

DESERT HOT SPRINGS POLICE DEPARTMENT
TRAFFIC COLLISION INV
POST # 1033-33590

COURSE PURPOSE

California Vehicle Code Section 40600 requires peace officers to complete a course of training in the investigation of traffic accidents to be qualified to write traffic accident-related notices of violations based on reasonable cause. In an age of increasing criminal and civil litigation, it is imperative that officers have the skills and knowledge to properly investigate and document traffic accidents. This course provides officers with the basic requirements for investigating a traffic accident and for completing a standard traffic accident report.

COURSE GOALS

1. To gain an understanding of what information must be documented for an accident report.
2. To develop the skills to identify and articulate the primary cause and other associated factors in a collision.
3. To recognize the importance for searching, locating and properly recording evidence.

TEXTS AND REFERENCE

1. Templates
2. Texts.
 - a. California Vehicle Code
 - b. A Collision Investigation Manual
3. Handouts

METHODS OF INSTRUCTION

1. Lecture/Demonstration
2. Visual Aids (Overhead Projector, Monitor, Whiteboard)
3. Practical Application

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METHODS OF EVALUATION

1. Comprehensive Written Examination
2. Practical Exercises

TOPICAL OUTLINE

- I. Introduction and Orientation
- II. Collision Investigation Reporting Procedures
- III. Accident Related Traffic Laws
- IV. Accident Investigation Procedures
- V. Skid marks/Tire marks Identification
- VI. Diagramming
- VII. Physical Evidence
- VIII. Vehicle Factors
- IX. Human Factors
- X. Driving Under The Influence
- XI. Hit and Run
- XII. Prosecution/Court Presentations
- XIII. Assessment of Learning

EXPANDED COURSE OUTLINE

I. INTRODUCTION AND ORIENTATION

- A. Course Goals and Objectives
- B. Required Texts and Materials
- C. Overview
 1. Injury and death
 - a. Approximately 40,000 — 45,000 deaths per year
 - b. Approximately 5 million injuries per year
 - c. Highest cause of deaths for males under 40 years of age
 - d. More people killed in traffic collisions during the past sixty years than from the wars involving the United States in that time period
 2. Economic impact
 - a. Exceeds the value of loss due to burglary, robbery and theft
 - b. Loss due to collision is approximately \$45-50 billion each year

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3. Volume of accidents
 - a. California has averaged 5,000-6,000 fatalities a year
 - b. Approximately 25 million collisions a year nationwide
 - c. Over twice as many people are killed in collisions as those killed in homicides
4. Education / Engineering / Enforcement
 - a. Education: the process of educating the public in driver's safety
 - b. Engineering: the information provided for the safe design of roadways
 - (1) Road markings
 - (2) Signs and signals
 - c. Enforcement: the law enforcement response resulting from collision reports as a resource
5. Civil vs. Criminal
 - a. The investigator will be aware of the civil ramifications as well as the criminal process when investigating a collision

D. Legal Reference

1. California Vehicle Code Section 40600 requires peace officers to complete a course of training in investigation of traffic accidents to be qualified to write traffic accident-related notices of violation based on reasonable cause. The course of training must be approved by the Commission on Peace Officer Standards and Training.

II. COLLISION INVESTIGATION REPORTING PROCEDURES

A. Reporting Requirements

1. Individual department's requirements for the following.
 - a. Death
 - b. Injury
 - c. Non-injury
 - d. Tow away
 - e. Property damage
 - f. Hit and run
 - g. Late reports
 - h. Counter reports
 - i. Private property

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2. Reporting forms
 - a. Face sheet and statistical page
 - b. Narrative and supplemental page
 - c. Diagram page
 - d. Speed from skid chart

3. Classifications of reporting
 - a. Investigation
 - b. Report
 - c. Special situations
 - (1) Citizens report
 - (a) Property damage only (PDO)
 - (b) Completed by involved party
 - (c) Not processed by SWITRS
 - (d) Courtesy reports

B. Definitions and Terminology

1. Accident or collision
 - a. Unintended event
 - b. Damage or injury
 - c. Stabilized situation

2. Classification of injuries
 - a. Fatal
 - b. Severe
 - c. Other visible injuries
 - d. Complaint of pain

3. Deliberate intent
 - a. Not a motor vehicle accident
 - b. Act beyond original intent is a motor vehicle accident

4. Hazardous material (353 CVC)

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5. Highway and Street (360 CVC and 590 CVC)
 - a. Roadway (530 CVC)
 - b. Sidewalk (555 CVC)
 - c. Shoulder
 - d. Median

