Basic Course Workbook Series

Learning Domain 29

Traffic Collision Investigations

Version 5.0

COMMISSION ON PEACE OFFICER STANDARDS AND TRAINING

Basic Course Workbook Series
Student Materials
Learning Domain 29
Traffic Collision Investigations
Version 5.0

Published 2000
Revised January 2006
Revised January 2008
Workbook Correction January 27, 2009
Revised July 2025
Revised February 2026

POST COMMISSIONERS

The POST Commission forms a balanced group of city and county administrators, law enforcement professionals, educators, and public members. The Governor appoints 15 of the Commissioners, with the advice and consent of the Senate, for three-year overlapping terms. The Speaker of the Assembly and the Senate Pro Tempore also each appoint one Commissioner. The Attorney General is an ex-officio member and serves as the 18th POST Commissioner

Geoff Long- *Chair*
Public Member

Rick Braziel - *Vice Chair*
Educator,
Cal Poly Humboldt

Alan Barcelona
Special Agent,
Department of Justice

Ingrid Braun
Sheriff,
Mono County Sheriff's Office

Jim Cooper
Sheriff,
Sacramento County Sheriff's Office

Justin Doering
Senior Deputy Sheriff,
Ventura County Sheriff's Office

Charles Duggan
City Official

P. Lamont Ewell
Public Member

Kelly Gordon
Chief,
Santa Barbara Police Department

Jacob Johnson
Officer,
California Highway Patrol

Michael Moodian
Public Member

Shannan Moon
Sheriff,
Nevada County Sheriff's Office

Tina Nieto
Sheriff,
Monterey County Sheriff's Office

Freddie Rodriguez
Public Member

Benjamin Therriault
Sergeant,
Richmond Police Department

Rob Bonta
Attorney General,
Department of Justice
Ex-Officio Member

THE MISSION OF POST

The mission of the California Commission on Peace Officer Standards and Training is to continually enhance the professionalism of California law enforcement in serving its communities.

THE ACADEMY TRAINING MISSION

The primary mission of basic training is to prepare students mentally, morally, and physically to advance into a field training program, assume the responsibilities, and execute the duties of a peace officer in society.

FOREWORD

The California Commission on Peace Officer Standards and Training sincerely appreciates the efforts of the many curriculum consultants, academy instructors, directors and coordinators who contributed to the development of this workbook. We must also thank the California law enforcement agency executives who allowed their personnel to participate in the development of these training materials.

This student workbook is part of the POST Basic Course Training System. The workbook component of this system provides a self-study document for every learning domain in the Basic Course. Each workbook is intended to be a supplement to, not a substitute for, classroom instruction. The objective of the system is to improve academy student learning and information retention and ultimately contribute to you becoming a peace officer committed to safety, and to the communities you will serve.

The content of each workbook is organized into sequenced learning modules to meet requirements as prescribed both by California law and the POST Training and Testing Specifications for the Basic Course.

It is our hope that the collective wisdom and experience of all who contributed to this workbook will help you, the student, to successfully complete the Basic Course and to enjoy a safe and rewarding career as a peace officer.

MANUEL ALVAREZ, Jr.
Executive Director

TABLE OF CONTENTS

Student Workbooks

The student workbooks are part of the POST Basic Course Instructional System. This system is designed to provide students with a self-study document to be used in preparation for classroom training.

Regular Basic Course Training Requirement

Completion of the Regular Basic Course is required, prior to exercising peace officer powers, as recognized in the California Penal Code and where the POST-required standard is the POST Regular Basic Course.

Student Workbook Elements

The following elements are included in each workbook:

- Chapter contents, including a synopsis of key points
- Supplementary material, and
- A glossary of terms used in this workbook.

Introduction

This workbook provides an introduction to the training requirements for this Learning Domain. It is intended to be used in several ways: for initial learning, for test preparation, and for remedial training.

Workbook Format

To use the workbook most effectively, follow the steps listed below.

Step	Action
1	Begin by reading the: Introduction and How to Use the Workbook, which provides an overview of how the workbook fits into the POST Basic Course Instructional System and how it should be used.
2	Refer to the Chapter Synopsis section at the end of each chapter to review the key points that support the chapter objectives.
3	Read the text.
4	Complete the workbook learning activities at the end of each chapter. These activities reinforce the material taught in the chapter.
5	Refer to the Glossary section for a definition of important terms. When first referenced these terms will be bolded and underlined (e.g., **term**).

Chapter 1
Vehicle Collisions

OVERVIEW

Learning Need

Peace officers need to know how to effectively manage traffic collision scenes to ensure their safety, the safety of others, and protect the integrity of the collision scene.

Learning Objectives

The chart below identifies the student learning objectives for this chapter.

After completing study of this chapter, the student will be able to:	Objective ID
• Discuss safety hazards that officers should be aware of when approaching the scene of a traffic collision	29.01.06
• Demonstrate appropriate peace officer actions when managing a vehicle collision scene, including: - Caring for injured and involved parties, and - Protecting the collision scene - Collecting and preserving evidence	29.01.07 29.01.08 29.01.09

In This Chapter

This chapter focuses on the roles and responsibilities of peace officers who are called to respond to traffic collisions. Refer to the chart below for specific topics.

INTRODUCTION TO VEHICLE COLLISIONS

Introduction

There is no single, all-inclusive definition of the word “collision” (i.e., accident). Generally, a **collision** is an unintended event that produces damage or injury (including fatal injury). A *vehicle* collision is any collision between at least one vehicle and anything else, whether man, beast, inanimate object, or another vehicle.

A motor vehicle **traffic collision** is any collision involving a motor vehicle in-transport that occurs:

- *On a highway, or*
- *After the vehicle has left the road but before that event has stabilized.*

A motor vehicle **non-traffic collision** is any motor vehicle collision that occurs entirely at a place other than a highway (public or private).

NOTE: Although the terms “accident”, “crash”and “collision” are often used interchangeably, “collision” is the state standard term when referring to any event involving motor vehicles.

In-Transport

For both traffic collisions and non-traffic collisions, the motor vehicle(s) involved must be *in-transport*. **In-transport** is the state or condition of a vehicle when it is in use primarily for moving persons or property, including the vehicle itself (e.g., a trailer being pulled), from one place to another.

A motor vehicle is considered *in-transport* whenever:

- The vehicle is on a roadway, no matter if that vehicle is:
  - Moving
  - Stopped, stalled
  - Disabled
  - Abandoned, ***or***

In-Transport (Continued)

- *Any part* of the vehicle is on a roadway and might be struck by any other vehicle moving on the roadway as well, or
- The vehicle is moving while:
  - In a designated parking area
  - On a shoulder
  - Off a highway

Examples of Vehicles In-Transport

Examples of vehicles considered to be *in-transport* may include, but not be limited to, any vehicle:

- Being driven on a street in a residential neighborhood
- Sitting on a roadway with the engine off, the hood up, and no driver
- Stopped at a traffic light
- Stopped on the shoulder of a road with the driver's door open so that it extends out onto the roadway
- Backing out of a parking space in a public parking lot
- Moving slowly on a dirt road through a wooded area

A vehicle would ***not*** be considered to be *in-transport* if that vehicle:

- Is sitting off the roadway on the shoulder of a road even with its engine running
- Is stopped at the end of a private driveway while the driver waits for the traffic to clear in order to pull onto a roadway
- Has been abandoned on a portion of a highway closed for construction

Definitions of Highways and Roads

In order to investigate and document vehicle collisions accurately, peace officers must understand the legal definitions of the surfaces related to traffic flow.

A **highway** is a way or place of whatever nature, publicly maintained and open to the use of the public for purposes of vehicular travel. Highway includes street. *(Vehicle Code Section 360)*

A **median** is the portion of a divided highway which separates the roadways from traffic moving in the opposite direction. For descriptive purposes, the median also includes any median shoulders. Some medians also have median barriers (steel rails, metal posts/wire, or concrete).

A **road** is that portion of a highway that includes the roadway and any shoulder alongside the roadway. (*Vehicle Code Section 527*)

A **roadway** is that portion of a highway improved, designed or ordinarily used for vehicular traffic *(Vehicle Code Section 530).* A highway can have more than one roadway. For example, a two-lane highway separated by a median has two roadways.

A **shoulder** is the portion of the road next to the roadway used for accommodation of stopped vehicles, emergency stops, or lateral support of the roadway structure.

A **sidewalk** is the portion of a highway, other than the roadway, set apart by curbs, barriers, marking, or other delineation for pedestrian travel. *(Vehicle Code Section 555)*

NOTE: If a portion of a highway is closed to vehicular travel (e.g., construction or repair zones, closure due to collision investigations, etc.), that portion no longer meets the definition of a highway. If a collision should take place in the closed area, it would be considered a non-traffic collision.

Related Terms

Peace officers should also become aware of the legal definitions of the following terms.

An **alley** is any highway having a roadway not exceeding 25 feet in width and which is primarily used for access to the rear or side entrances of abutting property. *(Vehicle Code Section 110)*

A **crosswalk** is any portion of a roadway distinctly indicated for pedestrian crossing. At intersections of two roads which meet at approximate right angles, crosswalks may or may not be marked. In such situations, the crosswalk is the area within the prolongations of sidewalk boundary lines from one side of the road to the other. When a crosswalk is not at an intersection, it is indicated by lines or other markings on the surface. *(Vehicle Code Section 275)*

An **intersection** is the point where two highways join one another at approximately right angles. An intersection can also include the area where two highways join at any other angle. *(Vehicle Code Section 365)*

An **interchange** is a system of interconnecting roadways that provide the interchange of traffic between two or more roadways that are at different levels.

Law Enforcement Responsibilities

When responding to a vehicle collision, peace officers have four key law enforcement responsibilities.

- Officer Safety/Scene Safety (see page 2-24)
- **Manage the collision scene** in order to care for injured or involved parties and protect the collision scene to preserve potential evidence.
- **Perform the investigative tasks** necessary to gather information and collect evidence regarding the collision.
- **Document the collision** using a standardized reporting format.

Introduction

The initial responding peace officer must take control of the scene and is responsible for supervising all facets of the scene and collision investigation until officially relieved of those responsibilities.

Primary Objectives

Peace officers must be aware of their primary objectives whenever they receive calls to respond to vehicle collisions.

- Get to the collision scene as quickly and safely as possible
- Develop a plan of action to establish priorities
- Identify and control scene safety hazards
- Determine if there are injured parties and render medical assistance if necessary
- Protect the collision scene
- Evaluate the need for and, if necessary, request additional assistance

Responding to the Call

The best route to the scene of a vehicle collision may not always be the shortest one. There are numerous factors that peace officers may consider, including:

- Criticality of the situation based on:
  - Location, type, and severity of the collision
  - Availability of other assisting units, etc.
- The peace officer's knowledge of the area
- Distance from the peace officer's present location to the collision scene
- Routes of other responding units
- Geographic conditions (e.g., construction barriers, poor road conditions, densely populated area, residential area, etc.)
- Environmental conditions (e.g., weather)
- Time of day (e.g., level of traffic, lighting, etc.), and
- Specific agency policy

Emergency Response

Vehicle Code Section 21055 provides that, as drivers of authorized law enforcement vehicles, peace officers do not have to abide by certain traffic laws when they are driving under *authorized emergency conditions* (Code 3 with emergency lights and siren as necessary and within agency policy).

Peace officers may:

- Proceed through a red or stop signal or stop sign, *but only after slowing down or stopping as may be necessary for safe operation*
- Exceed the maximum speed limits *so long as they do not unnecessarily endanger life or property, and*
- Disregard regulations governing direction of movement or turning in specified directions *as may be reasonable*

NOTE: The exceptions granted under *Vehicle Code Section 21055 do not* protect peace officers from criminal prosecution or their agencies from civil liability if the peace officers have or cause an accident due to their own ***reckless driving or wanton disregard for the safety of others***. *(Vehicle Code Section 21056)*

NOTE: For additional information regarding emergency response driving and the operation of law enforcement vehicles under adverse conditions, refer to LD 19: Vehicle Operations.

Plan of Action

From the time of notification and before arriving at the scene, responding officers should develop a *plan of action*.

Depending on the situation, a plan of action may include:

- Obtaining as much information as possible as to the:
  - Type and severity of the collision
  - Number of vehicles involved
  - Types of vehicles involved
  - If there are injured parties, etc.
- Considering the type and number of resources that may be needed at the scene
- Coordinating planned actions between the primary unit and other units in the area who may also be responding
- Obtaining information regarding traffic backups, roadway closures, etc. related to the collision

Scene Safety Hazards

As peace officers approach the actual scene of a vehicle collision, they should be aware of and begin looking for indicators of potential safety hazards related to the vehicle collision. The following table identifies a number of indicators that peace officers should be aware of when approaching a collision scene.

Indicators	Examples
Fleeing vehicles/persons	• Drivers attempting to leave the scene of the collision (e.g., damaged vehicles, abandoned vehicles, persons fleeing on foot, etc.)
Existence of hazardous materials	• Tanker trucks or other vehicles bearing placards, signs, or other forms of identification • Fire, smoke, vapor clouds, odors • Visible leaks or damaged containers • Recreational vehicles with propane tanks • Electric vehicles/batteries NOTE: For additional information regarding recognition of hazardous materials refer to LD 26: Critical Incidents.
Conditions related to the collision	• Electrical wires down • Ruptured gas lines, water mains • Indications that victims may be trapped • Moving traffic • Collision debris (e.g., glass, vehicle parts, etc.) • Other situations that could cause additional accidents

Positioning Patrol Vehicle

Upon arrival, peace officers should carefully position patrol vehicles in such a way as to:

- Not block other emergency or patrol units arriving at the scene
- Protect peace officers, involved parties, and the scene itself from other traffic
- Best utilize emergency/hazard lights and warning signals on the patrol vehicle
- Have necessary equipment that may be stored in the vehicle near the peace officers

NOTE: Peace officers are responsible for being aware of and complying with their own agency's policies regarding the placement of patrol vehicles at collision scenes.

Injured Persons

Once at the scene, it becomes the responsibility of the responding officer(s) to take necessary actions to *care for injured or involved parties*. In order to meet this responsibility, peace officers should:

- Check for possible injuries that may not otherwise be obvious
- Identify the nature and extent of any injuries
- Administer first aid as necessary
- Determine if there are any trapped victims
- Request additional emergency medical or other specialized units if required

NOTE: If fatalities are involved, peace officers should take appropriate steps to notify their supervisor and follow agency protocols.

Collision Scene Protection

Along with caring for injured parties, peace officers are responsible for *protecting the collision scene* and preserving and collecting any potential physical evidence.

In order to meet this responsibility, peace officers may be required to:

- Use appropriate equipment to isolate the area (e.g., cones, flares, crime scene tape, patrol vehicles, etc.)
- Take necessary action(s) to maintain spectator control and safety as well as prevent interference with other responding units
- Direct traffic away from the area including establishing alternate traffic routes if necessary
- Evaluate the need for and request:
  - Additional patrol units
  - Fire units
  - Hazmat units
  - Additional equipment (e.g., warning lights, traffic control devices etc.)
  - City/country utilities and highway crews
  - Specialized traffic investigation units for fatal or serious collisions (per agency policy)

Vehicle Tow Away

If the collision results in property damage to at least one vehicle to the extent that the vehicle cannot be driven or simple repairs cannot be made at the scene, the responding officer will need to arrange to have the vehicle towed.

NOTE: A *simple repair* is one that can be made by a person who is generally lacking in knowledge or expertise in auto repairs (e.g., changing a tire, bending a fender away from a tire with a crowbar, etc.).

Peace officers responding to a vehicle collision have the authority to have vehicles or trailers towed from the scene when the:

- Driver of the vehicle is incapacitated (due to physical injuries or illness) and is unable to provide for the vehicle's removal
- Driver of the vehicle is taken into custody for an alleged offense
- Vehicle is in an unsafe condition or blocking the roadway due to the collision

NOTE: Additional information regarding vehicle towing, storage, and impounds can be found in LD 28: Traffic Enforcement or see *Vehicle Code Section 22651.*Removal of Other Obstacles

Obstacles and debris from a collision should be removed from the roadway after the investigation is complete and prior to the roadway being reopened. If special equipment will be required, peace officers should take appropriate action (i.e., notify dispatch) to request that appropriate resources and equipment be sent (e.g., public works, tow trucks, cranes, etc.).

NOTE: Tow trucks are required to be equipped with brooms and shovels to remove glass and debris from the roadway when a vehicle is removed. Tow trucks must also carry dirt and an absorbent material in order to absorb oil or grease from the roadway. *(Vehicle Code Section 27700)*

CHAPTER SYNOPSIS

Learning Need

Peace officers need to know how to effectively manage traffic collision scenes to ensure their safety, the safety of others, and protect the integrity of the collision scene.

Scene Safety Hazards [29.01.06]

As peace officers approach the actual scene of a vehicle collision, they should be aware of and begin looking for indicators of potential safety hazards related to the vehicle collision.

Injured Persons [29.01.07]

Once at the scene, it becomes the responsibility of the responding officer(s) to take necessary actions to *care for injured or involved parties*.

Collision Scene Protection [29.01.08]

Along with caring for injured parties, peace officers are responsible for *protecting the collision scene* and preserving any potential physical evidence.

Collecting and Preserving Evidence [29.01.09]

Along with caring for injured parties, peace officers are responsible for protecting the collision scene and preserving and collecting any potential physical evidence.

Introduction

To help you review and apply the material covered in this chapter, a selection of learning activities has been included. No answers are provided. However, by referring to the appropriate text, you should be able to prepare a response.

Activity Questions

1. Peace officers are called to the scene of a two vehicle collision in a parking lot. The driver of Vehicle 1 (V-1), who is later determined to be intoxicated, is injured in the collision. Is this a traffic collision or a non-traffic collision? Include your rationale for your answer. What are the responding peace officers' responsibilities in this situation?

Activity Questions (Continued)

2. Peace officers arrive on the scene of a vehicle collision that has occurred on a major six lane divided highway. One peace officer notes that the rear end of the front vehicle is partially obstructing the right lane and that the driver is still sitting in the car. This vehicle appears to have extensive damage in the rear. The other vehicle involved in the collision is on the shoulder behind the first. The driver of this vehicle exits the vehicle as peace officers arrive and approaches the patrol car. How should peace officers proceed? Give the rationale for your answers. What should their first responsibility be?

