policy or personal preference will dictate if notes are stored or destroyed after information is transferred to a report.
- If notes are retained, file them in a secure location readily accessible to investigators.
- Develop a system to catalog stored notes such as by case number or alphabetical by suspect name.
- If notes are retained they may be admissible in court as evidence.
Class Exercise
Class Exercise

• O: Ok, Where did this happen?
• V: In front of the mini-mart
• O: Which mini-mart?
• V: On State St
• O: Why were you there?
• V: I was walking home from work
• O: Where do you work?
• V: True Value next to the mini-mart
• O: So you are walking past the mini-mart, then what happened?
• V: There was a man sitting on the ground leaning against the mini-mart. As I walked by he asked me if I had any spare change, I told him that I didn’t have any change and kept walking. The guy got up and started following me. He was swearing at me and calling me names.

• O: What names did he call you?
• V: I can’t remember all of what he said but I know he kept calling me a Cheap Jerk.
• O: So he is calling you names and you’re walking away, what happened next?
• V: I was trying to ignore him and just keep walking but he wouldn’t stop following me and yelling at me. I turned around and said “What’s your problem? Just leave me alone.” Then he got really close to me and said “My problem is that I don’t like Cheap Jerks and you’re a Cheap Jerk” then he just hauled off and hit me.

• O: Where did he hit you?
• V: My nose, can’t you see me nose is bleeding?
Class Exercise

• O: What did he hit you with?
  • V: His fist
• O: How many times did he hit you?
  • V: Just once but it hurt a lot
• O: Do you want an ambulance to come look at your nose?
  • V: No I should be fine
• O: Do you remember which hand he hit you with?
  • V: Um, his right hand I think

• O: After he hit you then what happened?
  • V: I fell down and started to cry. He stood over me and yelled “I just broke your nose you Cheap Jerk, so deal with it.” I closed my eyes because I thought he was going to hit me again and when I opened them he was running away.
Class Exercise

- O: Which way did he run?
  - V: He ran towards True Value on State St and then turned and ran back behind the mini-mart
- O: What did you do then?
  - V: After I couldn’t see him anymore I got up, ran home, and called 911.
- O: What did this guy look like?
  - V: He was an older white guy
    - O: How old?
      - V: I would guess about 40-50 years old
  - O: What color hair did he have?
    - V: I don’t know he was wearing a black stocking hat
- O: Was he wearing glasses?
  - V: No
- O: Did he have any facial hair?
  - V: No
- O: Was he wearing a coat?
  - V: Yeah, it was one of those brown coats like construction workers and farmers wear
Class Exercise

• O: You mean like a Carhart Jacket?
• V: Yeah Carhart, that’s what they are called
• O: Could you see what he was wearing underneath the coat?
• V: No it was zipped up all the way
• O: What did his pants look like?
• V: He was wearing black and white tiger-striped pajama pants. I remember this because I thought they were funny looking.
• O: Did you see what he was wearing for shoes?
• V: No

• O: Is there anything else you remember about how he looked?
• V: He had a long scar down his cheek on his face
• O: Do you remember which cheek it was on?
• V: I think it was on his left cheek
• O: Do you know what this guy's name is?
• V: No
• O: Have you ever seen him by mini-mart in the past?
• V: Nope, I have never seen him before
Class Exercise

- O: Ok I need to get some information about you for my report. What is your name?
  - V: Matthew McCarty
- O: Can you spell you last name for me?
  - V: M-C-C-A-R-T-Y
- O: What is your date of birth?
  - V: March 16th, 1971
- O: What is your Social Security Number?
  - V: 508-24-5658
- O: Do you have an Iowa Drivers License?
  - V: Yeah
- O: What is your Drivers License Number?
  - V: 123VV4567
- O: What is your address?
  - V: I live here, 615 Park St
- O: What is your home phone number?
  - V: I only have a cell phone, 515-222-3321
Class Exercise

• O: Where do you work again?
• V: True Value on State St
• O: What do you do there?
• V: I make duplicate keys for customers
• O: Do you know the address of True Value?
• V: No I can’t remember
• O: What is the phone number at True Value?
• V: 515-222-3312
Photography
Investigative Photography

• Includes still photographs and video
• Photos and video taken immediately, using proper techniques to reproduce the entire crime scene, provide a factual record of high evidentiary value.
  – Can be used to reproduce crime scene to prosecutors, defense, judge, and jury.
• Photos and video document scene they way it appeared at the time of the crime.
  – Do not touch or move any items prior to taking photos or video if possible.
  – If items need to be moved do not attempt to relocate original position. Document in report what was moved and why.
  – Avoid taking photos from odd angles and generally keep camera at an average person’s height
Photographs

• Advantages
  – Can be taken immediately which allows documentation of evidence and scene quickly if outside factors such as weather threaten to destroy evidence.
  – Accurate depiction of crime scene to be used as an effective visual aid for jury.