6. In Transport
 - a. Motor vehicle (Roadway)
 - (1) Moving
 - (2) Stopped
 - (3) Stalled
 - (4) Disabled
 - (5) Abandoned
 - (6) Portion of vehicle in roadway
 - b. Motor vehicle (off roadway) must be moving

7. Intersection (365 CVC)
 - a. Prolongation of curb lines
 - b. Lateral boundary lines of roadway at approximately right angles or highways adjoining at any other angle
 - c. Special intersections (21360 CVC)

8. Motor vehicle (415 CVC)
 - a. Motorized bicycle (406 CVC)
 - b. Other
 - (1) Things being pushed
 - (2) Things being pulled
 - (3) Equipment detached while in motion

9. Other parties
 - a. Non-contact involved party
 - (1) Causing another to become involved in a collision
 - (2) Violation is corroborated
 - (a) Disinterested witness
 - (b) Physical evidence
 - (c) Statement from non-contact party
 - b. Special circumstances (train, equestrian, etc.)

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10. On-duty emergency vehicle (Special conditions/insurance exemption)
 - a. Police vehicles
 - b. Fire vehicles
 - c. Ambulance being driven by on-duty peace officer and/or firefighter

11. School bus accident
 - a. Transporting at least one school pupil at or below twelfth grade level (CHP responsibility)
 - b. Bus without pupils according to department jurisdiction

12. Tow away
 - a. Vehicle cannot be driven due to damage
 - b. Trailer which cannot be towed
 - c. Excludes:
 - (1) Driver incapacitated
 - (2) Inoperative parts
 - (3) Illegal conditions due to accident
 - (4) Vehicle up righted or towed back on the roadway that is driven away
 - (5) Vehicle fire

13. Witness
 - a. Uninvolved party
 - b. Information relevant to accident

14. Functions of traffic collision reports
 - a. Statewide Integrated Traffic Records System (SWITRS)
 - b. Engineering needs
 - c. Enforcement needs
 - d. Civil and criminal proceedings

15. Report writing
 - a. Face sheet
 - b. Statistical information
 - c. Narratives

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III. ACCIDENT RELATED TRAFFIC LAWS

A. Penal Code

1. Assault with Deadly Weapon/Intentional acts
2. Homicide
3. Manslaughter

B. California Vehicle Code

1. Arrest procedures
 - a. Arrest without a warrant - exception (40300.5 CVC)
 - b. Felony arrest procedures (40301 CVC)
 - c. Mandatory appearance - must take (40302 CVC)
 - d. Optional appearance (40303 CVC)
 - e. Offense by non-resident (40305 CVC)
 - f. Notice to Appear (40500 CVC) vs. Notice of Violation (40600 CVC)
2. Annotated Code and its use
3. Miranda advisements
 - a. Custody
 - b. Interrogation
 - c. Peace officer

C. Streets and Highways

D. Civil Liabilities of Officers

1. Caring for the injured
2. Protecting the scene and parties
3. Complete investigation

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E. Vehicle Impound/Storage

1. Definition
 - a. Vehicles stored
 - (1) Can be released without law enforcement authorization
 - b. Vehicle impounded
 - (1) Evidence
 - (2) Seized until certain requirements are met
 - (a) Drivers with suspended/revoked licenses
 - (b) Registration expired beyond one year
 - (c) Not licensed for vehicle/out of classification
2. Towing authorities (22651 CVC) (22653 CVC)
3. Impounding the vehicle for investigation (22655 CVC)
4. Case law authority for storage and impound
 - a. People vs. Curley, 12 C.A. 3d 732
 - b. People vs. Westmoreland, 58 C.A. 3d 32

F. Staged Collisions/Insurance Fraud

1. Characteristics
 - a. Lack of debris at collision scene
 - b. Conflicting statements
 - c. Injuries not consistent with the impact force
 - d. Old damage
2. Fraudulent situations could occur with individuals having common names, temporary drivers' licenses, rental vehicles and recently registered vehicles
3. Examples
 - a. Swoop and squat
 - b. Paper collisions
 - c. Multiple claims