3. You are a peace officer who has just been alerted by dispatch of a three-car collision with possible injuries. The collision is located approximately 1½ miles ahead of your current position. You are the closest unit to the scene but due to the collision, you are in the middle lane of a three-lane bumper-to-bumper traffic back-up. How should you proceed? What should your primary objectives be now and what should those objectives be when you arrive at the scene?

Activity Questions (Continued)

4. Peace officers arrive on the scene of a single vehicle collision involving a power pole. As they pull up, the driver is revving the engine in an attempt to back away from the pole. Responding officers can also hear the driver screaming in anger at the passenger. What potential hazards might be involved at this collision scene? How should the peace officers proceed? What precautions should be taken?

Chapter 2
Collision Investigations

OVERVIEW

Learning Need

To accurately determine the events and factors associated with a collision, peace officers must recognize the types, and importance of evidence likely to be available at a collision scene.

Learning Objectives

The chart below identifies the student learning objectives for this chapter.

After completing study of this chapter, the student will be able to:	Objective ID
• Distinguish between different types of physical evidence that may be located at a collision scene and recognize the type of information they may provide	29.02.03
• Distinguish between a skid mark and a tire impression	29.02.04
• Describe ways of linking a tire mark with a particular vehicle	29.02.05
• Classify the three causes of skid marks	29.02.06
• Describe the variables to consider when determining the order of taking measurements at a vehicle collision scene	29.02.07
• Determine appropriate reference points/lines to use when taking measurements at a vehicle collision scene	29.02.08
• Distinguish between primary collision factor and associated collision factor	29.02.12

In This Chapter

This chapter focuses on the information, evidence, and other factors peace officers should recognize and take into consideration when investigating vehicle collisions. Refer to the chart below for specific topics.

Introduction

An **investigation** is the systematic gathering of information from a variety of sources along with documentation of statements, evidence, observations, and findings.

The investigation of a vehicle collision begins when the responding peace officer(s) first arrive at the scene of the collision and continues through the writing and filing of a collision report.

Evidence is any testimony, writings, material objects, or other things presented to the senses, and offered to prove or help prove or disprove the existence or nonexistence of a fact. *(Evidence Code Section 140)*

Involved Parties

An involved party is any of the following who are directly involved in a vehicle collision.

Party	Definition	Related Information
Driver(s)	• The person who drives or who is in actual physical control of a vehicle involved in a collision	• Can also include a person: - Operating a vehicle that is being propelled by other than that vehicle's own power (e.g., a coasting vehicle, a vehicle being pushed) - Seated in the driver's seat when stopped within a traffic lane

Party	Definition	Related Information
Pedestrian	• Any person who is afoot or who is using a means of conveyance propelled by human power other than a bicycle *Vehicle Code Section 467*	• This includes: - Skateboards - Roller blades and skates - Wheelchairs (self-propelled or motorized)
Bicycle	• Any device upon which a person may ride, propelled by human power through a belt chain, or gear, and having one or more wheels *Vehicle Code Section 231*	• Riders of tricycles, unicycles, or wheeled toys shall be considered pedestrians, unless their tricycle or unicycle meets the definition of a bicycle
Parked Vehicle	• A non-moving vehicle, occupied or not, which is outside traffic lanes	
Other	• An involved party that does not meet the definition of a driver, pedestrian or bicyclist	Examples: - Driverless vehicles - Motorized scooters - Equestrians - Animal drawn conveyances - Trains, planes, cables cars
Operator	• To be used only for autonomous vehicles	Example: Self-Driving Vehicles

NOTE: A person does not have to be seated in the driver's seat to be considered a "driver." For example, if a person sitting in a passenger seat is controlling the steering wheel, that person is a "driver."

Other Persons

Along with the involved parties, independent witnesses, passengers, and uninvolved parties may provide critical information to peace officers conducting a vehicle collision investigation. The following table identifies these individuals.

Person	Definition	Related Information
Independent witness(es)	• Any person, other than an involved party or a passenger • Who can provide information relevant to the collision	• Includes persons who observed: - The collision - Pertinent details before or after the collision • Should be interviewed *first* in most cases because they are not obligated to remain at the scene • May provide information that corroborates drivers' statements and evidence at the scene
Passenger(s)	• Any person inside or upon a vehicle involved in a collision, excluding the driver	• May provide information regarding their observations • Should not be considered to be "independent witnesses"
Uninvolved party	• Any individual who an involved party claims contributed to the collision	• Sustained no damage or injury • There is no evidence to indicate that the involved party committed a violation that would cause the collision • There is no corroboration by a disinterested witness or the uninvolved party
Non-contact involved party	• Any driver, pedestrian, or other person(s) (e.g., bicycle rider) • Not making any type of actual physical contact	• Contributing violation(s) of a non-contact involved party must be corroborated by independent witnesses, physical evidence, or the person themselves

	with involved vehicle(s) but • Who directly caused another party to become involved in the collision	

Bias

A **bias** is the perception of *one's reality*. Individuals may experience both conscious and unconscious biases that can be either positive or negative in nature.

In order to place the perceptions of individuals who have been involved in a vehicle collision in proper perspective, peace officers should first recognize possible influences on that individual's perceptions. Individuals who are directly involved in a vehicle collision (e.g., drivers, passengers, non-contact involved parties, etc.) may express opinions/interpret information based on possible:

- Economic loss
- Loss of driving privileges
- Potential criminal prosecution
- Potential civil liability regarding the collision

Interview Process

A successful interviewer has the ability to obtain information from all parties and record it accurately. The following table introduces the basic phases of conducting a field interview related to a collision investigation.

	Action	General Guidelines
Prepare for the interview	Separate the involved parties, witnesses, and other individuals	• If possible, move the person to a location where there will be no interruptions or distractions • Focus the person's attention on speaking with the peace officer rather than interacting with others
	Establish rapport	• Tell the person why the interview is being conducted • Control the interview by remaining calm and polite • Be courteous, considerate, and patient

Interview Process (Continued)

	Action	General Guidelines
Gather identification information	Obtain personal information	• Name, address, phone number (home/cell and business) • Brief description (i.e., sex, date of birth, height, weight, etc.) • Location at the time of collision • Any other information necessary for identification purposes
	Obtain other documentation	• Driver's license (number, state, class, etc.) • Vehicle registration • Proof of insurance

Field Interviews

An **interview** is the process of gathering information from a person who has knowledge of the facts a peace officer will need to conduct an investigation.

During the field interview, questions should be directed to the involved parties and witnesses that will allow the investigating officer to determine the:

- Direction of each vehicle
- Speed of each vehicle
- Location of the vehicle when the danger was first noticed by the involved party/witness
- Location of witnesses at the time of the collision, and any other information specific to that collision

NOTE: For additional information regarding interviews and note taking, refer to LD 18: Investigative Report Writing.

NOTE: An interview is not an interrogation. Miranda admonishments are not required when conducting a field interview. For additional information regarding Miranda and interrogation refer to LD 15: Laws of Arrest.

	Action	General Guidelines
Listen attentively	Ask the person to recount what has happened	• Allow the person to speak freely • Have the person describe the collision in that person's own words
	Keep the person focused	• If the person should begin to wander from the specific topic, guide the person back to the subject • Maintain eye contact and use nonverbal gestures (e.g., nodding the head) to encourage the person • Be particularly attentive to the essentials of the collision as described by that person
Ask questions and take notes	Ask the interviewee to repeat that person's account of what happened again	• Guide the interview by asking questions that will keep the person from becoming distracted and wandering from the point • Stop the person and ask questions when necessary to clarify points • If a statement is particularly important, have the person stop speaking while capturing the entire statement

NOTE: Statements may be noted verbatim or paraphrased in the peace officer's field notes. Statements that are handwritten by the party are also acceptable and can be attached to the peace officer's collision documentation.

	Action	General Guidelines
Verify information	Review information with the person	• Repeat specific information to verify that the information is accurate and complete • Give the person an opportunity to add facts as necessary • Have the person confirm important details such as direct quotes, time relationships, etc.
	Make modifications or corrections as necessary	• Information may have been initially recorded incorrectly because the peace officer: - Misunderstood something the interviewee said - May have incorrectly characterized the interviewee's statement • Once any changes have been made, the information that has been added or modified should be verified

Interview Questions

The questions asked during each interview will vary depending on the nature of the collision and any suspected violations. The following table identifies a number of possible questions the investigating officer may consider when gathering information from involved parties and witnesses.

	Possible Questions to Ask	
Drivers	Route	• Where did your trip start and where were you going? • Did you have to be there at any particular time? • What was the purpose of the trip? • How often do you drive this route?
	Conditions	• How fast do you think you were traveling? • What were the prevailing conditions (e.g., light, snow, fog, rain, etc.)? • Where were your passengers seated prior to the collision?
	Collision	• At what time did the collision take place? • Which direction were you traveling before the collision? • Where were you on the roadway (i.e., what lane) when the collision occurred? • What happened when you collided? • Where exactly did the collision occur? • Did you try to avoid the collision? If so, how? • What happened to your vehicle after you collided?
	Other Vehicle	• When did you first see the other vehicle/pedestrian? • Who was driving the other vehicle? • How fast do you think the other vehicle was traveling? • What happened to the other vehicle after you collided?

Interview Questions (Continued)

	Possible Questions to Ask
Other Involved Parties	• At what time did the collision take place? • Where were you at the time of the collision? • What were you doing? • Who was driving the vehicle(s)? • How fast do you think the vehicle(s) were traveling? • What happened when the vehicle(s) collided?

Nine-Cell Matrix

In the course of a collision investigation, investigating officers must consider many possible variables. The following table presents a nine-cell matrix of possible considerations.

	Pre-collision	Collision	Post-collision
Vehicle(s)	• Location (e.g., direction of travel, lane, etc.) • Speed • Vehicle load (weight transfer) • Mechanical condition/ equipment)	• Impact speed • Vehicle orientation at impact (e.g., direction, lane, area of impact, etc.) • Loose objects in the vehicle • Vehicle movement (e.g., spun, kept going in same direction, swerved, etc.) • Secondary impact (other objects hit)	• Final resting location (on or off roadway) • Direction vehicle is facing

Nine-cell matrix (Continued)

	Pre-collision	Collision	Post-collision
Involved Person(s)	• Number of occupants (including seat locations) • Activities/attention span (e.g., smoking, eating, daydreaming, talking, etc.) • Blood-alcohol level • Physical condition (e.g., hand controls, restrictive lenses) • Use of restraints • Intention (e.g., change lanes, turn, go straight, etc.)	• Movement of occupants at time of impact • Injuries • Level of control	• Rescue activities/first aid required • Direction of any ejected party • How occupants exited vehicle • Use of sobriety/ chemical testing
Environment	• Weather condition • Visibility • Roadway Conditions • Traffic Conditions	• Conditions at time of collision (changes, if any from pre-collision phase)	• Conditions during the course of the investigation (changes, if any from pre-collision and collision phases) • Location of debris

Elements of the Violation

When interviewing involved parties and witnesses at the scene of a vehicle collision involving a suspected traffic violation, the investigating officer should question each person concerning the specific elements of the suspected violation. No element should remain unresolved.

Every person interviewed should state for each element either that:

- The element *was* present
- The element *was not* present, or
- That individual *does not know* whether it was present or not

For example, *Vehicle Code Section 21453* (failure to stop at a red light) requires drivers to stop at certain locations when a red signal is displayed. Involved parties and witnesses should be questioned as to exactly where the vehicle was at the time the red light came on and whether or not the vehicle had stopped.

NOTE: Elements of a traffic violation may also be supported by physical evidence and/or the injuries sustained by the involved parties.

NOTE: For additional information regarding traffic violations, refer to LD 28: Traffic Enforcement.

NOTE: At the conclusion of a collision investigation a peace officer may issue a notice to appear. See *Vehicle Code Section 40600 (a)*

Physical Evidence

Physical evidence includes any tangible objects that are relevant to the investigation. The physical evidence identified at the collision scene along with other variables may aid in determining the cause of the collision.

The following table identifies a number of types of physical evidence that may be found at the scene of a vehicle collision.

<table>
<tr><th>Type</th><th colspan="2">Additional Information</th></tr>
<tr><td>Debris</td><td colspan="2">• Loose material scattered about at the scene as a result of the collision
• Composed of loose vehicle parts, cargo, broken glass or plastic, or numerous other types of material associated with the collision
• May indicate
- General area of impact (but poor indicator of where the collision actually took place)
- Direction of travel</td></tr>
<tr><td rowspan="5">Fluids (vehicle/body)</td><td>Spatters</td><td>• Usually made from a container collapsing at the time of collision
• May help indicate an area of impact since a damaged vehicle generally does not move far before the spatter reaches the road</td></tr>
<tr><td>Dribbles/trails</td><td>• May indicate direction of travel</td></tr>
<tr><td>Puddles/pools</td><td>• Occurs when a fluid stops moving
• Good indicator of the location where a vehicle or person came to rest</td></tr>
<tr><td>Run-off</td><td>• Indicates a slope</td></tr>
<tr><td>Soak-in</td><td>• Occurs where liquid is absorbed by soil or pavement cracks</td></tr>
</table>

Type	Additional Information	
Road scars	Scratches/scrapes	• Usually caused by metal parts moving across roadway with relatively light pressure
	Gouges/grooves	• Places where roadway material has been dug out • Usually caused by strong metal components • Shape of gouge may help indicate what made it • May indicate an area of impact, direction of travel, and/or placement of vehicle
Tire marks	• Tire friction marks • Tire prints and impressions	
Other	• Paint chips and transfer marks • Fabric, hair, and tissue • Personal items (e.g., eyeglasses, shoes, etc.)	

Scene Management

Proper collision scene management requires:

- Preventing the contamination or destruction of evidence
- Identifying and documenting the appearance of the scene
- Collecting and preserving evidence

Preventing Contamination

Rain, snow, heat and humidity, sun, wind, or cold can quickly destroy or compromise certain types of perishable evidence. Other forms of evidence may be fragile and easily lost. Depending on the nature of the collision and the conditions, responding peace officers may need to take actions to protect at-risk evidence at the scene until it can be properly documented and collected.

Example:

- Tire prints or impressions may need to be carefully covered so they will not be harmed by rain or snow
- Glass fragments, auto parts, etc. May be damaged by persons and/or vehicles moving through the scene
- Loose items may be removed by animals or other persons not involved in the investigation

NOTE: Although environmental conditions may be harmful to evidence, investigating officers should not automatically assume that evidence has been compromised just because such conditions exist.

NOTE: Peace officers should not tamper with any component of a vehicle prior to an investigation (e.g., turn off headlights, ignition).

Documentation

The care with which the collision scene is documented can greatly affect the accuracy and credibility of further actions taken in the investigation. For this reason, it is critical to thoroughly document what is found and observed at the scene.

Documentation can be achieved by numerous means such as:

- Maintaining accurate and complete field notes
- Creating an evidence list
- Taking images or video of the area and particular pieces of evidence
- Taking accurate measurements identifying the location of each piece of evidence to be used for later documentation and diagrams

NOTE: Additional information regarding measurement, sketches, and factual diagrams is presented in Chapter 3: Collision Documentation.

Digital Evidence

Digital evidence (i.e., images, videos, etc.) can be a valuable tool in collision investigations. Digital evidence can be used to document the collision scene exactly as it appeared, document vehicle damage, and preserve specific articles of at-risk evidence. They can also be helpful for reconstruction purposes and used to show an object or scene relevant to the collision.

All digital evidence should be preserved and the location where the unaltered original files are stored should be clearly noted in the peace officer's documentation. Follow agency protocols in regards to collection of digital evidence.

NOTE: Additional information regarding use of photographic equipment during an investigation can be located in LD 30: Crime Scenes, Evidence, and Forensics.

Evidence Collection

For collisions involving serious injury or death, specific items of physical evidence may need to be collected for further laboratory analysis.

Relevant items that can be collected depending on the specifics of the collision may include but not be limited to:

- Involved Vehicle(s) for forensic analysis such as infotainment systems, event data recorders and onboard cameras, etc.
- *Vehicle parts including, but not limited to, lamps and other vehicle parts such as speedometers (collected in the same condition they were found)*
- Paint samples and paint transfer marks
- Alcohol cans/bottles
- Trace evidence (i.e., hair, fibers, tissue, etc.)
- Debris from the scene

NOTE: The appropriate methods should be used for collecting each specific type of evidence. Follow agency protocols in regards to collection of evidence .

Chain of Custody

The **chain of custody** is the written, witnessed, unbroken record of all individuals who have maintained control of or had access to any physical evidence.

A complete and accurate chain of custody record is absolutely essential in establishing the validity and integrity of evidence in court.

Markng and Labeling

To ensure that the evidence presented in court is the same evidence collected at the collision scene, each container or wrapped item collected should be identified and labeled.

Using permanent ink, the following information should be carefully and legibly noted on the evidence label or tag.

- Collecting peace officer's name and identification number (i.e., badge/serial number)
- Time and date the item was collected
- Where the evidence was located
- Brief content description (including size and quantity)
- Any related information (e.g., case control number, witness(es) to the collection)
- Collection officer's signature

NOTE: Unless agency policy is to the contrary, peace officers should not place any marks directly on an item of evidence itself. Marking evidence in this manner may affect or even destroy its evidentiary value.

Introduction

Marks left from the tires of a vehicle involved in a traffic collision are another form of physical evidence that may be available at a collision scene.

Types of Tire Marks

There are two types of tire marks that peace officers may encounter at a vehicle collision scene: **skid marks** and **tire impressions (prints)**. The following table further identifies each.

	Description
Skid Mark	• Darkened roadway material left by a tire that is: - Not free to rotate - Sliding or slipping over a surface
Tire Impression	• Mark left by a rotating tire that has gone through a liquid or other soft material leaving a "print" of the tire's tread pattern • May also be found in snow, slush, sand, mud, grass, or other impressionable surface

NOTE: A friction mark is made when a slipping or sliding tire rubs the road or other surface; skid marks; yaw marks; acceleration scuffs and flat tire marks.