• Disadvantages
  – Photos do not show actual distances and can be distorted due to errors in shooting
Camera Types

- **35-mm SLR cameras**
  - Uses traditional film
  - Provide negatives for enlargements
  - Photos need to be developed
  - Film can be either color or black and white
  - Ability to turn flash on and off
  - Interchangeable lenses
    - Normal lens
    - Wide-angle lens
    - Telephoto lens (Long distance photos)
    - Macro lens (Close up photos)

- **SLR Camera (Single Lens Reflex)**
  - Using a semi-automatic mirror system it allows operator to see exactly what is going to be captured. On other cameras view through viewfinder can be significantly different that image being captured.
  - Can be used in digital or film cameras
Camera Types

• Digital Camera
  – Captures and stores still images as digital data and not on film
  – Most have LCD screen on camera for instant review of photo
  – Eliminates time and expense of processing film
  – Digital photos are easily transferable by email
  – Digital cameras can be point and shoot or SLR with interchangeable lenses.
Digital Camera Terminology

• **Resolution:** Fineness of image detail captured with a camera, displayed on a monitor or printed on paper.
• **Pixel:** Smallest unit of a digital image, generally a dot within the image.
• **Megapixel:** One million pixels (Dots)
• **Pixel Per Inch (PPI):** Measure of resolution in “Output Devices” such as monitors or printers
• Resolution in camera and output device must both be high to achieve the clearest picture possible. If resolution is high in camera but low in printer the picture will still appear blurry.
• **Image Authentication:** Providing proof the image being presented as evidence at trial is the same photo taken at the scene. Can be done by testimony of the photographer or in digital photos be proven by the use of authentication software.
Camera Types

• Single Use Cameras
  – Fixed focus
  – Preloaded with film and battery
  – Built in flash
  – One time use
  – Easy to use point and shoot camera
Camera Types

• **Instant Print Cameras**
  – Polaroid camera is most well known
  – Provides instant confirmation of quality and accuracy of photo
  – Easy to use
Camera Types

• **Press Camera**
  - Lens shows exactly what will be recorded in photo
  - Large 4” x 5” film provides large negatives with good detail for enlargements.
Camera Types

• **Fingerprint Camera**
  – Specialized camera used to photograph fingerprints without distortion.
  – Generally has 4 lights, one in each corner, and by shutting off one of the lights the ridges of the fingerprint are more apparent.
Video Cameras

• Also called camcorders
• Commonly used for surveillance by businesses and jail facilities
• Advantages
  – Ability to pan back and forth to show full scene
  – Use audio while recording to narrate what is being shown
• Disadvantages
  – If not used properly video can appear unstable or move too fast
  – Common mistakes
    • Not using tripod for stability
    • Over use of zoom
    • Recording too much video can make it a “boring” presentation
    • Not recording enough to include all relevant evidence
What To Photograph Or Videotape

• Generally try to move through the crime scene in a sequence: Entry point, crime commission area, exit point.
• Show entire person then specific area in injury photos
• If there is fragile evidence or evidence that has to be moved photograph it first.
  – Dead body or injured person
  – Outdoor evidence in inclement weather
  – Vehicles in roadway
• Photograph general area then specific area
• **Marker:** Anything used in a picture to show accurate or relative size.
  – Ruler
  – Dollar Bill
  – Anything with known and accepted size
• For specific photographs first take photo with out marker and then additional photo with marker in it.
• Take photos as soon as possible. If an Officer arrives at the scene and has nothing to do have them start taking photos.
• .................................................................CAUTION.................................................................
General Area
Specific Area With Marker
Photograph Entire Crime Scene

• **Overlapping:** A technique in photography where a series of photographs are taken while moving in a circle. Each photo contains a small amount of the previous photo in it. For simplicity always move in a clockwise direction.
Photogrammetry

- **Forensic Photogrammetry:** Technique that uses computer program to turn a photo into scale photo which allows measurements to be taken from the photo. Can also be used to orient photos taken from improper angles. Each photo needs the distance between 4 points that appear in photo known to correct photo.
- Process can speed up crime scene measuring dramatically if used properly.
- Visual Statement developed a program known as Hawkeye.
Types Of Photography

• **Surveillance Photography:** Also called “Trap Photography” because the photos prove that an incident occurred and can help identify suspects and weapons.