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G. Search and Seizure

1. Incident to Arrest
 - a. Persons
 - b. Vehicle
2. The Automobile Exception
 - a. Parts of the vehicle that can be searched
 - b. Closed containers
 - (1) Federal rule — Ross (1982) 456 u.s. 798
 - (2) California rule — Ruggles (1985) 39 Cal 3d 1
3. Plain view
 - a. Observation before entry
 - b. Observation after entry
 - c. Obviously crime—related evidence
 - d. Use of flashlight
4. Plain smell
5. Consent
6. The vehicle as evidence instrumentality of a crime
7. Inventory searches
 - a. Federal rule — Opperman (1976) 428 U.S. 364
 - b. California rule — Mozzetti (1971) 4 Cal 3d 699
8. Abandonment
9. Emergency

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IV. ACCIDENT INVESTIGATION PROCEDURES

A. Responding to the Scene/Planning

B. Protection of the Scene

1. Devices for traffic control

- a. Patrol vehicle
- b. Flare patterns
- c. Cones
- d. Barricades
- e. Signs
- f. Hand signals

2. Factors affecting flare patterns

- a. Hazardous material present
- b. Roadway design
- c. Speed of traffic on roadway
- d. Environmental factors affecting visibility

C. Interviewing Techniques

1. Witnesses

- a. Interviewed first in most cases because they don't have a duty to stay
- b. Statements from a third party corroborates the driver s statement and the evidence at the scene
- c. Disinterested witness is best
- d. Record identities before they leave the scene

2. Drivers and passengers

- a. Biased
 - (1) Economic loss
 - (2) Loss of driving privileges
 - (3) Potential criminal prosecution
 - (4) Civil liability
- b. Passengers are not considered independent witnesses
- c. Separate involved parties before interviewing

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D. Establishing Point of Impact (POI)

1. Point(s) at which involved parties come into contact with one another, another object, or surface as a result of a traffic collision
2. Determining point of impact
 - a. Distortion
 - b. Gouge marks
 - c. Debris
 - d. Extreme change of direction of skids
 - e. Liquids
 - f. Statements
 - g. Damage to fixed objects
3. Be aware of other forces which will propel debris beyond point of impact (Newton's Laws of Motion)

E. Determining Primary Collision Factor and Associated Collision Factors

1. Definitions

- a. Primary collision factor: The one element that best describes the cause of the collision or, if removed, would have prevented the collision from occurring
- b. Associated collision factors: Other factors or violations that contributed, but were not the main cause of the collision

2. Determining Collision Factors

- a. The primary collision factor should be a Vehicle Code violation, when applicable
- b. The associated collision factor may be a Vehicle Code violation or other factors such as:
 - (1) Inattention
 - (2) Fatigue
- c. Any primary or associated factor noted in the report must be described and substantiated in the narrative

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F. Photography

1. Photography is a valuable tool in accident investigation. It is used to preserve the scene and evidence for later evaluation and court presentation. In addition, photographs could be used for reconstruction purposes.
2. Case law relating to photography
 - a. Photographer need not be present if the officer at the scene can testify that the photographs accurately depict the scene.
 - b. The developer need not be present in court.
3. Techniques
 - a. Take as many photographs as you can
 - b. Areas to be photographed
 - (1) Overall scene prior to and after marking
 - (2) Physical evidence including skid marks
 - (3) Traveled paths of involved vehicles
 - (4) Observations of witnesses and parties (from their line of sight)
 - (5) Traffic control devices
 - (6) Obscurements
 - (7) Points of rest of involved vehicles or bodies
 - (8) Vehicle defects
4. Equipment
 - a. Types of cameras that are satisfactory for proper scene preservation
 - (1) Fixed lens
 - (2) Polaroid
 - (3) 35 MM single lens reflex
 - (4) Video
 - (5) Digital camera
 - (6) Drone
 - b. Equipment for nighttime photography such as auxiliary lights

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C. Officer Safety

1. Be aware and prepared for unique safety situations involved in traffic collision investigation
 - a. Setting flare patterns
 - b. Directing traffic
 - c. Gathering evidence
 - d. Tow trucks
 - e. Intoxicated drivers

H. Hazardous Materials

1. Recognition and identification
 - a. Placards
 - b. Bill of lading
 - c. Driver's statement
2. First responder
 - a. Is responsible for hazardous material scene management until properly relieved (2454a CVC)
 - b. Traffic investigators should attend a first responder scene management class
3. Notification for assistance
 - a. Fire department
 - b. Road department
 - c. Shippers
 - d. Office of Emergency Services
4. Emergency Response Guides