Examination of Tire Marks

The visibility of tire marks will depend on the roadway surface material (e.g., concrete, asphalt, gravel, etc.), and available lighting (e.g., day, night, glare, etc.).

Tire marks should be examined at a distance and from multiple directions. During daylight conditions, peace officers find it helpful to examine the marks through polarized lenses to reduce glare. Auxiliary lighting may be required when examining marks at night.

Tire Marks and Vehicles

Investigating officers may link a particular tire mark left at a collision scene with a specific vehicle in a number of different ways. Investigating officers may:

- Check the condition of the vehicle's tires
- Compare the width of the tires in relation to the width of the tire mark
- Compare the track width of the vehicle to the tire mark
- Look for sidewall scuffing
- Determine the number and condition of the grooves
- Note the position of the vehicle at the collision scene

Causes of Skid Marks

Peace officers investigating a vehicle collision should be aware of three basic causes of visible skid marks.

Cause	Additional Information
Extreme deceleration	• When the braking system of the vehicle causes the wheels to cease rotating or rotate slower than the speed of the vehicle • May also occur as a consequence of an impact with an opposing force applied to the vehicle from any direction
Extreme acceleration	• Occurs when a propelling force or thrust is generated in an amount exceeding the roadway efficiency (e.g., asphalt is more efficient than gravel) • Residual tire debris may be observed just prior to the beginning of the mark • Depending on the type of vehicle, there may be only one mark • Examination should reveal a clean surface around the entire circumference of the tire making the mark

Causes of Skid Marks (Continued)

Cause	Additional Information
Extreme change of direction	• May result from an: - Intentional effort on the part of the driver - Impact/contact with a fixed object or other vehicle

NOTE: Information regarding specific types of tire marks is provided in the Supplemental Materials portion of this workbook.

COLLISION SCENE MEASUREMENTS

Introduction

Measurements are taken to determine where an object is located relative to other objects. Complete and accurate measurements taken at the collision scene are the foundation for speed estimates and conclusions on how a vehicle collision occurred.

Officer Safety

Prior to taking any type of measurement at a collision scene, peace officers should make all necessary efforts to protect their own safety as well as the safety of any physical evidence at the scene. Safety measures may include but are not limited to:

- Using barricades, signal devices, cones, flares, patrol vehicles, etc. to divert traffic away from the area
- Wearing reflective vests or other types of identification equipment
- Using personal protective equipment (e.g., gloves)
- Requesting additional resources when necessary to deal with bystanders and involved parties if necessary

What to Measure

Measurements should be taken to determine the location and possibly the size of anything the peace officer feels will be important to the investigation.

The following table identifies a number of locations or items peace officers may consider when determining what to measure at a collision scene.

	Possible Examples
Highway Features	• Roadway widths • Lane widths • Crosswalk widths
Fixed Objects	• Monuments • Roadway markings (e.g., painted lines, etc.) • Traffic devices (e.g., signs, lights, etc.)
Physical Evidence	• Tire marks • Roadway scrapes and gouges • Items ejected from vehicles • Debris patterns • Body fluid stains, pools, smears • Footprints, handprints, scuff marks • Fabric, human tissue, clothing, personal objects • Paint transfers on roadway
Collision Related Points	• Positions of rest of involved vehicles • Location of dead or injured parties • Area(s) of impact

Measurement Priorities

The order in which measurements are taken should be based on the stability of the evidence.

Items which are at *risk or easily moved* should be given first priority (e.g., fluid stains that could be washed away by rain, debris that could be moved by shifting winds, etc.).

The peace officer's next priority should be items that *will be moved* from the scene (e.g., involved vehicles, broken glass, or other debris, etc.).

Measurements involving *fixed objects or areas* can be saved until last (e.g., roadway widths, position of signal equipment, etc.).

Measurement Devices

The following table identifies a number of the measuring devices and equipment that peace officers may use at a collision scene.

<table>
<tr><th>Device/Method</th><th colspan="2">Examples/Additional Information</th></tr>
<tr><td>Laser survey equipment</td><td colspan="2">• Most accurate at any distance
• Very expensive
• Requires high level of training and expertise for use</td></tr>
<tr><td rowspan="3">Tape measures</td><td>Steel</td><td>Consistently accurate</td></tr>
<tr><td>Fiberglass</td><td>Durable; difficult to break</td></tr>
<tr><td>Cloth/Plastic</td><td>Lacks accuracy due to stretching</td></tr>
<tr><td>Measuring wheel</td><td colspan="2">• Good for measuring long distances
• Should be periodically checked for accuracy
• Inaccuracies can be caused by:
- Operator error
- Inconsistent line of path
- The type of surface to be measured (e.g., bumps, skips, gravel, etc.)</td></tr>
</table>

Measurement Devices (Continued)

Device/Method	Examples/Additional Information
Pacing	• Should be based on full strides • Must know the length of a peace officer's stride • Generally inaccurate
Vehicle odometer	• Used for measuring very long distances • Accuracy may be questionable depending on the vehicle
Visual estimate	• Totally subjective • Most unreliable of all methods

NOTE: Other items of equipment may include a directional compass, level, chalk, spray paints, nails, and other marking devices.

Reference Points/Lines

A **reference point/line** is a point from which a measurement is taken to locate a single spot in a given area. Reference points/lines should be based on fixed objects. A **fixed object** is any *permanent* object or landmark that does not move (e.g., the roadway edge or curb, a permanent signal device, a fire hydrant, light pole, etc.).

The location of any item should be noted by using measurements from *two different reference points/lines* to a single location.

NOTE: Measurements may be taken not just to measure location but also the size of an object or area. For example, a peace officer may take measurements to determine the length of a tire mark or the size of the area in which debris is located.

Prolongation Reference Lines

Reference points/lines used as fixed points when taking measurements may include painted or imaginary **prolongation** (i.e., extensions) of an existing curb line, roadway edge, or sidewalk edge, etc.

NOTE: A graphic illustration of an intersection with imaginary prolongation marks is included in the Supplemental Materials portion of this workbook.

Measurement Techniques

There are a number of different measuring techniques that an investigating officer may employ. The following table identifies three of the most common.

NOTE: A graphic example of each technique is included in the Supplemental Materials portion of this workbook.

Technique	Description

Coordinate	• Based on measurements taken from two different reference points/lines
	• Reference points/lines may include:
	  - Roadway edges or curb lines
	  - Prolongations (i.e., extensions, continuations)
	• A single spot (e.g., item of physical evidence) is located by taking a measurement from each reference line
	• Each measurement should be noted along with appropriate compass coordinates (e.g., an item may be 8' north of the south roadway edge)

Measurement Techniques (Continued)

Technique	Description
Station Line	• Used when dealing with long distance between two reference points/lines • Based on a straight or curved stationary line that is: - Easy to locate (even in the future) - Away from an open lane of traffic - Close enough to the physical evidence to avoid perpendicular measurements over 20 feet in length • Reference points are established along the station line using standard engineering technique with 0+00 for a designated beginning point along the station line
Triangulation	• The process of determining a precise location, position or point by measuring angles from two known, fixed points, forming a triangle. • Employed in limited situations where other methods are less practical (e.g., on irregular terrains) • Requires accurate measurement and note taking to avoid errors

Introduction

Statements taken during a field interview, evidence identified at the scene, along with the investigating officer's observations and training, all play a part in determining the cause of a vehicle collision and whether a violation of the law has taken place.

Area of Impact

During the course of the investigation, peace officers must establish the area of impact. The **area of impact** (AOI) is the area at which damage or injury occurs as the result of a collision where an involved party(s) come(s) into contact with the following:

- One another
- Another object
- A surface

Establishing the Area of Impact

Determination of the area of impact is generally based on a number of different factors including, but not limited to:

- Statements and information gathered during field interviews
- Vehicle speed(s)
- Point of rest of vehicle(s)/pedestrian
- Vehicle damage (location, amount, severity, etc.)
- Damage to fixed objects
- Fluids on the roadway (spatters, trails, pools, etc.)
- Gouges and other road scars on the roadway or other objects
- Debris at the collision scene (type, location, direction, pattern, etc.)
- Tire marks on the roadway (indicating change of direction, acceleration, deceleration, etc.)

No matter what information is used, peace officers must be prepared to document their rationale for designating a specific location as the area of impact.

Law of Motion

When considering the location of evidence at the collision scene to determine the area of impact, investigating officers should remember that any object that is already in motion will tend to remain in motion. *(Newton's First Law of Motion)*. Because of this, items may be propelled beyond the actual area of impact.

Point of Rest

Investigating officers should not confuse the area of impact with the point of rest. The **point of rest** (POR) is the geographical location at which the involved vehicles come to a *final* position of rest after impact with one another, another object, or a surface.

NOTE: Peace officers should be aware that a vehicle could have been moved from the original point of rest prior to their arrival at the scene.

Primary Collision Factor

Investigating officers must also determine the primary collision factor in the course of their investigations. The **primary collision factor** (PCF) is the one element or driving action which in the investigating officer's opinion best describes the primary or main cause of the collision (ensure the most applicable vehicle code section is used).

The primary collision factor may be categorized as:

- A specific vehicle code violation
- Other improper driving
- Other than driver
- Unknown

NOTE: If the primary collision factor had not occurred, the vehicle collision would *not have taken place*.

NOTE: If more than one involved party share some amount of "fault" in the collision, investigating officers should determine the primary collision factor based on the involved party that is determined to be *most at fault* in that officer's opinion.

NOTE: Failure to immediately stop when involved in a vehicle collision *(Vehicle Code Section 20002)*, driving under the influence and causing bodily injury (*Vehicle Code Section 23153*), and driving without a license or a suspended license *(Vehicle Code Section 12500 or 14601)*, are *not* acceptable codes to use for primary collision factors.

NOTE: When the involved party considered most at fault is driving a vehicle while under the influence of alcohol or drugs, the primary collision factor shall be *Vehicle Code Section 23152*, regardless of any other violation. *(Vehicle Code Sections 22450, 21703, 22350, etc.)* Enter other violations under "other associated factors."

Vehicle Code Violations

Whenever possible, the primary collision factor should be noted as a specific vehicle code violation. Examples of some vehicle code sections commonly used as primary collision factors are noted in the following table.

NOTE: This table is *not intended to be all inclusive*. Numerous other vehicle code sections may also apply. Reference the vehicle code section for the most appropriate subsection.

Violations		Vehicle Code Section
Traffic Control Devices	Stop signs	*22450*
	Circular red or red arrow	*21453*
	Flashing signals	*21457*
	Double lines	*21460*
	Obedience by driver to official traffic control devices	*21461*
Right-of-Way	Two-way left turn lanes	*21460.5*
	Uncontrolled intersection	*21800*
	Left turn right-of-way	*21801*
	Approaching intersection entrance	*21802*
	Yield right-of-way	*21803*
	Entry onto highway; public, private property, alley	*21804*

Vehicle Code Violations (Continued)

Violations		Vehicle Code Section
Turning and Signaling	Laned roadways	*21658*
	Turning upon a highway	*22100*
	Starting parked vehicle or backing up	*22106*
	Turning movements and required signals	*22107*
Speed	Basic speed law	*22350*
	Minimum speed law	*22400*
Driving, Overtaking, and Passing	Right side of roadway	*21650*
	Divided highways	*21651*
	Following too closely	*21703*
	Overtake and pass to left	*21750*
	Passing without sufficient clearance	*21751*
	Yielding for passing	*21753*
	Pass on right safely	*21755*
Pedestrians	Pedestrian on roadway	*21956*
	Pedestrian right-of-way at crosswalks	*21950*
	Pedestrians outside crosswalks	*21954*

Vehicle Code Violations (Continued)

Violations		Vehicle Code Section
Bicycles	Riding bicycle under influence of alcohol or drugs	*21200.5*
	Bicycle operated on roadway	*21650.1* *21202*
Other	Throwing, depositing, or dumping matter on highway	*23112*
	Spilling load on highway	*23114*
	Opening and closing doors	*22517*
	Driving under the influence of alcohol or drugs	*23152*

Other Improper Driving

When no specific vehicle code section violation is applicable, peace officers may determine that “other improper driving” alone is the primary crash factor.

For example, a crash that takes place on private property where a vehicle code does not apply might be considered other improper driving.

NOTE: “Other improper driving” should not be used as a catch-all to relieve peace officers of their responsibility to identify the appropriate vehicle code violation as the primary crash factor.

Other Than Driver

There may be times when the primary cause of the collision is something beyond the control of a driver. Examples of such primary collision factors may include but not be limited to:

- A large animal (e.g., deer, horse, etc.) running in front of the vehicle
- A medically induced difficulty causing the driver to lose control (e.g., heart attack, epileptic seizure, diabetic coma, etc.)
- An environmental condition (e.g., “black ice”) causing a driver, who is otherwise operating the vehicle safely and properly, to lose control
- Mechanical failure not known or foreseeable through normal and reasonable maintenance (e.g., an axle breaks from metal fatigue, the vehicle’s transmission locks up, etc.)

Unknown

There may be situations when, due to conflicting statements and/or lack of physical evidence, it is not possible for the investigating officer to determine the primary cause of a collision. When such situations exist, the investigating officers must explain within their collision documentation why the primary cause cannot be determined. This should not be used as a catch-all to relieve peace officers of their responsibility to identify the appropriate vehicle code section violation as the primary collision factor

Associated Collision Factors

An <u>associated collision factors</u> are a factor or vehicle code section violation(s) that contributed to the collision but was not the *main cause*. Depending on the situation, there may be more than one associated factor related to the collision.

Examples of associated collision factors include but are not limited to:

- Obscured vision
- Inattention (e.g., using a cell phone, tuning a radio, etc.)
- Stop and go traffic
- Entering or leaving a ramp
- A previous collision
- Unfamiliarity with the highway
- Defective vehicle equipment
- Another uninvolved vehicle
- Runaway vehicle

NOTE: There may be a number of vehicle code violations in the course of a vehicle collision. Although the violations took place and the driver of the vehicle should be charged with their commission, they may not be *what actually caused the collision.*

Documenting the Primary Collision Factor

Any primary or associated collision factor(s) determined by the investigating officer must be *described and substantiated within that officer's collision report*.

NOTE: Additional information regarding the components of a collision report is provided in the next chapter of this workbook.

Examples

Example: Driver of Vehicle 1 (V-1) stopped at a yield sign. Driver of Vehicle 2 (V-2), was traveling too fast and failed to stop in time to avoid striking the rear end of V-1 causing injury to that driver. V-2 was at fault and the primary collision factor was failing to drive at a reasonable speed. *(Vehicle Code Section 22350)*

Example: During the investigation of the collision described in the first example, it was determined that the driver of vehicle one had been driving under the influence. *(Vehicle Code Section 23152)*. Although the driver could be cited for the violation, it is neither a primary nor other associated collision factor.

Example: Driver of Vehicle 1 (V-1) was eastbound traveling at a legal speed on a two-lane road in a rural area. Driver of Vehicle 2 (V-2) was traveling westbound on the same road also at a reasonable speed. A deer leapt from the roadside into the path of V-1. The driver attempted to swerve out of the way and entered the westbound lane, forcing V-2 off the road and into a tree. The primary collision factor for this incident was the deer's actions ("other than driver").

CHAPTER SYNOPSIS

Learning Need

To accurately determine the events and factors associated with a collision, peace officers must recognize the types, and importance of evidence likely to be available at a collision scene.

Physical Evidence [29.02.03]

There are a number of forms of physical evidence that may be found at the scene of a vehicle collision.

Tire Marks [29.02.04]

There are two types of tire marks that peace officers may encounter at a vehicle collision scene; skid marks and tire impressions.

Tire Marks and Vehicles [29.02.05]

Investigating officers may link a particular tire mark left at a collision scene with a specific vehicle in a number of different ways.

Skid Marks [29.02.06]

Peace officers investigating a vehicle collision should be aware of three basic causes of visible skid marks.

Measurement Priorities [29.02.07]

Items which are *at-risk or easily moved* should be given first priority (e.g., fluid stains that could be washed away by rain, debris that could be moved by shifting winds, etc.).

Reference Points/Lines [29.02.08]

A reference point/line is a point from which a measurement is taken to locate a single spot in a given area. Reference points/lines should be based on fixed objects. A fixed point is any *permanent* object or landmark that does not move (e.g., the roadway edge or curb, a permanent signal device, a fire hydrant, manhole cover, light pole, etc.).

The location of any item should be noted by using measurements from *two different reference points/lines* to a single location.

Primary Collision Factor [29.02.12]

The *one* element or driving action which best describes the *main cause* of the collision.

Introduction

To help you review and apply the material covered in this chapter, a selection of learning activities has been included. No answers are provided. However, by referring to the appropriate text, you should be able to prepare a response.

Activity Questions

1. For each of the following situations, identify which party is most at fault, the primary collision factor, and if applicable, any other associated collision factors for the collision.

Situation	Party Most at Fault	Primary Collision Factor	Other Associated Collision Factor(s)
V-1 approaches the intersection facing a solid green signal and makes a left turn in front of V-2 (also facing a solid green signal).			
After coming to a complete stop at a stop sign, V-2 enters the intersection and collides with V-1. V-1 is traveling at a speed that greatly exceeds the posted speed limit and fails to stop at the stop sign.			
V-2 strikes a pedestrian who is crossing the street in a marked crosswalk that is located in the middle of the block (not at an intersection).			
V-1, traveling northbound, slows to make a left turn into a private driveway. V-2 strikes the rear end of V-1 and			

forces it into V-3 traveling southbound in the oncoming roadway.			

Activity Questions (Continued)

2. Driver of Vehicle 1 (V-1) is traveling northbound on Elm Street at a speed of 50 mph that greatly exceeds a posted speed limit of 35 mph. Vehicle 2 (V-2) is parked along the curb of Elm Street, also pointed north. The engine of V-2 is running and the driver is waiting while another person is getting out of the car. Just as V-1 is approaching V-2 from the rear, the driver of V-2 pulls away from the curb, not seeing V-1 approach. The two vehicles collide but no one is injured. The person who has just exited V-2 is on the sidewalk and sees the collision take place.