• Photos usually taken from a distance with a telephoto lens

• Existing surveillance systems at businesses can be used also

• Can be done from any vehicle or a specialized surveillance vehicle designed to hide the occupants but still allow for photos to be taken.
Types Of Photography

• **Aerial Photography:** Photos taken from above such as from an airplane or helicopter.
  – Many aerial photos can be combined to make a 3D map or model of an area.
    • GoogleEarth is a free example of this for limited locations.
    • Pictometry is a patented computer program
    • Both of these are examples of **Immersive Imaging** which is the stitching together of photos by computer software that allows you to virtually “walk around” the scene.

• If only the layout of property is needed GoogleEarth, Googlemaps, or Mapquest can be used.
Types Of Photography

• **Night Photography**
  – Night photography has additional challenges such as illumination of the scene.
  – Black and white photos in some cases show better clarity at night

• **Laboratory Photography**
  – **Microphotography**: Photos taken through a microscope.
  – **Macrophotography**: Photo that enlarges object to show greater detail.
  – **Laser-beam photography**: Used to photograph things not visible to the naked eye such as footprint outline in carpet.
  – **Ultraviolet photography**: Uses the low end of the color spectrum, which is invisible to human sight, to outline injuries after they have appeared to disappear.
Mug Shots

- Originated in the 19th in France when Alphonse Bertillon developed a system of identification that included a large number of measurements of a person.
  - Length and circumference of head
  - Length of middle finger
  - Length of left foot
- Measurements included a photo of person which came to be called a mug shot.
- Usually front and profile photo taken.
- Rouges Gallery: Mug shots gathered and displayed in groups.
- “Photo Line ups” consist of multiple mug shots of people with similar facial characteristics and are used to identify offenders.
Mug Shots
Photography Court Terminology

• **Material Photograph**- Relates to a specific case and subject.

• **Relevant Photograph**- Helps explain testimony

• **Competent Photograph**- Accurately represents what it is said to represent
Crime Scene Diagramming
Crime Scene Sketch

• A crime scene sketch is a drawing of a crime scene.
• A crime scene sketch is used for the following:
  – Accurately portrays the physical facts
  – Establishes precise location and relationship of objects and evidence at the crime scene
  – Helps create a mental picture of the crime scene for those not present
  – Permanent record of the crime scene
  – Presented in court as evidence during trial
Crime Scene Sketch

- **Rough Sketch:** First pencil drawn outline of a crime scene containing the location of objects and evidence.
  - Not drawn to scale but does include locations and measurements of relevant objects and evidence
  - Used to log information needed to complete a finished scale drawing
  - Conducted prior to any objects or evidence is moved
  - Completed in conjunction with crime scene photography

- Materials needed are a pencil, paper, and measuring devices
Steps To Crime Scene Sketch

- Observe and plan
- Measure distances and outline the area
- Plot objects and evidence
- Take notes and record details
- Identify the scene
- Reassess the sketch
- Complete finished scale drawing
Steps To Crime Scene Sketch

• Observe and plan
  – Observe crime scene until you are comfortable with it
  – Decide how many sketches will be completed
    – Indoor/outdoor scene
    – Multiple rooms
  – Pick a starting point and sequence to complete the area such as working in a clockwise direction
Steps To Crime Scene Sketch

• Measure distances and outline the area
  – All measurements must be accurate. Do not estimate distance or use “shoe-length” to measure distances
  – If someone is documenting measurements for you make sure they are next to you and confirm the measurements you provide
  – Do not measure from moveable objects
  – Measure everything including door and window widths and locations, objects, and evidence
  – Start with outline measurements
Steps To Crime Scene Sketch

• Plot objects and evidence
  – Locate objects and evidence on the sketch by taking measurements of their location relevant to other objects

• There are 6 methods for plotting objects
  – Rectangular-Coordinate method
  – Baseline method
  – Triangulation method
  – Compass Point method
  – Cross Projection method
  – Mechanical measuring tools such as a Total Station
Plotting Objects

• **Rectangular-Coordinate Method:** Uses two adjacent fixed points such as walls from which distances are measured at right angles.
  
  – First measure distance from first point or wall at a right angle and then measure distance from second point or wall at a right angle.
  