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I. Nine—Cell Matrix

1. A properly documented collision should address each cell of the matrix below

	PRE-CRASH	CRASH	POST-CRASH
VEHICLE			
HUMAN			
ENVIRONMENT			

2. Pre-crash phase

- a. Vehicle
 - (1) Equipment
 - (2) Mechanical condition
 - (3) Approach angle
- b. Human
 - (1) Blood—alcohol level
 - (2) Physical condition
 - (3) Attention span
- c. Environment
 - (1) Lighting conditions
 - (2) Roadway conditions
 - (3) Visibility

3. Crash phase

- a. Vehicle
 - (1) Number of occupants
 - (2) Estimated speed(s) of vehicles
 - (3) Vehicle load
 - (4) Point(s) of impact
- b. Human
 - (1) Seating positions
 - (2) Portion of the vehicle interior the parties struck

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- c. Environment
 - (1) Traffic conditions at time of collision
 - (2) Coefficient(s) of friction
 - (3) Traffic control devices

4. Post-crash phase

- a. Vehicle
 - (1) Point(s) of rest
 - (2) Location of debris
 - (3) Identify departure angles
- b. Human
 - (1) Direction of ejected party
 - (2) Order appropriate chemical test
- c. Environment
 - (1) Change in environment during investigation

V. SKIDMARKS/TIREMARKS IDENTIFICATION

A. Definitions and characteristics

- 1. Skid marks
 - a. Definition — a mark left by a non-rotating tire due to the sliding of the tire over a surface.
 - b. Characteristics
- 2. The three basic methods of leaving visible tire skid marks
 - a. Extreme deceleration — the braking system causes the wheel to cease rotating
 - b. Extreme change of direction — this may result from an intentional effort on the part of the driver or an impact/contact with a fixed object or other vehicles
 - c. Extreme acceleration — Occurs when a propelling force or thrust is generated in an amount exceeding the pavement efficiency

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B. Types of Skid marks/Tire marks

1. Impending — wheel rotating slower than forward motion of the vehicle.
2. Locked wheel — non—rotating wheel moving in a straight or curve line in the original direction of travel.
3. Side skid (brush marks) — a locked, braked, or rotating wheel or a vehicle sliding in other than a forward direction, except when known to be caused by centrifugal force.
4. Critical speed scuffs — rotating wheel of a vehicle rounding a curve or turning at such a speed that centrifugal force entirely or partially overcomes frictional resistance.
5. Skip — left by a locked wheel that bounces off the roadway.
6. Gap — left by a locked wheel that is released, and then locked again.
7. Acceleration mark — propelling force or thrust generated in an amount exceeding the pavement efficiency.
8. Collision scrub – a short, usually broad, skid mark made during engagement of the vehicles in a collision.

C. Characteristics and Identification of Skids

1. Locked wheel skid
 - a. Difference between front and rear wheel
 - b. Weight transfer
 - c. Skip skid
 - d. Gap skid
2. Impending skid
3. Side skid
4. Critical speed scuff (Centrifugal)
 - a. Cause of striation

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D. Vehicle Inspection

1. Methods to tie the vehicle to tire marks
2. Condition of tires
3. Brake test

E. Measuring Devices/Techniques

1. Pace
 - a. Inaccurate
 - b. Need to know own pace length
2. Rolatape
 - a. Good for long distances
 - b. Tape must be checked for accuracy
 - c. Factors causing inaccuracy
 - (1) Operator error
 - (2) Line of path
 - (3) Measured surface
3. Tape measures
 - a. Various types
 - (1) Steel
 - (2) Plastic
 - (3) Cloth
 - (4) Fiberglas
 - b. Various lengths

F. Drag Factor/Coefficient of Friction

1. The measurement of resistance of an object sliding over a surface
 - a. How determined
 - (1) Test skids
 - (2) Drag sled
 - (3) Available reference materials
 - (4) Engineering data

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2. Application of average vs. longest skid method

C. Nomograph/Traffic Templates

1. How used
2. Limitations

H. Recording and Measuring

1. Measure and record each skid separately
 - a. Impending skid
 - b. Locked wheel skid
 - c. Side skid
 - d. Skip skid
 - e. Gap skid
 - f. Critical speed scuffs

V. SKIDMARK/TIREMARK IDENTIFICATION (Continued)

2. Skid observation techniques
 - a. Looking at both ends from a distance
 - b. Using polarized lenses during daylight conditions
 - c. Use of auxiliary lighting at night

VI. DIAGRAMMING

A. Sketches

1. A sketch should be made for all traffic Collision reports and investigations. A sketch reflects the officer's opinion of how the accident occurred. It should include the following:
 - a. Compass direction
 - b. Identify all highway and roadway widths
 - c. Relevant elements of the Collision scene
 - d. Point of impact symbols
 - e. Directions of travel of involved vehicles
 - f. Sketch should be in proportion, but not to scale
 - g. Write parallel to bottom of page
 - h. Shall not be done freehand