   Based on the scenario above:

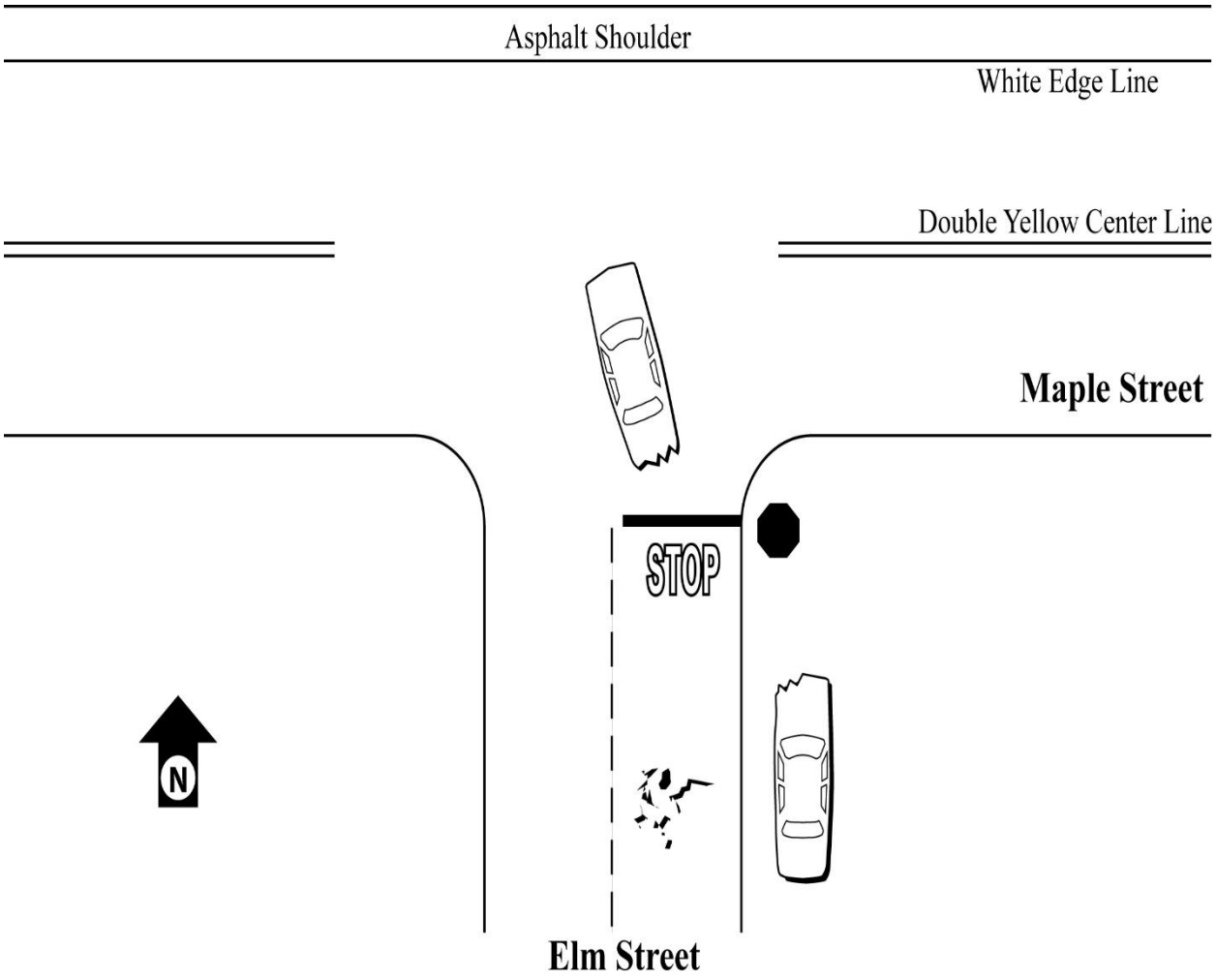
   - *Designate each person as an involved party, passenger, witness, uninvolved party, etc.*
   - *Suggest the types of physical evidence that you might find at the collision scene*
   - *Identify the primary collision factor; Give your rationale for making this decision*
   - *List any other associated collision factor(s). Give a reason why each would be an other associated collision factor rather than the primary collision factor.*

Activity Questions (Continued)

3. You are called to respond to a vehicle collision on a residential street involving a person on a bicycle and a pickup truck. The young man on the bicycle is not seriously injured but is bruised, sore, and badly shaken up. The driver of the truck and his passenger are not injured. There are two witnesses to the collision, a woman in an uninvolved vehicle at the same intersection and a teenager who saw the collision while waiting for traffic to clear before crossing the street. You have no other information regarding the cause of the incident at this time. In what order would you question each of the people at the scene regarding the incident? Make a list of possible questions you might ask each to determine what happened and who was at fault.

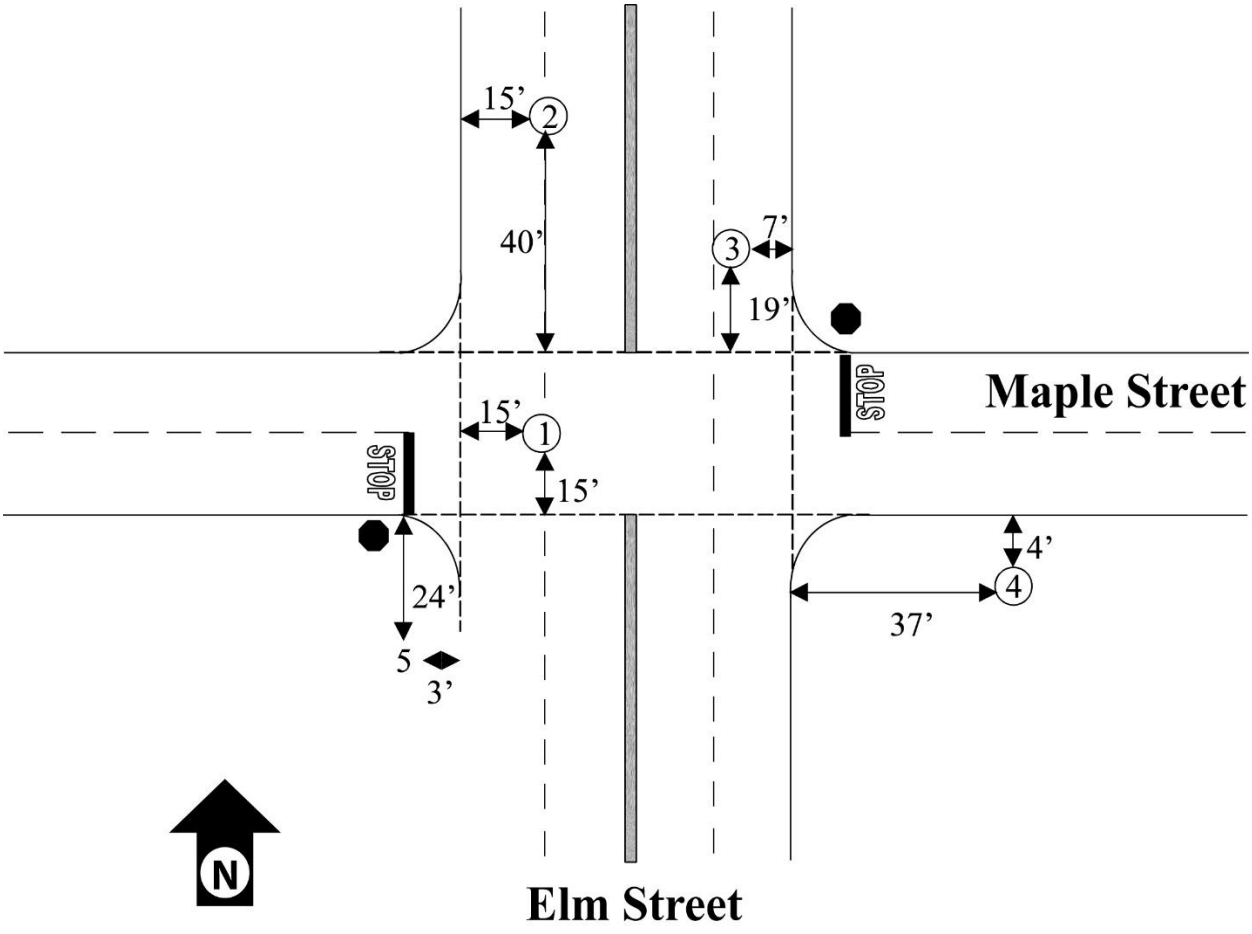
Activity Questions (Continued)

4. Examine the following graphic of a collision involving two vehicles. Using you best judgement, give a general location of the area of impact. Explain why you have decided on that particular location for the area of impact.



Activity Questions (Continued)

5. Identify the location of each of the numbered positions on the following graphic by using the coordinate system measuring technique. Use existing and prolongated curb lines as reference points. Correctly identify each position by feet and compass directions. (Point 1 has been identified as an example.)



Activity Questions (Continued)

6. Using the diagram on the previous page. Correctly identify each position by feet and compass directions. (Point 1 has been identified as an example)

Point	Description
1	15 feet east of the west prolongation line of Elm Street and 15 feet north of the south prolongation line of Maple Boulevard
2	
3	
4	
5	

Chapter 3
Collision Documentation

OVERVIEW

Learning Need

Evidence collected at a collision scene can be rendered useless or inadmissible if it is not properly documented. Peace officers must recognize and follow standardized documentation formats for traffic collisions to ensure that the evidence they collect is understandable and usable by other officers, and other agencies.

Learning Objectives

The chart below identifies the student learning objectives for this chapter.

After completing study of this chapter, the student will be able to:	Objective ID
• Describe the components of standardized reporting formats used to document a collision	29.03.02
• Distinguish between the types of collision documentation, including: - Collision investigation format, and - Collision report format	29.03.03
• Prepare components of a traffic collision report, including: - Description of injuries - Identification of involved parties and vehicles - Time and location of collision events - Chronology of the collision events - Elements unique to hit-and-run and driving-under-influence collisions - Primary and associated collision factors - Area(s) of impact - Scene sketch	29.03.14

Learning Objectives (Continued)

After completing study of this chapter, the student will be able to:	Objective ID
• Distinguish between information to be included in the narrative of a collision report format under each of the following categories: - Facts - Statements - Opinions and conclusions - Recommendations	29.03.07 29.03.08 29.03.09 29.03.10
• Distinguish between a collision sketch and a factual diagram	29.03.11
• Prepare content features and elements to be included on a: - Collision scene sketch, and - Factual diagram	29.03.12 29.03.13

In This Chapter

This chapter focuses on the requirements of standardized collision investigation reports. Refer to the chart below for specific topics.

Introduction

A reduction in the frequency and severity of vehicle collisions requires not only enforcement of existing laws but also education (i.e., public awareness), and engineering (i.e., roadway design and development). To accomplish these, it is important that law enforcement agencies and other organizations share data regarding vehicle collisions.

Statewide Integrated Traffic Records System

The **Statewide Integrated Traffic Records System (SWITRS)** was implemented for the purpose of establishing uniformity in the collection, reporting, and retrieval of traffic collision data.

Each quarter, SWITRS produces a number of computer generated reports reflecting the information and data that have been collected from collision documentation. SWITRS reports allow law enforcement and other agencies within specific jurisdictions to identify:

- Types of collisions
- Types and ages of parties involved
- High collision frequency locations
- Violations that cause a high number of collisions
- Other information to assist in the analysis of traffic collisions

Crash Investigation Manual

The California Highway Patrol **(Crash Investigation Manual)** is a state publication which provides detailed instruction, clarification, and interpretation of all basic components for vehicle crash report format and investigation report format.

Users Of Collision Data

Users of standardized collision data include, but are not limited to:

- Local law enforcement agencies
- The California Highway Patrol
- Public works agencies
- Department of Transportation
- Department of Motor Vehicles
- State legislature
- Courts
- Private citizens
- Attorneys
- Research organizations
- Insurance companies
- Safety councils
- National Highway Traffic Safety Administration

Collision Documentation

Law enforcement agencies are responsible for documenting all collisions that take place within that agency's jurisdiction. This responsibility includes all motor vehicle:

- Traffic collisions occurring on highways, and non-traffic.
  - Resulting in personal injury or death, or
  - In which the driver fails to immediately stop at the scene and report the collision or provide proper notification (*Vehicle Code Section 20002*) or
  - In which the driver was operating the vehicle under the influence of alcohol or drugs

NOTE: Agencies are also responsible for documenting all bicycle collisions (as defined by *Vehicle Code Section 231*) occurring on highways within their jurisdiction.

Report Components

Standardized reporting documents are designed to provide data and collision related information that is clear, concise, and complete. When completed properly, they will also answer the questions who, what, when, where, why, and how in a time sequential manner.

The following table identifies basic components that may be included on standardized reporting formats.

Component	Description
Face sheet	• Information regarding the: - Date and time - Location of the collision - Involved parties - Vehicle damage - Any special conditions (e.g., on-duty emergency vehicle, school bus, etc.)

Report Components (Continued)

Component	Description	
Data sheet	Statistical information	• Documentation of the: - Primary collision factor - Vehicle movements - Scene conditions - Other information to be entered into the SWITRS database
	Injured/witness/passenger records	• Identification and descriptive information regarding all: - Injured persons - Witnesses (i.e., noninjured, noninvolved persons), and/or - Passengers (i.e., noninjured, involved persons) • Notation of the extent of injuries including: - Fatal injury (i.e., death as a result of injury sustained in the collision) - Severe injury (e.g., broken, dislocated or distorted limbs, severe lacerations, unconsciousness, etc.) - Other visible injuries (e.g., bruises, abrasions, etc.) - Complaint of pain (e.g., internal or nonvisible injuries, dazed, confused or incoherent appearance, etc.)

Report Components (Continued)

Component	Description
Narrative	• Investigating officer's record, written in that officer's own words, of: - The facts related to the collision, - Statements made by involved and noninvolved persons - That officer's opinions, conclusions, and recommendations
Collision sketch	• An illustration representing the investigating officer's opinion how the collision occurred
Factual diagram	• A drawing of the factual details of the collision scene as the investigating officer found it

Report Formats

There are a number of different standardized reporting formats that can be used. The following table identifies three basic report formats.

Report Format	Generally used whenever a collision...	Usually completed by...	Components
Collision Investigation Format (also know as Complex Collision Investigation)	• Takes place on a highway and results in serious personal injury *or* • Results in a fatality (no matter if the collision took place on or off a highway) • Felony prosecution crashes	• The investigating officer	• Face sheet • Data sheet • Narrative • Collision sketch • Factual diagram
Collision Report Format (also know as Routine Collision Investigation)	• Involves property damage and suspected minor injuries and possible injury claims	• The investigating officer	• Face sheet • Data sheet • Narrative • Collision sketch
Property Damage Only (PDO) Report Format	• Involves no injuries or fatalities • No follow-up investigation will be required, and • Prosecution is not anticipated	• An involved party (with assistance, if necessary)	• Face sheet • Data sheet • Abbreviated narrative

NOTE: The components required along with the format to be used may be determined by agency policy.

Counter Reports

An individual may request that a collision be documented even though the conditions do not fall within the categories of an *investigation* or a *report* (e.g., a collision that took place on private property involving property damage only). Such a report is referred to as a **counter report** or citizen's report.

Counter reports are completed by the involved party at a law enforcement facility. They represent one person's viewpoint of what took place. No party is considered "at fault" and no investigative action is required.

Individuals completing a counter report should be advised that documentation is *not required* as long as the involved individuals have exchanged all required information (e.g., name, address, proof of financial responsibility).

NOTE: A peace officer or clerical person may provide assistance in completing the report if requested.

NOTE: Counter reports are not processed into the SWITRS database files.

Introduction

Standardized collision investigation format and collision format both include a narrative component. The purpose of the narrative component of standardized report formats is to provide, as accurately as possible, specific information and a description of the collision in the investigating *officer's own words*.

Narrative Component

A **report narrative should not contain useless details**. Instead a narrative should:

- Bring together the elements of the incident in a concise, logical, and time sequenced order
- Expand upon information noted elsewhere
- Explain the occurrence of the collision

NOTE: Style, format, and content requirements of report narratives may vary depending on agency requirements and policy.

Collision Investigation Format

A **collision investigation format** narrative should contain the:

- *Facts* pertinent to the incident
- *Statements* of involved parties and witnesses
- *Opinions and conclusions* of the investigating officer how the collision occurred
- *Recommendations* for further action(s)

NOTE: The actual section titles or headers used within report narratives can vary depending on agency policy.

Facts

The following table identifies elements that may be addressed as facts in an investigation narrative.

Possible Content	Additional Information
Notification Specifics	• Type and time of call • Response location • Arrival time • Statements that speeds and measurements are approximate and how each was obtained (e.g., pacing, measuring wheel, etc.)
Scene Description	• Road alignment, surface, etc. • Fixed or other objects • Type(s) of traffic controls
Involved Parties	• Party's name and how that person was identified • How **driver** of that party's vehicle was determined • Location of that party's vehicle • Any mechanical defect associated with that party's vehicle
Physical Evidence	• Type, location, and length of tire friction marks • Description and location of debris, vehicle parts, and other physical evidence • Disposition of collected evidence

Facts (Continued)

Possible Content	Additional Information
Other Factual Information	• Additional information (e.g., driver license restrictions, physical disabilities of party, etc.) • Any follow-up action needed
	• Hit-and-run (if applicable) - Description of suspect vehicle, party, and clothing - Who can identify suspect and establish that person as the driver - Summary of follow-up actions (e.g., locating and impounding vehicle, etc.) - If necessary, an explanation why follow-up actions were not possible
	• Hazardous materials (if applicable) - Trade and chemical names - Presence/absence of placards, labels, and shipping papers - Type of packaging - Cleanup contractor, etc. - Disposition of material

Any statements made by involved parties or witnesses should be noted within the investigation narrative. Statements need not be noted verbatim, but each should be recorded in a manner that presents the pertinent substance and information of the person's words.