  – Restricted to rooms or areas that are square or rectangle.
Rectangular-Coordinate Method
Rectangular-Coordinate Method

20.0
Rectangular-Coordinate Method
Plotting Objects

- **Baseline Method**: Establishes a straight line from one fixed point to another, from which measurements are taken at right angles.
  - Baseline can be placed anywhere but must be the location must be measured from a fixed point
    - Beginning of the baseline is called the reference point
  - Run baseline in an east/west or north/south orientation if in open space or parallel to another object such as a wall if indoors
  - Take measurements along either side of the baseline to a point at right angles
    - First record distance from reference point along baseline along with direction.
    - Second record distance perpendicular from baseline along with direction
  - Commonly used in accident scenes
Baseline Method
Baseline Method

Reference point is 11 feet north of southwest corner
Baseline Method

Reference point is 11 feet north of southwest corner
Baseline Method
Baseline Method
Plotting Objects

• **Triangulation Method:** Uses straight line measurements from two fixed objects to the evidence. Angle can be measured and recorded with a protractor if desired.
  – Always measure from the most permanent fixed objects available

• More difficult method of measuring and plotting
Triangulation Method
Plotting Objects

• **Compass-Point Method:** Uses a protractor to measure the angle formed by two lines using a common origin.
  
  – Angle of line from origin point and its distance to the object must be recorded
    
    • Angle is measured from a vertical line traveling through the point of origin
  
  – Origin point location must also be measured and documented
Compass-Point Method

Point A: 11.3' from point of origin
66 degrees from vertical line through point of origin

Point B: 18.1' from point of origin
45 degrees from vertical line through point of origin
Plotting Objects

• **Cross-Projection Method**: Presents the floor and walls as though they were one surface.
  – Evidence on both the floor and the walls can be measured to show their relationship on a single plane.
Cross-Projection Method
Plotting Objects

• Mechanical Means
  – A Total Station Survey System can be used to plot objects.
  – A Total Station Survey System consists of three four components
    • Total Station
    • Data Collector
    • Reflector Pole
    • Mapping Software
Total Station Survey System

- **Total Station** - A piece of equipment which contains an electronic Transit and Distance Meter and uses them to plot points. Points are plotted in a quadrant system by X, Y, and Z (Elevation) position.
  - Transit (Theodolite): Measures the angle and rotational orientation of the Distance Meter.
  - Distance Meter: A laser utilized to measure distance. Laser is reflected by reflector pole which is placed on mark to be plotted.

- By using trigonometry formulas the Total Station can determine how far away the point is and the difference in elevation. This calculates the points actual position and not just the horizontal distance to the point.

- The data of the point is stored in the data collector and in some models in the Total Station itself.
Total Station Survey System

• The data is imputed into a computer program where the scene can be diagramed.
  – Visual Statement FX is an example of a program that can interpret the data and create 2D and 3D diagrams. This program can also be used to create animations.

• The benefit of using a Total Station Survey System is the elevation of the point is calculated also allowing for exact placement of the point.

• A disadvantage of a Total Station Survey System is the total cost (15K+)

• Requires two operators, one to run the total station and data collector and another to place reflector pole on points.
  – New models are robotic and only require one operator.
  – Some models also have “reflector-less mode” which does not require the use of a reflector pole.
Total Station Survey System
Visual Statements FX Program
Visual Statements FX Program
Visual Statements FX Program
• Sample Animations
Steps To Crime Scene Sketch

• Take notes and record details
  – After you complete you sketch take notes recording relevant details such as lighting conditions or people present.

• Identify the scene
  – Prepare a legend containing case number, type of crime, date, time, northern direction, etc....

• Reassess the sketch
  – Double check your work to make sure you have everything you need and all relevant details and measurements were collected.
Steps To Crime Scene Sketch

• The final step is to use sketch and measurements to complete a finished scale drawing
  – This is the final work product and is drawn to scale

• Drawing to scale consists of using a mathematical formula to “downsize” measurements so they can be drawn on smaller paper while still maintaining the proper proportion.
  – Take the longest measurement of the scene and divide it by the longest measurement of the paper it will be drawn on.
Scale

• Example: longest measurement is 100 feet and the longest length of the paper is 10 inches.
  • \(100/10=10\) 1 inch on your scale drawing equals 10 feet of actual distance at the scene.
  • Divide all measurements by 10 so it fits on the paper
    – A measurement of 15 feet would be 1.5 inches
    – A measurement of 22 feet would be 2.2
• Scale must be displayed on finished drawing
Finished Scale Drawing

Diagram of a scale drawing showing:
- Vacant
- Iowa Bank
- Subway

Address details:
- 1804 State St
- 1802 State St
- 1800 State St

Orientation: Scale Drawing

State St
Case: 10-1234
Subway 1800 State St, Des Moines, Iowa
Prepared By: Officer M McCarty #204
Sketches as Evidence

- The rough sketch must also be kept as evidence
- The person completing the sketch and finished drawing will need to testify in court
- Chain of evidence must be obeyed for sketches also