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B. Factual Diagram

1. A diagram represents the scene as found upon the officer's arrival and shall contain factual information only. Diagrams shall be drawn if the collision involves a fatality, serious injury, or if a diagram would assist in prosecution. It should include the following:
 - a. Compass direction
 - b. Not show point of impact
 - c. Not be freehand
 - d. Measurements of the scene, evidence and vehicles
 - e. Be in proportion, but need not be to scale

VII. PHYSICAL EVIDENCE

A. Collection and Preservation of Evidence

1. Identify, photograph, measure and record
2. Collect

B. Debris/Roadway Marks

1. Basic application of Newton's First Law of Motion
2. Relationship to debris

C. Lab Analysis

1. Lamps
2. Paint sample and transfer
3. Speedometer
4. Fabric/hair/tissue
5. Matching vehicle parts
6. Debris from vehicle

D. Pedestrian Clothing

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VIII. VEHICLE FACTORS

A. Brakes

1. Visual observation
2. Physical inspection
3. Cautions
 - a. Destruction of evidence
 - b. Differentiate between pre-crash and post-crash damage
4. Inspection by state certified mechanic

B. Tires

1. Visual inspection
 - a. Treads
 - b. Mismatch of tires
 - c. Air pressure
2. Inspection by tire expert regarding pre-crash and post-crash damage

C. Lamps

1. Don't activate to test
2. Debris of lamp parts
 - a. Filament
 - b. Post
 - c. Lens
 - d. Filament hood
 - e. Reflector
 - f. Glass
3. To determine "on" or "off" (examples)
4. Observe, record, photograph and collect

D. Speedometer

E. Suspension

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F. Modifications

G. Occupant Restraints

1. Presence
2. Use

H. Collision Damage

1. Old vs. new damage
2. Note and record location

IX. HUMAN FACTORS

A. Injury Mechanisms

1. Driver identification
2. Inspect vehicle's interior and exterior to determine how injury was caused

B. Perception/Reaction

1. Definitions
 - a. Perception: From the time an individual observes something until it has been determined to be a hazard
 - (1) Average time — 3/4 second
 - (2) Drugs, fatigue and age contribute to a longer than average perception time
 - b. Reaction: From the time the individual decides an action until an evasive movement actually begins with the vehicle
 - (1) Average time — 3/4 second
 - (2) Drugs and fatigue contribute to a longer than average reaction time
2. Value to investigation

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3. Conversion factor
 - a. Miles per hour to feet per second is equal to miles per hour x 1.467
 - b. Feet per second to miles per hour is equal to FPS x 0.6818

X. DRIVING UNDER THE INFLUENCE

A. Felony/Misdemeanor Driving Under the Influence

1. Elements of the offense
2. Relationship to accidents

B. DUI Identification

1. Alcohol/drugs in the body
2. Objective symptoms of intoxication

C. Implied Consent

1. Injured drivers
2. Uninjured drivers

D. Current DUI Law and Case Law

XI. HIT AND RUN

A. Felony/Misdemeanor

B. Collection of Evidence

1. Paint transfer
2. Corresponding damage
3. Debris
4. Pedestrian clothing
5. Fiber transfer
6. Hair and tissue transfer

C. Documentation Requirements

1. Measurements correlating victim vehicle to suspect vehicle
2. Correlating damage to knowledge of offense

E. Identification and Location of Suspects

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1. Witness information
2. Area search
3. Hospital and auto shop search
4. Information from vehicle
 - a. Prints
 - b. Registration
 - c. Paperwork
 - d. Blood
 - e. Identification

XII. PROSECUTION/COURT PRESENTATIONS

A. Prosecution Preparation

1. Review documents
2. Prepare testimony as to the elements of the crime
3. Be prepared to do a courtroom diagram
4. Pre—trial conference, if applicable

B. Court Testimony

XIII. Assessment of Learning

A. Practical Exercise

1. Staged Traffic Collision Scenarios
 - a. Each student will prepare a written report for both a minor-injury traffic collision and a fatal-injury traffic collision. The students will work in groups creating both the sketch drawing and factual drawing as well as completing the necessary CHP-555 forms and narratives.
2. Final Exam
 - a. Students will complete a final exam consisting of fill-in-the-blank, true/false, and multiple-choice questions. 70% is required for passing.