Facts (Continued)

The following general guidelines should be applied by peace officers when documenting statements within an investigation narrative:

- Identify the person who gave the statement by both number (as assigned on the face sheet of the report) and last name
- When documenting a witness's statement, indicate the location of that person at the time observations were made
- If the statement was obtained by a specific question/answer technique (rather than the interviewee speaking freely), include both the question and answer
- Statements taken at locations other than at the collision scene should include the date, location, and time the statement was taken, along with the name of the investigating officer or person taking the statement
- If no statement was obtained from an individual relevant to the incident though, it should be stated why
- If a party's written statement has been obtained, note "statement attached"

NOTE: Statements may also be taken from other individuals who can provide relevant information (e.g., emergency medical technicians, family members, person who may be able to provide information regarding a hit-and-run collision, etc.).

NOTE: For additional information regarding the recording of statements, refer to LD 18: Investigative Report Writing.

Opinions and Conclusions

The opinions and conclusions portion of an investigation narrative should explain how the collision occurred. The following table identifies content that may be addressed:

Content	Additional Information

Summary	• Present a complete description of:
	  - *What* took place
	  - *How* the collision happened
	  - *Why* it happened
	• Tell what happened before, during, and after the collision
	• Base all opinions on evidence at the scene and/or statements of involved parties or witnesses
	• Present information in a logical, time sequential manner
	• Note pertinent details (e.g., direction of travel, highway, speed, lane, relationship of involved parties to each other, etc.)
	
	NOTE: The summary should not be mere repetition of the facts and statements already presented. Instead, it should reflect the peace officer's opinions of what took place based on the facts and statements already noted.

Area(s) of Impact	• State the area of impact and how it was determined (e.g., physical evidence, point of rest, statements, damage etc.) • Indicate the area of impact with a minimum of two measurements • If more than one area of impact, note each separately

Opinions and Conclusions (Continued)

Content	Additional Information
Cause/Fault	• Identify the party who was determined to be most at fault and the primary collision factor • Explain how each was determined and identify the evidence upon which each was based
Intoxication Narrative	• If an intoxicated party was involved, describe how it was determined that the person was under the influence • Describe all symptoms noted (e.g., presence of odor, slurred speech, poor coordination and balance, etc.) • State whether field sobriety tests were given and give a general statement indicating how the party performed during the test • Explain how erratic driving and intoxication were proven • If alcohol/drugs were located, note: - Location of the item - Description of the item - Who discovered the item - Disposition of the item • Include the specific code violation for which the person was arrested • Blood alcohol content results shall not be included in the crash report.

NOTE: The components required along with the format to be used may be determined by agency policy.

Recommendations

In the final portion of an investigation narrative, the investigating officer may recommend follow-up actions.

Examples of possible recommendations may include, but are not limited to:

- Requesting district attorney's review
- Mechanical inspections
- Further evidence analysis
- DMV re-examinations of driver, etc.

If the investigating officer has no further recommendations, the word "none" should be noted.

Collision Report Format

The narrative portion of a *collision report format* normally contains fewer items than a *collision investigation format* narrative.

A collision report format narrative may include the:

- Notification including type and time of call, etc.
- *Statements* made by involved parties, witnesses, or others with pertinent information
- *Summary* by the investigating officer of what took place and why
- *Area of impact* along with the factors and evidence that support it
- *Cause* of the collision including the primary act or violation and how it was established

Investigating officers should apply the same basic content recommendations and guidelines for each component as collision investigation format narratives.

COLLISION SKETCHES AND FACTUAL DIAGRAMS

Introduction

Sketches and diagrams made by the investigating officer provide a visual representation of that officer's opinion as to and the factual elements of the scene. Each can be used to reinforce the narrative portion of the investigation or report.

Sketches vs Diagrams

A **collision sketch** is an illustration of the collision scene that reflects the *investigating officer's opinions* as to how the vehicle collision occurred. Collision sketches shall be included with ALL collision investigation format and collision report formats.

A **factual diagram** is a drawing of the collision scene that represents the scene as it was found upon the peace officer's arrival. It contains factual information only, rather than any opinions of the investigating officer. Factual diagrams should be included with collision documentation when the:

- Collision involves a serious injury or fatality
- Diagram would assist in a prosecution
- Diagram would assist a peace officer in clarifying a point in the narrative portion of the report

Legibility

All sketches and diagrams must be clean (smudge free), clear, and *legible*. All text should be written horizontally (parallel to the bottom of the page) rather than vertically. The use of diagram templates and a straight edge is recommended to improve the quality of all sketches and diagrams.

NOTE: Special diagramming computer software may also be used if available.

Common Features and Content Elements

All collision sketches and factual diagrams should include:

- A compass direction (North is usually indicated with an arrow pointing to the top of the page)
- Reference points and directions
- Fixed objects and elements (appropriately labeled) that are relevant to the investigation or are relevant to collision factors (e.g., trees, traffic signs and devices, shrubs, poles, buildings, etc.)
- The identity of all highways, roadways, and alleys shown

Both collision sketches and factual diagrams should also be proportional (but not necessarily to scale).

NOTE: Include basic measurements of highway features (e.g., widths of roadways, lanes, shoulders, sidewalks, crosswalks, etc.) if required for clarification.

Unique Content Elements

Although there are many similarities to collision sketches and factual diagrams, there are also key differences.

Collision sketches illustrate the investigating officer's *opinion* regarding...	**Factual diagrams should illustrate only the facts of the collision regarding...**
• Travel pathways of involved vehicles and parties • Area of impact	• Location of: - Physical evidence - Points of rest of involved vehicle(s), - Dead or injured parties - Other critical features observed by the investigating officer

NOTE: Different symbols are used for collision sketches and factual diagrams. Appropriate symbols to be used for each are provided in the Supplemental Materials (see pages S-12, S-16 and S-17) portion of this workbook.

Collision Sketch Guidelines

A collision sketch should illustrate the investigating officer's *opinions* that have been expressed in the narrative summary of the report. Basic guidelines for drawing collision sketches are listed below.

- Official route numbers or names should be used to identify all highways
- When there is more than one area of impact, each should be numbered consecutively beginning with the first damage or injury producing event.
- Vehicle pathways prior to the area of impact should be identified using solid lines. Each line should be numbered as necessary to identify vehicles (e.g., V-1, V-2, etc.)
- Identify the pathways of pedestrians or animals using dashed lines. Each line should be numbered as necessary (e.g., P-1, P-2, etc.)

NOTE: An example of a collision sketch is located in the Supplemental Materials (see pages S-13 through S-15) portion of this workbook.

NOTE: Additional elements may be included if appropriate or required by agency Policy

Factual Diagram Guidelines

A factual diagram should enhance the facts presented in a collision investigation format narrative. Basic guidelines for drawing factual diagrams are listed below.

- When the diagram is drawn to scale, a scale bar or scale ratio should be clearly stated (e.g., 1:10, 1" = 10')
- Measurements should include:
  - The scene (e.g., roadway width, etc.)
  - Physical evidence (e.g., tire marks, debris, etc.)
  - Vehicles
- All vehicles and parties should be clearly identified (e.g., V-1, V-2, P-1, etc.)
- If vehicles or objects were moved from their point of rest prior to the investigating officer's arrival, they need not be shown in the diagram
- Identify all physical evidence with numeric (1, 2, 3, etc.) or alpha (A, B, C, etc.) symbols

NOTE: Do not show vehicle or pedestrian pathways or area(s) of impact. These should be described in the investigation narrative format and shown on the collision sketch.

NOTE: An example of a factual diagram is located in the Supplemental Materials (see pages S-18 and S-19) portion of this workbook.

Diagram Legends

To avoid confusion, include a diagram legend on a separate page. Legends may include measurements indicating:

- Locate vehicles with a minimum of two points of reference (preferably the center of each wheel) using two measurements per point.
- The location of each piece of physical evidence (identified by the number or letter used to identify the same item on the diagram). Evidence locations should be identified with a minimum of two measurements at right angles or with triangulation

CHAPTER SYNOPSIS

Learning Need

Evidence collected at a collision scene can be rendered useless or inadmissible if it is not properly documented. Peace officers must recognize and follow standardized documentation formats for traffic collisions to ensure that the evidence they collect is understandable and usable by other officers, and other agencies.

Basic Report Components [29.03.02]

Standardized reporting documents may include basic components depending on the report format used.

Collision Investigation Format [29.03.03]

The type of format used when investigating a collision that takes place on a highway and results in serious personal injury, or results in a fatality (no matter if the collision took place on or off a highway). The report contains such information as a face sheet, data sheet, narrative, collision sketch and factual diagram.

Collision Report Format [29.03.04]

Involves property damage and minor injuries.

Facts on Report Narratives [29.03.07]

Facts should include specifics of the notification, scene description, involved parties, physical evidence at the scene, or other factual information.

Statements on Report Narratives [29.03.08]

Made by involved parties or witnesses.

Opinions and Conclusions on Report Narratives [29.03.09]

Summation of what, how, and why took place based on evidence and/or statements. The area of impact and how it was determined. Which party is determined to be at fault and how it was determined, and an intoxication narrative (if applicable).

Recommendations on Report Narratives [29.03.10]

Follow-up actions needed for the investigation

Collision Sketches and Factual Diagrams [29.03.11, 29.03.12. 29.03.13]

Sketches and diagrams made by the investigating officer provide a visual representation of that officer's opinions and the factual elements of the scene. Each can be used to reinforce the narrative portion of the investigation or report.

Components of a Traffic Collision Report [29.03.14]

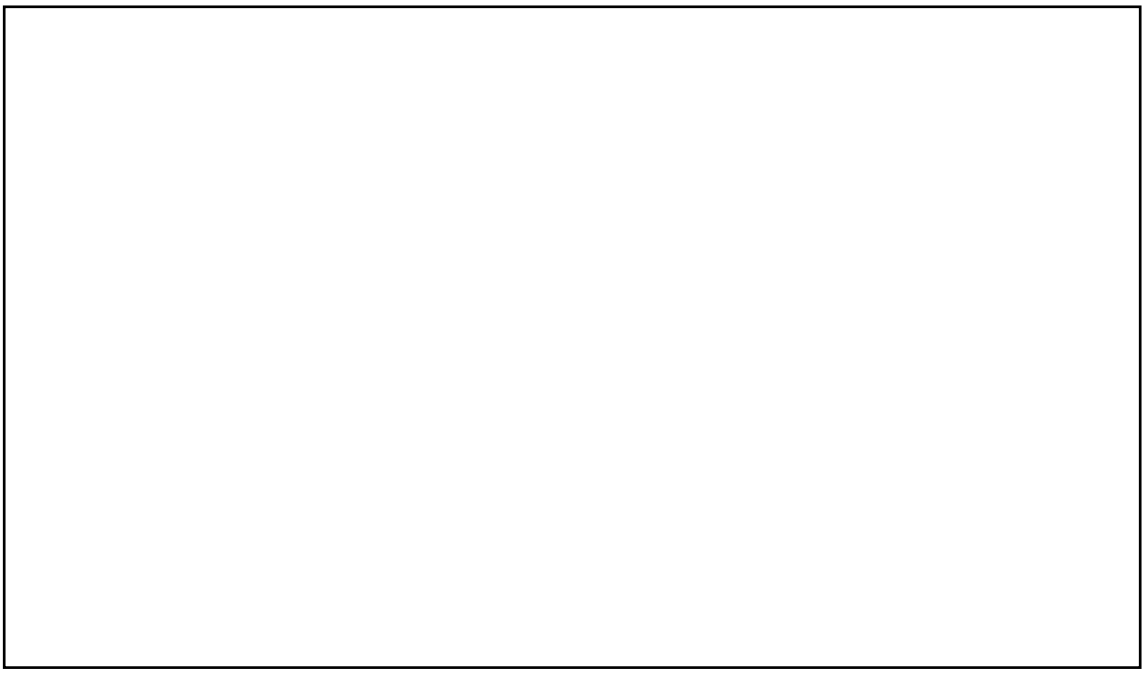
There are several different components to a traffic collision report that include, but are not limited to, descriptions and identification of injuries, parties involved, vehicles and other key elements of the collision site.

Introduction

To help you review and apply the material covered in this chapter, a selection of learning activities has been included. No answers are provided. However, by referring to the appropriate text, you should be able to prepare a response.

Activity Questions

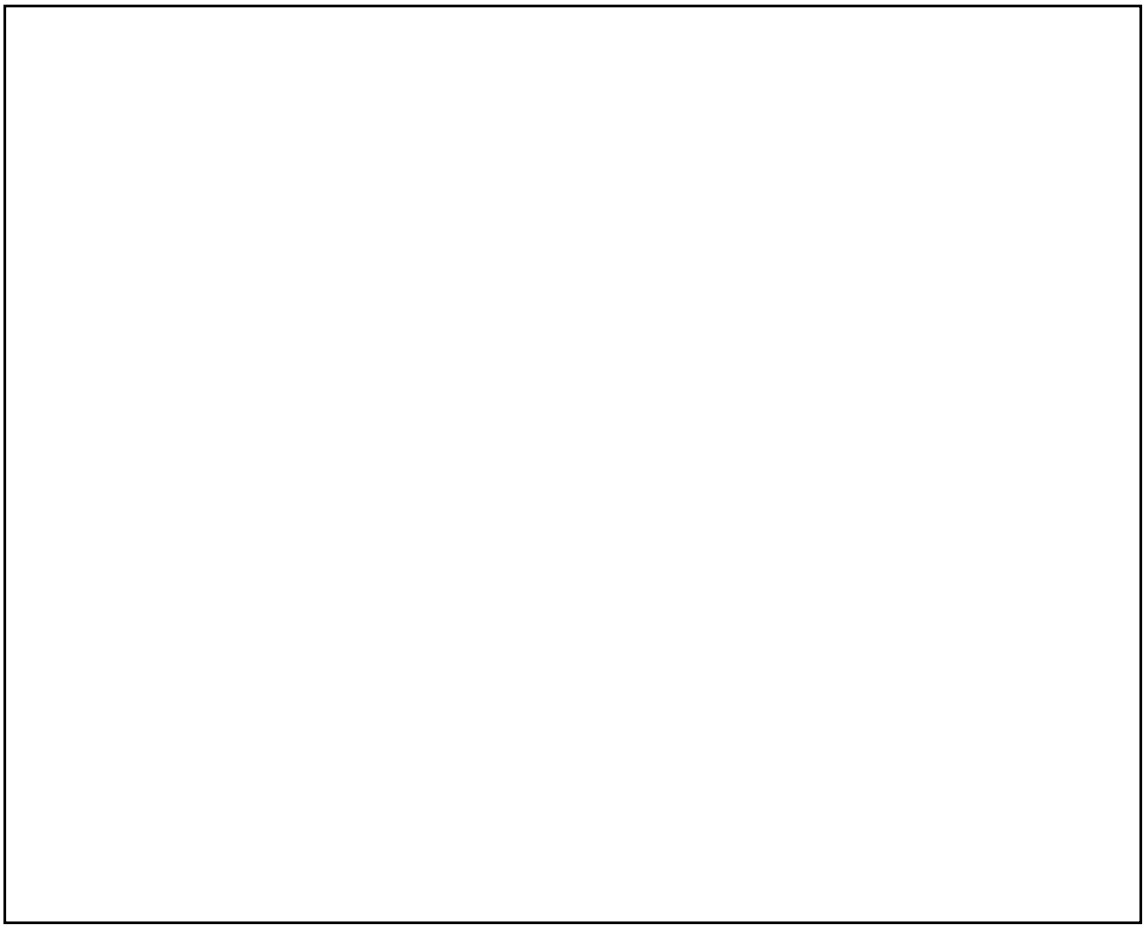
1. Using the symbols provided in the *Supplemental Materials* portion of this workbook, create a freehand collision sketch for each of the following scenarios. Be sure to include all necessary components of a collision sketch. To the left of your sketch, identify the primary collision factor for that incident.



- Driver of vehicle 1 is exiting the parking lot of a commercial establishment and is making a right turn onto the right lane of Elm Street. Elm Street runs East/West and has two 15 foot lanes on each side of a raised concrete median strip. The parking lot is North of Elm Street.

- Driver of vehicle 2 is traveling West on Elm Street at a safe speed. It is in the right lane. Vehicle 1 strikes the right front fender of vehicle 2.

Activity Questions (Continued)



- The driver of Vehicle 1 (V-1) has just stopped at a drive-through restaurant and is now returning to the office with his lunch. While driving he looks over at the seat next to him while attempting to retrieve a french fry from the food bag. When he looks up again he realizes that the vehicle in front of him has stopped to let a pedestrian cross the street in a designated crosswalk. Although the driver of V-1 applies his brakes, he is unable to stop in time. In order to miss colliding with Vehicle 2, the driver of V-1 swerves off the roadway to the right and strikes a parked car.

- Both vehicles are traveling North on Maple Street which is a two-lane street with a broken yellow line between the lanes. There are a number of cars parked along the wide shoulders on both sides of the street. The pedestrian is traveling from the East to the West side of Maple Street. The collision takes place just before the intersection with Hickory Street. Hickory Street runs East/West and is a two-way residential street with no lane markings.

Activity Questions (Continued)

2. Regarding the first scenario in question number 1: Assume that the driver of V-2 is seriously injured in the collision. Create a factual diagram that might accompany your collision investigation format. You may create your own physical evidence and measurements of the collision scene. Use the appropriate symbols included in the Supplemental Materials portion of this workbook.

   - Create a legend indicating the position of each piece of evidence and the location of each vehicle. Be sure to include the appropriate number of measurements along with appropriate compass coordinates.

Activity Questions (Continued)

3. Write three examples of vehicle collision situations that may require documentation in the form of a collision investigation format. Write three more examples that may require documentation in the form of a collision report format.

Activity Questions (Continued)

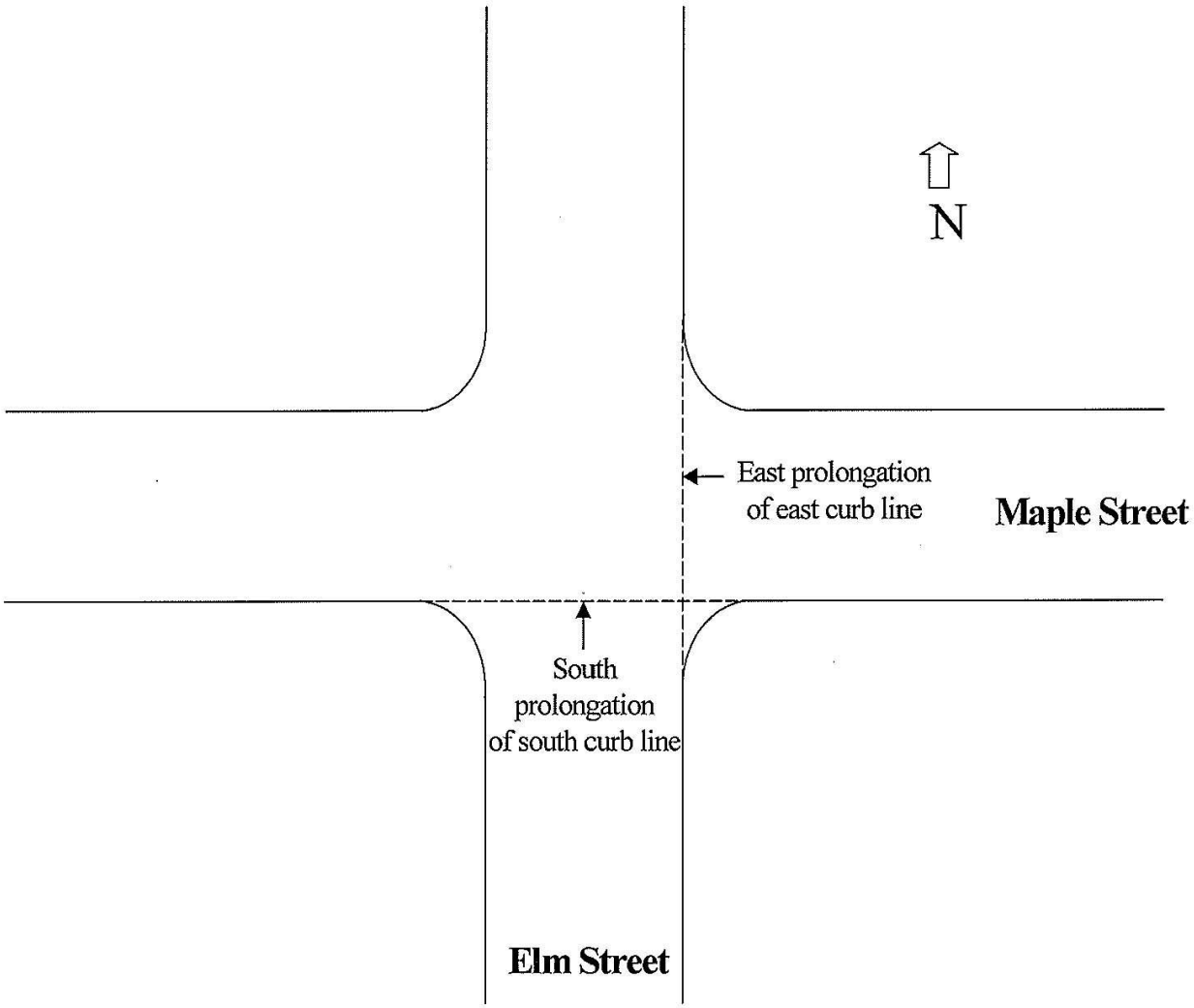
4. Match the content items listed on the right with the appropriate collision narrative category on the left.

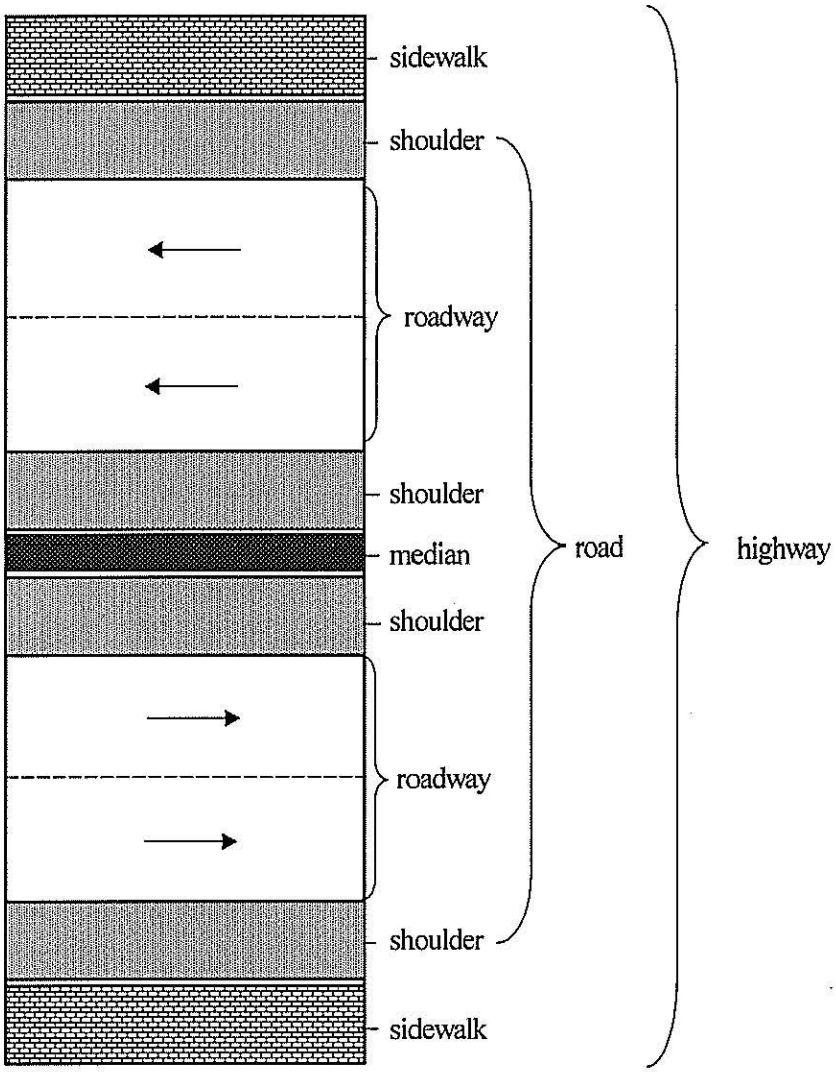
A. Facts B. Statements C. Opinions and Conclusions D. Recommendations	____ A description of how the primary collision factor was determined ____ A witness's account of the events that took place just prior to the collision ____ A request for prosecution of the involved party who was most at fault for causing the collision ____ A brief description of how the investigating officer was notified of the collision ____ A description of a party's actions that led the investigating officer to believe the person was intoxicated ____ Descriptions of the type and amount of debris at the collision scene ____ A record of the disposition of collected evidence from the collision scene ____ A complete description of how the collision occurred ____ The questions asked to obtain information from an involved party

Supplementary Material

In This Section

Refer to the following table for specific reference documents included in this section.


N
East prolongation
of east curb line
Maple Street
South
prolongation
of south curb line
Elm Street


sidewalk
shoulder
roadway
shoulder
median
shoulder
roadway
shoulder
sidewalk
road
highway

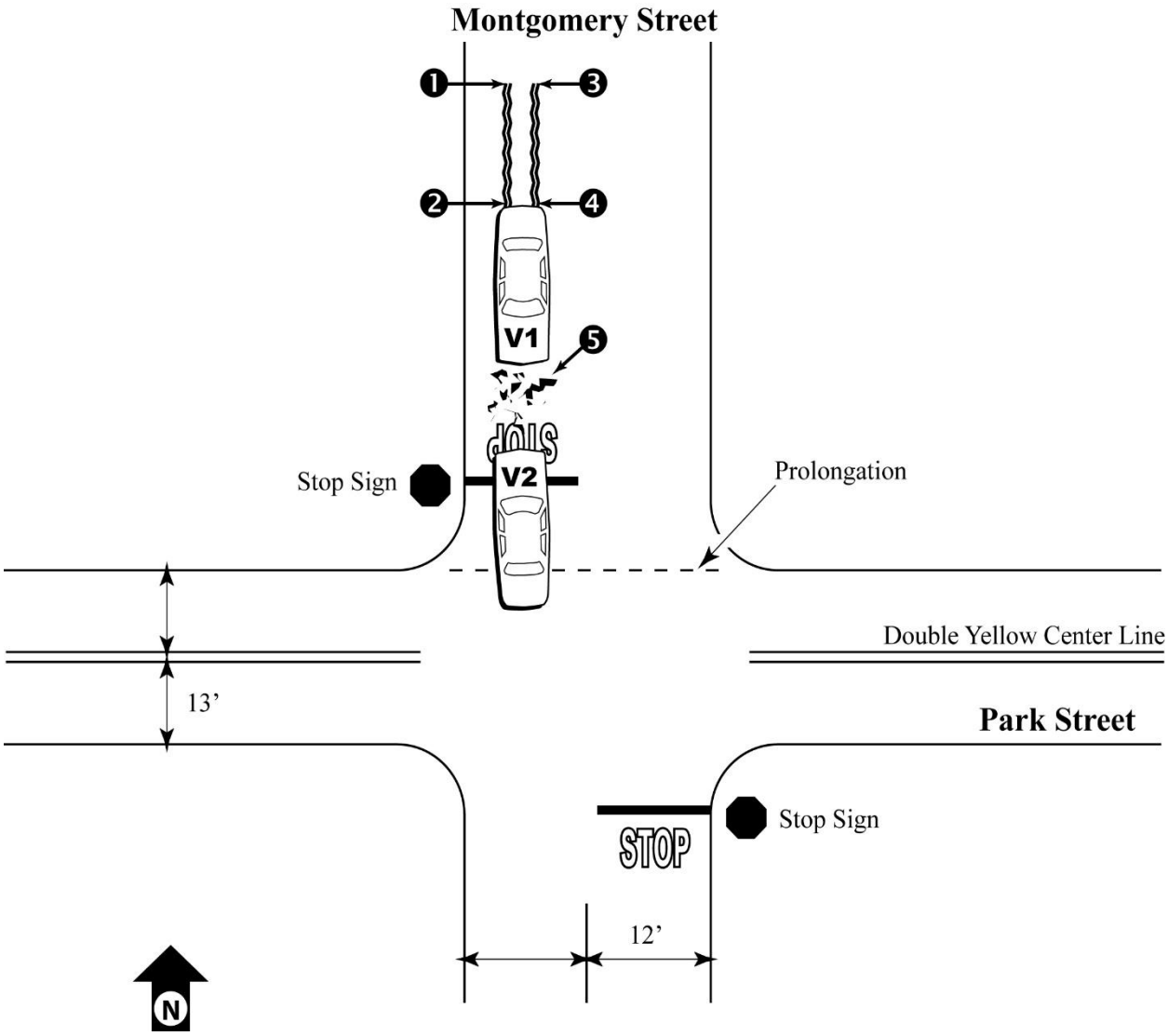
TYPES OF SKID MARKS

There are a number of different types of skid marks that may be left at the scene of a vehicle collision. The most common are identified in the following table.

Type	Definition	Characteristics	Measurement
Locked Wheel Skid	A mark left by a nonrotating wheel.	• *Friction causes rubber to melt onto the road surface* • *Darker edges with a lighter center usually indicates a front wheel skid* • *Lighter edges with a darker center usually indicates a rear wheel skid*	Each mark should be measured individually from beginning to end
Impending Skid	A mark left by a braked wheel rotating slower than the forward motion of the vehicle that is traveling in a straight or curved line	• *Made before the vehicle wheel lock up* • *Rubber is not melted onto the road surface* • *Mark may be perishable* • *Starts lighter and ends darker* • *End of an impending skid mark will generally be the beginning of a locked wheel skid mark.*	Each mark should be measured individually from beginning to end

Type	Definition	Characteristics	Measurement
Skip Skid	A mark that occurs when a locked wheel bounces off the roadway	• *Marks are usually uniform in length* • *Spaces between marks are usually two to three feet in length*	Mark should be measured from the beginning of the first mark to the end of the last mark (including all spaces in between)
Gap Skid	A mark left by a locked wheel that is released and locked again	• *Each mark is preceded by an impending skid mark* • *Gaps between marks are typically ten feet or more in length*	Each mark should be measured separately
Side Skid	A mark left by a rotating or nonrotating tire that is sliding or slipping sideways to its original direction of travel	• *Can be wider than a locked wheel skid mark* •	Each mark should be measured individually from beginning to end

	Definition	Characteristics	Measurement
Acceleration Scuff	A mark created by a propelling force or thrust generated in an amount exceeding the pavement efficiency	• *Usually caused by no more than one or two wheels* • *May not be in a straight line* • *Marks usually start out dark, gradually lightens, then dissipates.*	Each mark should be measured individually from beginning to end
Critical Speed Scuff/Yaw (Centrifugal Skid mark)	A mark left by a rotating wheel rounding a curve or turning at such a speed that centrifugal force entirely or partially overcomes frictional resistance	• *In the form of an arc* • *Starts very narrow and broadens* • *Striation marks are at oblique angles* • *Must be a rotating wheel*	Each mark should be measured using a chord and mid-ordinate
Collision Scrub	A mark made during engagement of the vehicles involved in a collision	• *Usually caused by extreme downward pressure* • *Start abruptly* • *Short and usually broad* • *Usually dark color* • *Often angles off from original skid mark*	Each mark should be measured individually from beginning to end


Montgomery Street
1
3
2
4
V1
5
SKID
V2
Stop Sign
Prolongation
Double Yellow Center Line
13'
Park Street
STOP
Stop Sign
12'
N

State of California
NARRATIVE/SUPPLEMENTAL Page

DATE OF INCIDENT/OCCURRENCE	TIME (2400)	NCIC NUMBER	OFFICER I.D.	NUMBER

"X" ONE	"X" ONE	"X" ONE		
☐ Narrative	☐ Collision Report	☐ BA update	☐ Fatal	☐ Hit and run update
☐ Supplemental	☐ Other:	☐ Hazardous material	☐ School Bus	☐ Other:

CITY/COUNTY/JUDICIAL DISTRICT	REPORTING DISTRICT/BEAT	CITATION NUMBER

LOCATION/SUBJECT	STATE HIGHWAY RELATED
	☐ YES ☐ NO

PHYSICAL EVIDENCE LEGEND:

VEHICLE POINTS OF REST:

V-1 The R/R tire was located approximately 3 ft. east of the west roadway edge line of Montgomery Street and 35 ft. north of the north roadway edge prolongation of Park Street.

The R/F tire was located approximately 3 ft. east of the west roadway edge line of Montgomery Street and 23 ft. north of the north roadway edge prolongation of Park Street.

V-2 The R/R tire was located approximately 2 ft. east of the west roadway edge line of Montgomery Street and 6 ft. north of the north roadway edge prolongation of Park Street.

The R/F tire was located approximately 2 ft. east of the west roadway edge line of Montgomery Street and 4 ft. north of the north roadway edge prolongation of Park Street.

PHYSICAL EVIDENCE DESCRIPTIONS:

Item	Description
1	Begin 16' long skidmark.
2	End of 16' long skidmark
3	Begin of 16' long skidmark
4	End of 16' long skidmark
5	4' diameter debris pile measured from center.

PHYSICAL EVIDENCE LOCATIONS:

Item 1 was located approximately 3 feet east of the west roadway edge line of Montgomery Street and 49 feet north of the north roadway edge prolongation of Park Street.

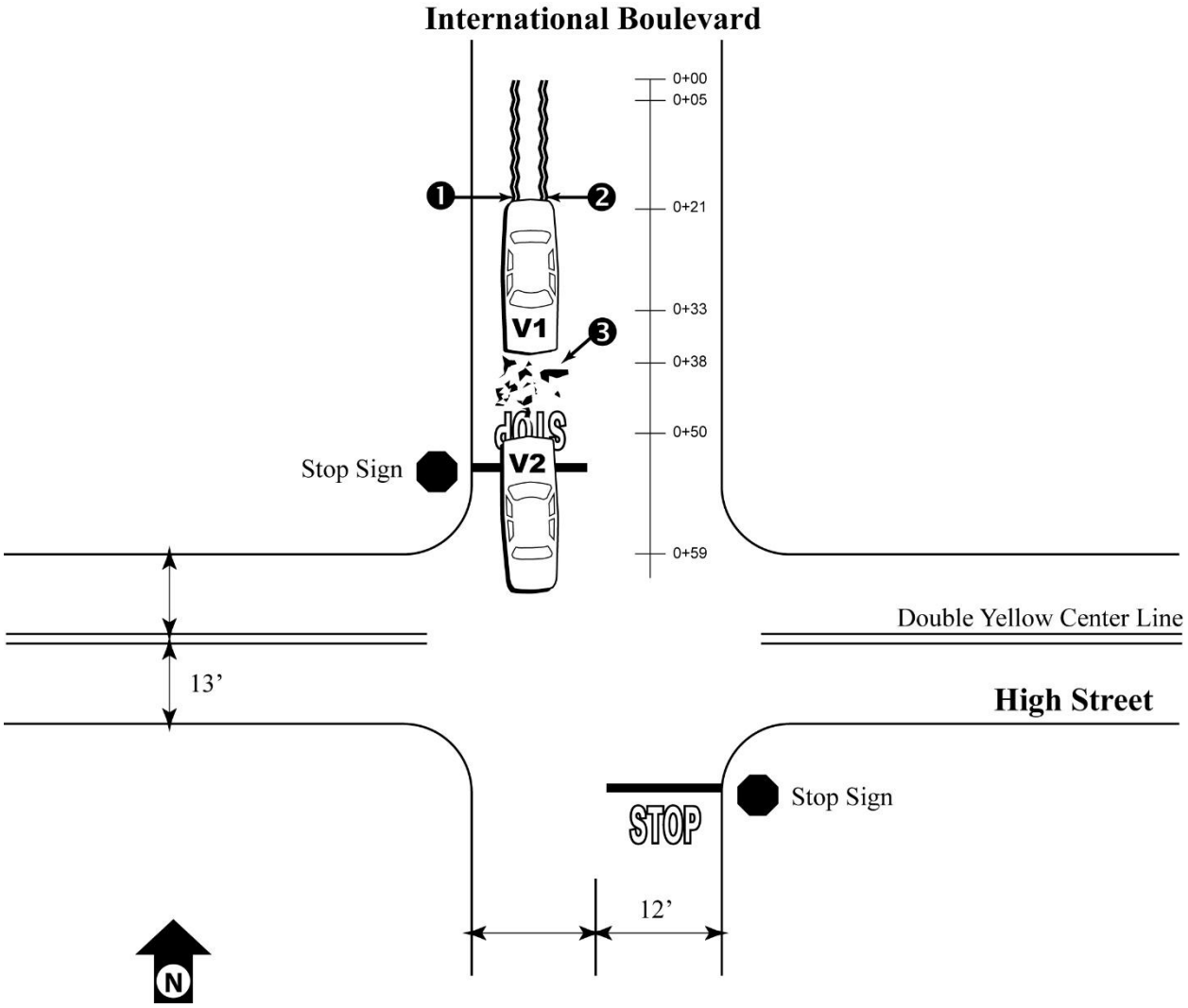
Item 2 was located approximately 3 feet east of the west roadway edge line of Montgomery Street and 35 feet north of the north roadway edge prolongation of Park Street.

Item 3 was located approximately 7 feet east of the west roadway edge line of Montgomery Street and 49 feet north of the north roadway edge prolongation of Park Street.

Item 4 was located approximately 7 feet east of the west roadway edge line of Montgomery Street and 35 feet north of the north roadway edge prolongation of Park Street.

Item 5 was located approximately 5 feet east of the west roadway edge line of Montgomery Street and 17 feet north of the north roadway edge prolongation of Park Street.

PREPARER'S NAME AND I.D. NUMBER	DATE	REVIEWER'S NAME	DATE


International Boulevard
0+00
0+05
0+21
0+33
0+38
0+50
0+59
1
2
3
V1
V2
Stop Sign
Double Yellow Center Line
13'
High Street
STOP
Stop Sign
12'
N

State of California
NARRATIVE/SUPPLEMENTAL

Page

DATE OF INCIDENT/OCCURRENCE	TIME (2400)	NCIC NUMBER	OFFICER I.D.	NUMBER

"X" ONE	"X" ONE	"X" ONE		
☐ Narrative	☐ Collision Report	☐ BA update	☐ Fatal	☐ Hit and run update
☐ Supplemental	☐ Other:	☐ Hazardous material	☐ School Bus	☐ Other:

CITY/COUNTY/JUDICIAL DISTRICT	REPORTING DISTRICT/BEAT	CITATION NUMBER

LOCATION/SUBJECT	STATE HIGHWAY RELATED	
	☐ YES	☐ NO

PHYSICAL EVIDENCE LEGEND:

VEHICLE POINTS OF REST:

V-1 The R/R tire was located approximately 3 ft. east of the west roadway edge line of Montgomery Street and 35 ft. north of the north roadway edge prolongation of Park Street.

The R/F tire was located approximately 3 ft. east of the west roadway edge line of Montgomery Street and 23 ft. north of the north roadway edge prolongation of Park Street.

V-2 The R/R tire was located approximately 2 ft. east of the west roadway edge line of Montgomery Street and 6 ft. north of the north roadway edge prolongation of Park Street.

The R/F tire was located approximately 2 ft. east of the west roadway edge line of Montgomery Street and 4 ft. north of the north roadway edge prolongation of Park Street.

PHYSICAL EVIDENCE DESCRIPTIONS:

Item	Description
1	Begin 16' long skidmark.
2	End of 16' long skidmark
3	Begin of 16' long skidmark
4	End of 16' long skidmark
5	4' diameter debris pile measured from center.

PHYSICAL EVIDENCE LOCATIONS:

Item 1 was located approximately 3 feet east of the west roadway edge line of Montgomery Street and 49 feet north of the north roadway edge prolongation of Park Street.

Item 2 was located approximately 3 feet east of the west roadway edge line of Montgomery Street and 35 feet north of the north roadway edge prolongation of Park Street.

Item 3 was located approximately 7 feet east of the west roadway edge line of Montgomery Street and 49 feet north of the north roadway edge prolongation of Park Street.

Item 4 was located approximately 7 feet east of the west roadway edge line of Montgomery Street and 35 feet north of the north roadway edge prolongation of Park Street.

Item 5 was located approximately 5 feet east of the west roadway edge line of Montgomery Street and 17 feet north of the north roadway edge prolongation of Park Street.

PREPARER'S NAME AND I.D. NUMBER	DATE	REVIEWER'S NAME	DATE

State of California
NARRATIVE/SUPPLEMENTAL Page

DATE OF INCIDENT/OCCURRENCE	TIME (2400)	NCIC NUMBER	OFFICER I.D.	NUMBER

"X" ONE	"X" ONE	"X" ONE		
☐ Narrative	☐ Collision Report	☐ BA update	☐ Fatal	☐ Hit and run update
☐ Supplemental	☐ Other:	☐ Hazardous material	☐ School Bus	☐ Other:

CITY/COUNTY/JUDICIAL DISTRICT	REPORTING DISTRICT/BEAT	CITATION NUMBER

LOCATION/SUBJECT	STATE HIGHWAY RELATED
	☐ YES ☐ NO

PHYSICAL EVIDENCE LEGEND:

STATION LINE:

A station line was established along the west roadway line of Montgomery Street Station 0+00 was established 55 feet north of the north roadway edge prolongation of Park Street. The station line increases as you proceed south. All measurements were taken at right angles to the station line.

VEHICLE POINTS OF REST:

Vehicle	Wheel	Distance	Direction	Station
V-1	R/R	3'	L	0+21
V-1	R/F	3'	L	0+33
V-2	R/R	2'	L	0+50
V-2	R/F	2'	L	0+59

PHYSICAL EVIDENCE DESCRIPTIONS:

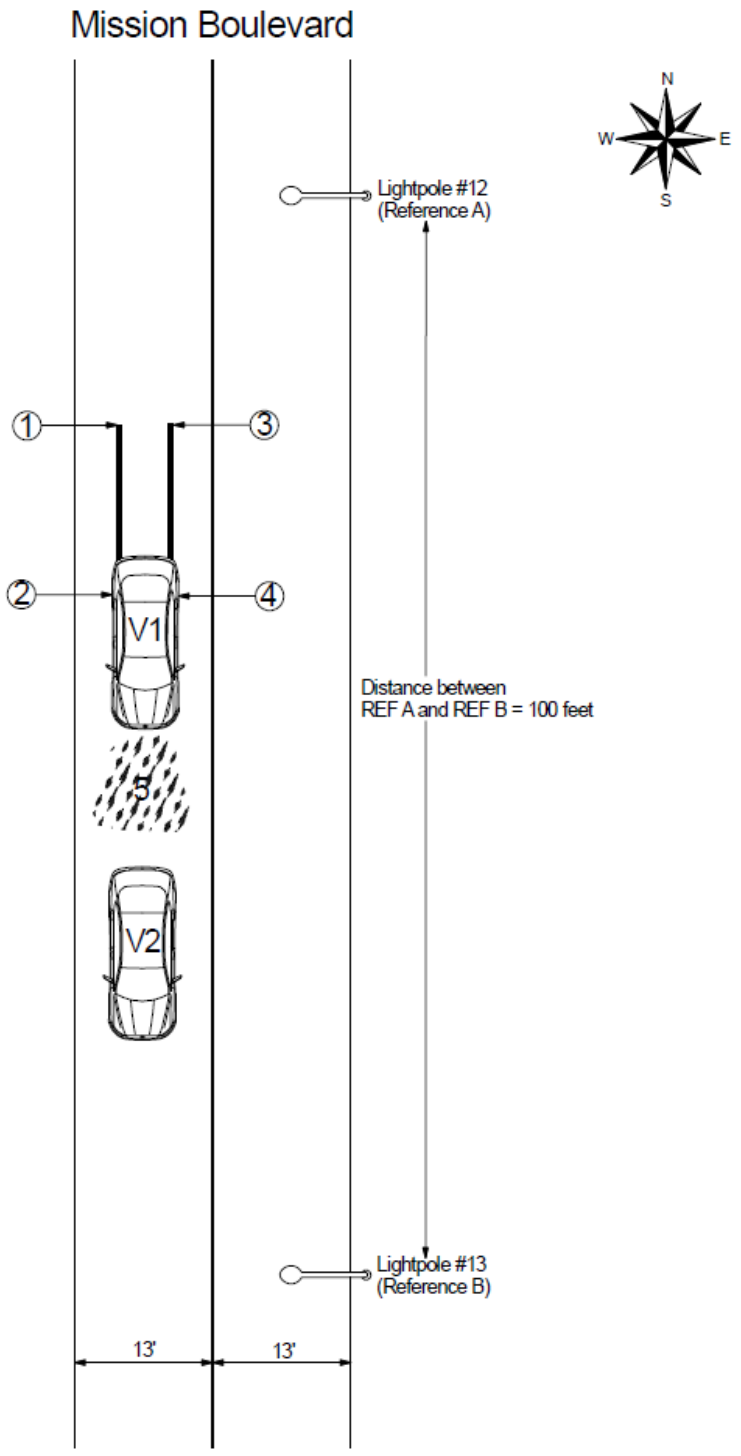
Item 1 16' long skidmark, left by Vehicle #1.
Item 2 16' long skidmark, left by Vehicle #1.
Item 3 4' diameter debris pile measured from center.

PHYSICAL EVIDENCE LOCATIONS:

Item	Description	Distance	Direction	Station
1	Begin	3'	L	0+05
1	End	3'	L	0+21
2	Begin	7'	L	0+05
2	End	7'	L	0+21
3	Debris center	5'	L	0+38

PREPARER'S NAME AND I.D. NUMBER	DATE	REVIEWER'S NAME	DATE

TRIANGULATION MEASUREMENT TECHNIQUE



PHYSICAL EVIDENCE LEGEND:

VEHICLE POINTS OF REST:

V-1 The R/R tire was located 44 feet from Reference A and 67 feet from Reference B.

The R/F tire was located 52 feet from Reference A and 58 feet from Reference B.

V-2 The R/R tire was located 70 feet from Reference A and 41 feet from Reference B.

The R/F tire was located 79 feet from Reference A and 34 feet from Reference B.

PHYSICAL EVIDENCE DESCRIPTIONS:

Item	Description
1	Start of 16' locked wheel skid mark
2	End of 16' locked wheel skid mark
3	Start of 16' locked wheel skid mark
4	End of 16' locked wheel skid mark

PHYSICAL EVIDENCE LOCATIONS:

Item 1 was located 31 feet from Reference A and 82 feet from Reference B.

Item 2 was located 44 feet from Reference A and 67 feet from Reference B.

Item 3 was located 28 feet from Reference A and 81 feet from Reference B.

Item 4 was located 41 feet from Reference A and 65 feet from Reference B.

Item 5 was located 59 feet from Reference A and 50 feet from Reference B.

Vehicle (not parked) or bicycle

Pedestrian or animal

Train

Parked Vehicle

Head-on

Head-on sideswipe

Rear end

Overtaking sideswipe

Approach turn

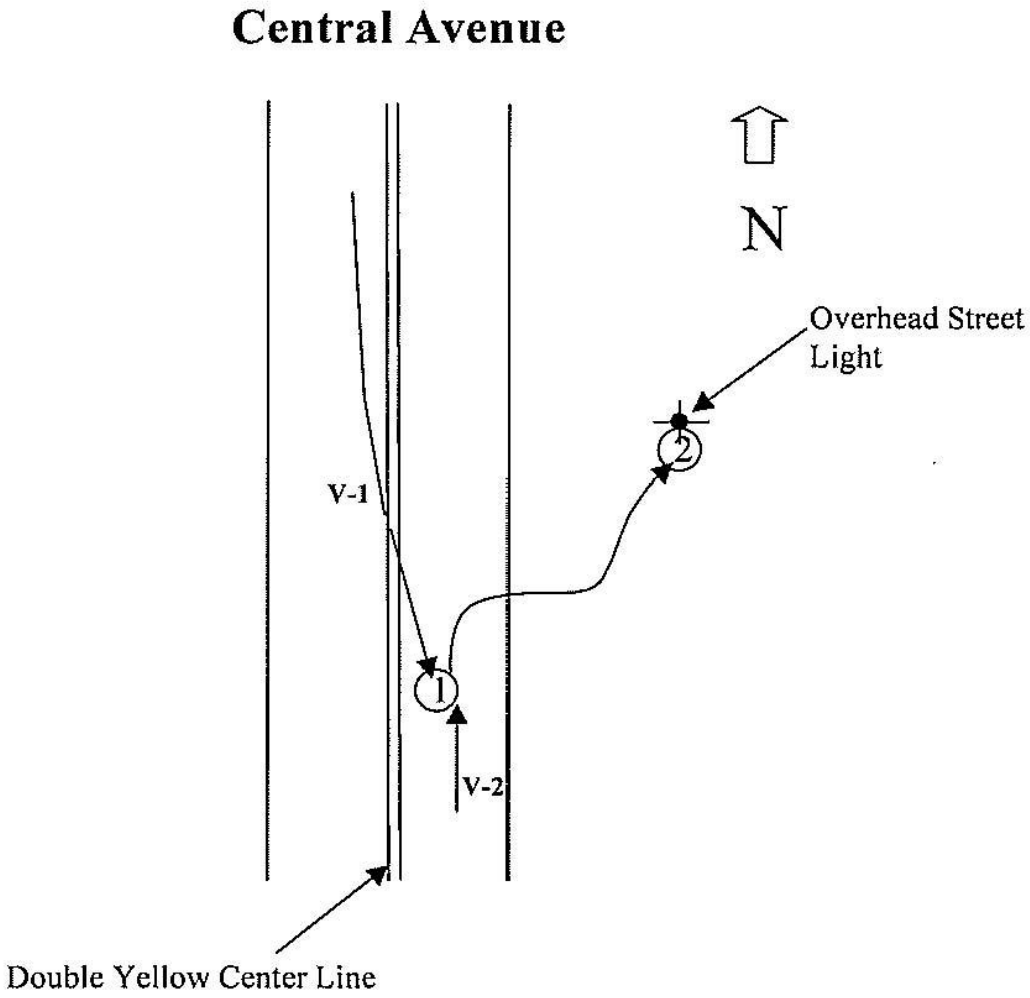
Broadside

Overtaking turn

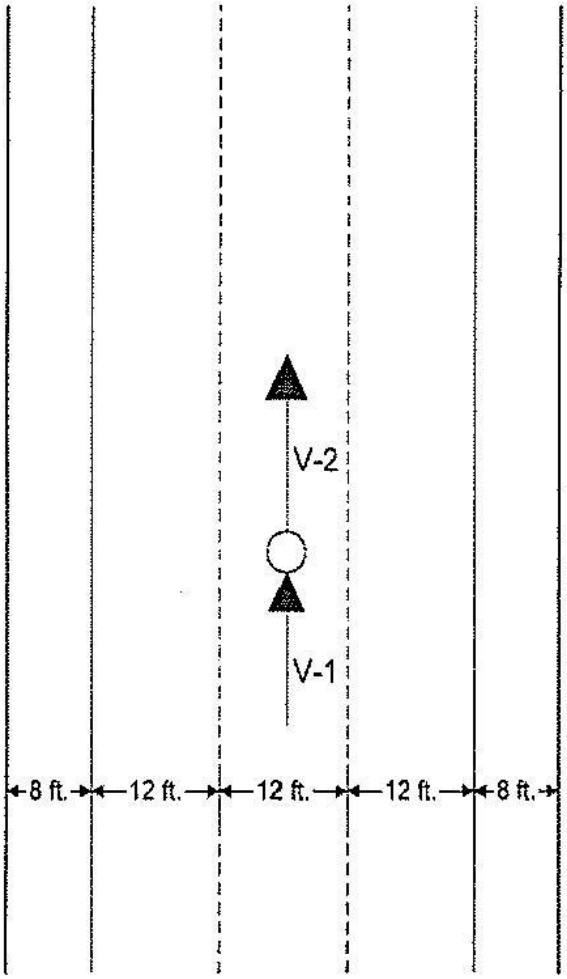
Out of control spinout

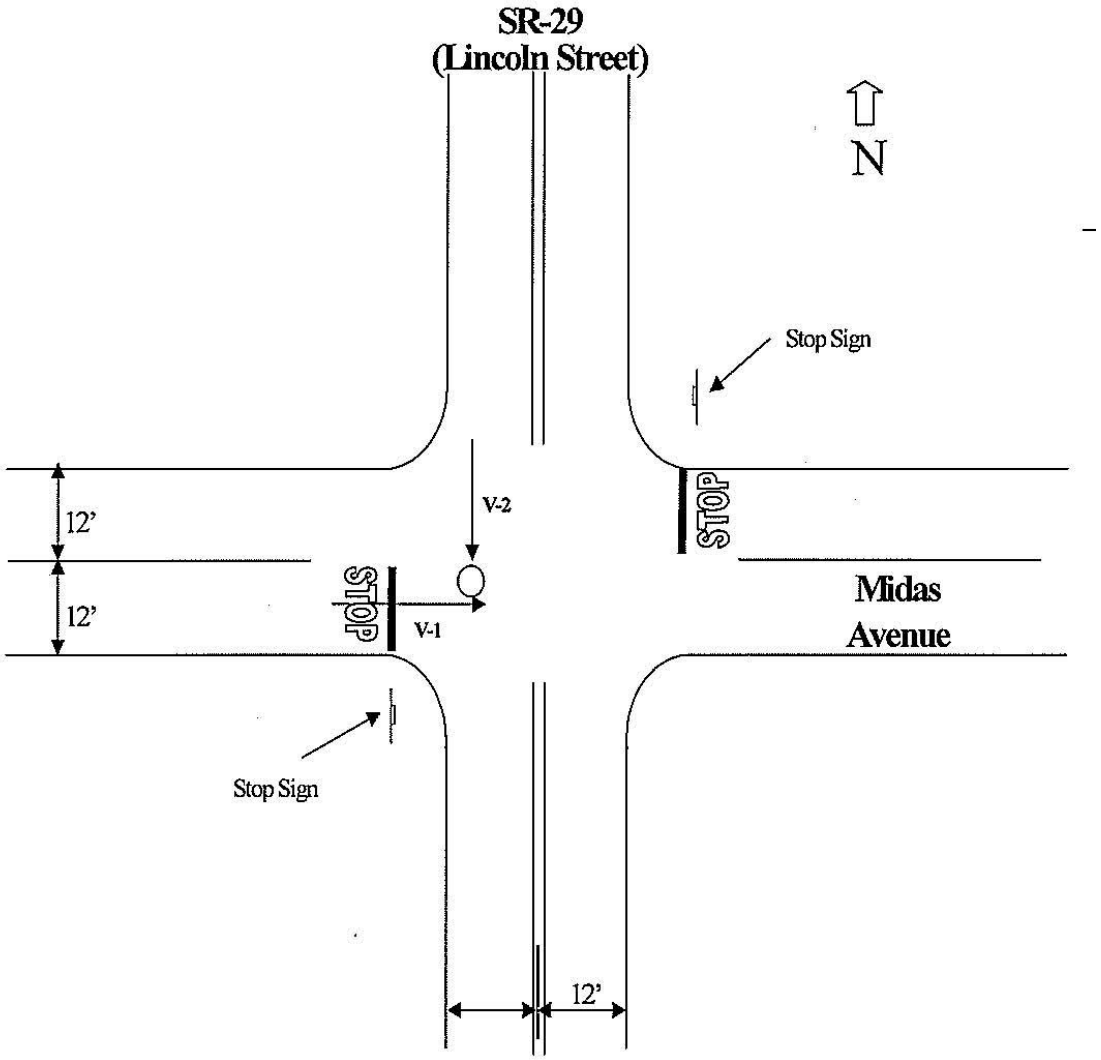
Overturned
(Maximum 2 loop regardless number of overturns)

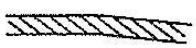
Vehicle backing


Central Avenue
N
Overhead Street Light
2
V-1
1
V-2
Double Yellow Center Line

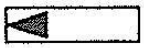
I-5 N/B
(Golden State Fwy)




SR-29
(Lincoln Street)
N
Stop Sign
STOP
V-2
12'
12'
STOP
V-1
Midas
Avenue
Stop Sign
12'

Abutment or wall 

Animal 

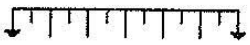
Automobile 

Automobile (damage) 

Camera 

Debris 

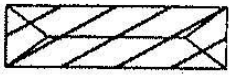
Double line 

Embankment
(The arrow should indicate downhill) 

Fence

Guard fence or rail 

House or building 

House or building
(view obstructed) 

Lane line

Marked center line

No passing line

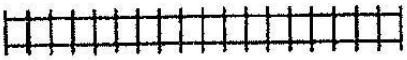
Pavement edge

No passing line

Pedestrian

Fluid spill, water, oil, blood, etc.

Railroad track

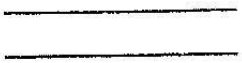


Sign (show message)

Signal

Signal (overhanging)

Skidmarks

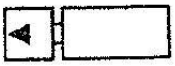


Streetcar/Bus

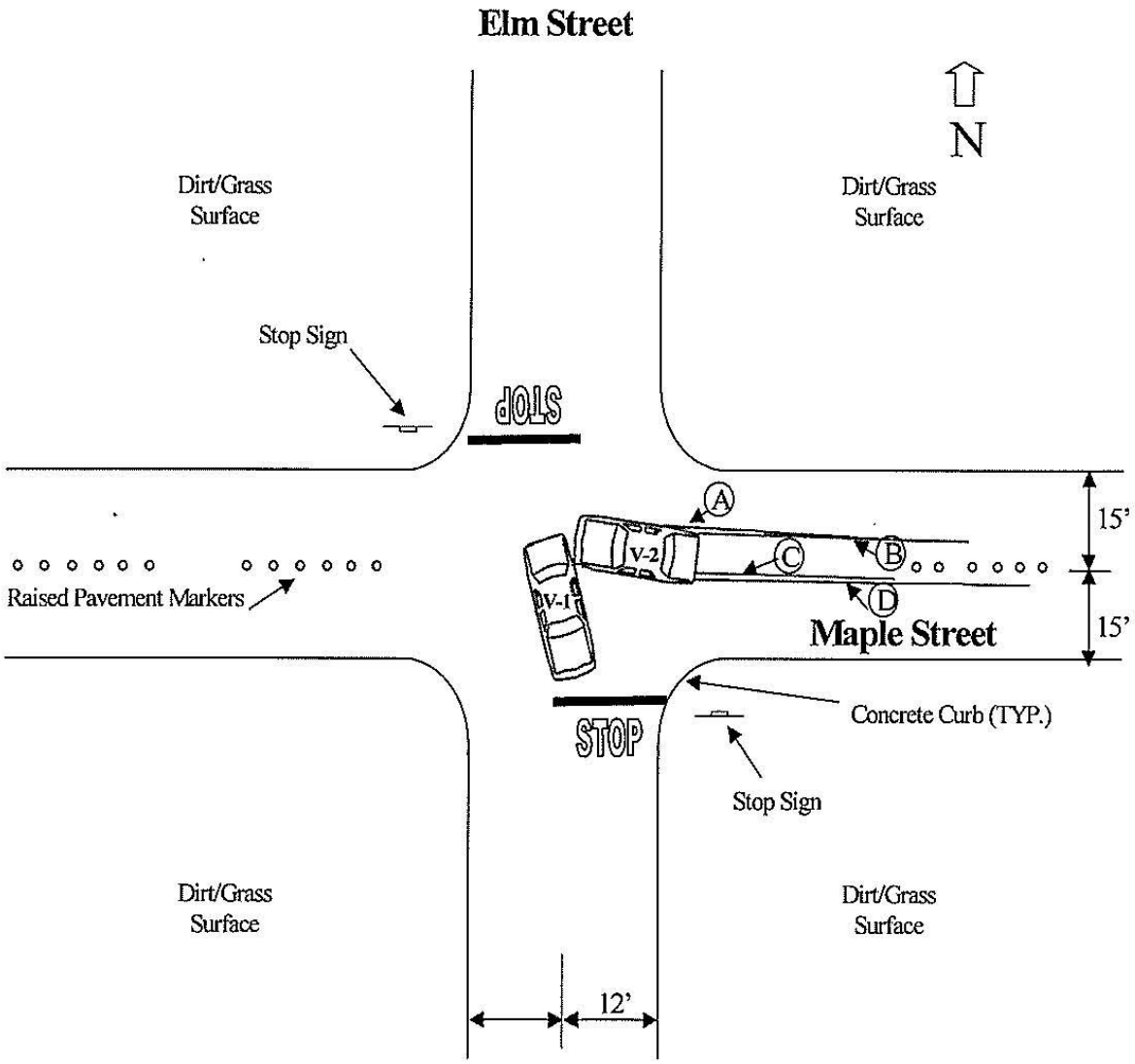
Street light

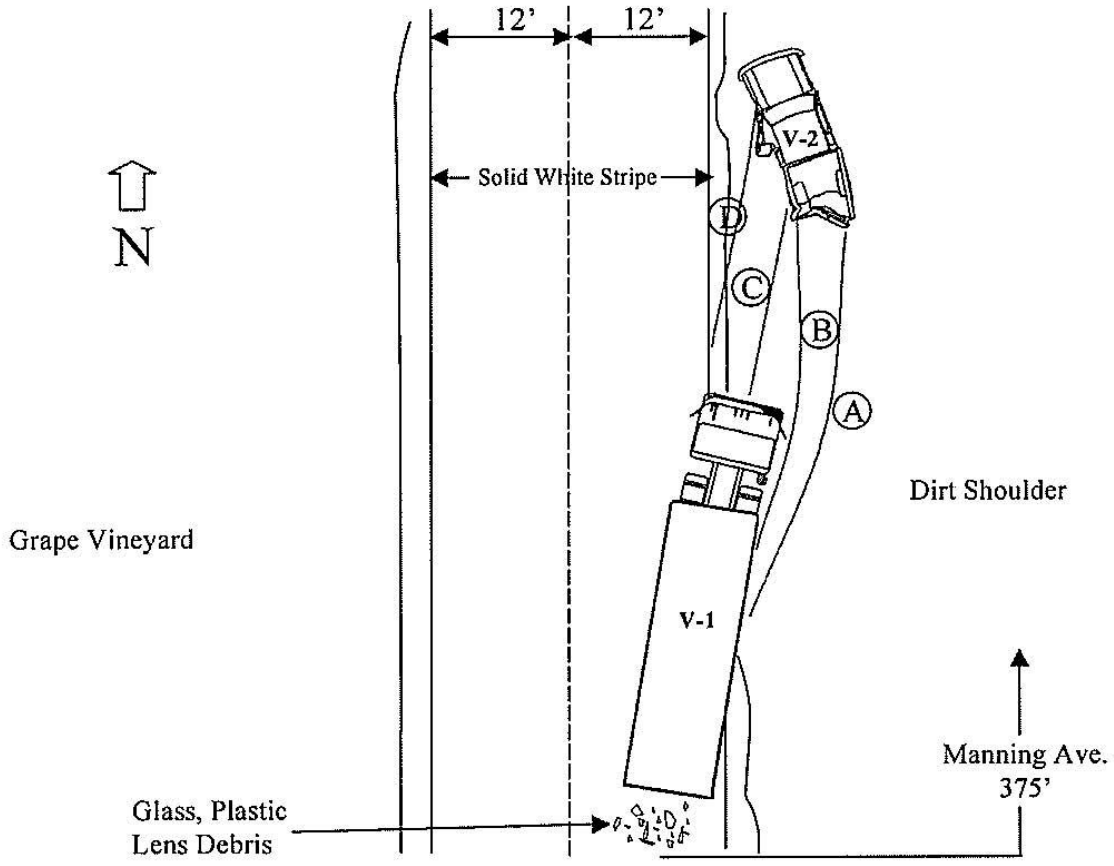
Street light (overhanging)

Tractor and trailer



Truck


Elm Street
N
Dirt/Grass Surface
Dirt/Grass Surface
Stop Sign
STOP
A
B
C
D
V-1
V-2
15'
15'
Raised Pavement Markers
Maple Street
Concrete Curb (TYP.)
STOP
Stop Sign
Dirt/Grass Surface
Dirt/Grass Surface
12'


12'
12'
N
Solid White Stripe
V-2
D
C
B
A
Dirt Shoulder
Grape Vineyard
V-1
Manning Ave.
375'
Glass, Plastic
Lens Debris

A	Approximate	APPROX
	Area of Impact	AOI
	Avenue	AV or AVE
B	Blood Alcohol Content	BAC
	Boulevard	BL or BLVD
	Bridge	BR
C	California Department of Transportation	Caltrans or DOT
	California Highway Patrol	CHP
	California Vehicle Code	CVC or VC
	Canyon	CYN
	Circle	CIR
	City Street	CS
	County	CO
	County Ordinance	CO ORO
	County Road	CR
	Court	CT
D	Date of Birth or Birthdate	DOB
	Department of Motor Vehicles	DMV
	Direction	DIR
	District Attorney	DA
	Drive	DR
	Driver	D-
	Driving Under Influence	DUI
E	Eastbound	E/B
	Emergency	EMERG
	Expired	EXP
	Expressway	EXPWY
F	Feet	FT
	Freeway	FWY

H	Had Been Drinking	HBD
	Highway	HWY
	Hit and Run	H/R
	Hours	HRS
	Hospital	HOSP
I	Identified or Identity	ID
	Incorporated	INC
	Injury	INJ
	Interstate 1	I-1
	Investigation	INVEST
	Investigating Officer	I/O
J	Junction	JCT
L	Lane	LN
	Left 2	L-2
	License	LIC
M	Mechanical	MECH
	Miles Per Hour	MPH
	Miscellaneous	MISC
	Misdemeanor	MISD
N	None in Possession	NIP
	Northbound	N/B
	North-South-East-West	N-S-E-W
	Number	NO
O	Of	/
	Overcrossing	O/C
	Officer	OFCR

P	Party 1	P-1
	Passenger	PASS
	Pedestrian	PED
	Penal Code	PC
	Property Damage Only	PDO
	Point of Rest	POR
	Police Department	PD
	Primary Collision Factor	PCF
R	Registered Owner	R/O
	Registration	REG
	Right 2	R-2
	Road	RD
	Roadway	RDWY
	Route	RT
S	Sheriff's Office	SO
	Southbound	S/B
	State Route 1	SR-1
	Street	ST
T	Temporary	TEMP
	Traffic Collision	TC
U	Undercrossing	U/C
	Unincorporated	UNINC
	United States 1	US-1
V	Vehicle 1	V-1
	Vehicle Code	VC or CVC
W	Westbound	W/B
	Witness	WIT
Y	Year	YR

Glossary

Introduction

The key vocabulary terms for Learning Domain 29: Traffic Collision Investigations is listed below with the definitions as they apply to this workbook.

Alley

Any highway having a roadway not exceeding 25 feet in width and which is primarily used for access to the rear or side entrances of abutting property *(Vehicle Code Section 110)*

Area of Impact (AOI)

The area at which damage or injury occurs as the result of a collision where involved parties come(s) into contact with the following: one another, another object, a surface

Associated Collision Factor

Any factor(s) or vehicle code violation(s) that contributed to the collision, but was not the main cause

Bias

The perception of one's reality

Chain of Custody

The written, witnessed, unbroken record of all individuals who have maintained control of or have access to any physical evidence

Collision

An unintended event that produces damage or injury, involving a motor vehicle in-transport. The terms “crash” “collision” and “accident” are often considered synonymous

Collision Investigation Report

Documentation format used when reporting a collision that took place on a highway and involved personal injuries, or a collision (on or off a highway) resulting in a fatality (also know as Complex Collision Investigation)

Collision Report

Documentation format used when reporting a collision involving property damage and minor personal injuries (also know as Routine Collision Investigation)

Collision Sketch

An illustration of the collision scene that reflects the investigating officer’s opinion how the vehicle collision occurred

Counter Report

Documentation format used when a property damage only collision is reported by an involved party at a law enforcement facility

Crosswalk

Any portion of a roadway distinctly indicated for pedestrian crossing. At intersections of two roads which meet at approximate right angles, crosswalks may or may not be marked. In such situations, the crosswalk is the area within the prolongations of sidewalk boundary lines from one side of the road to the other. When a crosswalk is not at an intersection, it is indicated by lines or other markings on the surface *(Vehicle Code Section 275)*

Driver

The person who is in actual physical control of a vehicle

Evidence

Any testimony, writings, material objects, or other things presented to the senses, and offered to prove or help prove or disprove the existence or nonexistence of a fact *(Evidence Code Section 140)*

Factual Diagram

A drawing of the collision scene that represents the scene as found upon the peace officer's arrival; contains only factual information, not opinions

Fixed Object

Any permanent object or landmark that does not move

Highway

A way or place of whatever nature, publicly maintained and open to the use of the public for purposes of vehicular travel. Highways include street. *(Vehicle Code Section 360)*

In-Transport

The state or condition of a vehicle when it is in use primarily for moving persons or property, including the vehicle itself, from one place to another while in motion or on a roadway.

Interchange

A system of interconnecting roadways that provide the interchange of traffic between two or more roadways that are at different levels

Intersection

The point where two highways join one another at approximately right angles; may also include the area where two highways join at any other angle *(Vehicle Code Section 365)*

Interrogation

The process of questioning individuals who are under custodial arrest

Interview

The process of gathering information from a person who has knowledge of the facts a peace officer will need to conduct an investigation

Investigation

The systematic gathering of information from a variety of sources along with documentation of statements, evidence, observations, and findings

Involved Party

Anyone who is directly involved in a vehicle collision

Median

The portion of a divided highway which separates the roadways from traffic moving in the opposite direction

Non-Contact Involved Party

Any driver, pedestrian, or other person(s) (e.g., bicycles rider) not making any type of actual physical contact with involved vehicle(s) but, who directly caused another party to become involved in the collision

Non-traffic Collision

Any motor vehicle collision that occurs entirely at a place other than a highway (public or private)

Pedestrian

Any person who is afoot, or who is using a means of conveyance other than a bicycle due to a physical disability

Physical Evidence

Any tangible objects that are relevant to the investigation

Point of Rest

The geographical location at which the involved vehicles come to a final position of rest after impact with one another, another object or a surface

Primary Collision Factor

The one element or driving action which in the peace officer's opinion, best describes the primary or main cause of the collision

Prolongation

A painted or imaginary extension of an existing curb line, roadway edge, sidewalk edge, etc.

Reference Point/Line

Any point/line from which a measurement is taken to locate a single spot in a given area

Road

That portion of a highway that includes the roadway and any shoulder alongside the roadway *(Vehicle Code Section 527)*

Roadway

A portion of a highway improved, designed or ordinarily used for vehicular traffic *(Vehicle Code Section 530)*

Shoulder

A portion of the road next to the roadway used for accommodation of stopped vehicles, emergency stops, or lateral support of the roadway structure

Sidewalk

A portion of a highway, other than the roadway, set apart by curbs, barriers, marking, or other delineation for pedestrian travel (*Vehicle Code Section 555*)

Skid Marks

Darkened roadway material left by a tire that is not free to rotate and/or sliding or slipping over a surface

Statewide Integrated Traffic Records System (SWITRS)

Database of uniform collision data taken from standardized traffic collision reports

Street

One type of highway

Tire Impression (prints)

Mark left by a rotating tire that has gone through liquid or other soft material leaving a “print” of the tire’s treat pattern; may also be found on an impressionable surface (e.g., snow, sand, mud, etc.)

Traffic Collision

Any collision involving a motor vehicle in-transport that occurs on a highway, or after the vehicle as left the road but before that event has stabilized

Uninvolved Party

Any individual who an involved party claims contributed to the collision