

# TRAFFIC ACCIDENT STUDY GUIDE 2003

## SECTION TWO



This study guide is designed to provide the law enforcement Explorer with basic principles. The guide is not all inclusive, and does not delineate specific techniques that must be used. The focus of this guide is to provide principals that are flexible and adaptable to various law enforcement situations.

Following the basic principals in this guide should allow the law enforcement explorer to successfully handle various law enforcement training activities safely and professionally.

The study guide was developed through the cooperation of International Association of Chiefs of Police and the Federal Law Enforcement Training Center.



## **SECTION TWO**

# **TOOLS OF AN ACCIDENT INVESTIGATOR**

## TABLE OF CONTENTS

<b>SYLLABUS</b> .....	<b>4</b>
<b>INSTRUCTOR GUIDE</b> .....	<b>5</b>
<b>OUTLINE OF INSTRUCTION</b> .....	<b>6</b>
<b>I. INTRODUCTION</b> .....	<b>6</b>
A. ESTABLISH RAPPORT AND MOTIVATING STATEMENT .....	6
B. LESSON PLAN OVERVIEW.....	6
<b>II. PRESENTATION</b> .....	<b>6</b>
A. EPO #1: IDENTIFY FIVE MARKING TOOLS, SIX MEASURING TOOLS, EIGHT RECORDING TOOLS, AND THREE DRAWING TOOLS NECESSARY TO CREATING A VISUAL REPRESENTATION OF AN ACCIDENT SCENE. ....	6
B. EPO #2: IDENTIFY THE TECHNIQUES NECESSARY TO TAKE MEASUREMENTS WITHOUT MEASUREMENT TOOLS.....	9
<b>III. SUMMARY</b> .....	<b>10</b>
A. REVIEW THE PERFORMANCE OBJECTIVES. ....	10
B. REVIEW THE TEACHING POINTS.....	10
<b>IV. APPLICATION</b> .....	<b>10</b>
<b>REFERENCES</b> .....	<b>11</b>

# **SYLLABUS**

**COURSE TITLE:** Tools of an Accident Investigator

**LENGTH OF PRESENTATION:**

LECTURE	LAB	P.E.	TOTAL	PROGRAM	OPTION
1:00			1:00		

**DESCRIPTION:**

This course teaches the student how to use tools to record, measure, mark, and diagram an accident scene.

**TERMINAL PERFORMANCE OBJECTIVE (TPO):**

The student will identify the common tools used in accident investigation, their advantages and disadvantages, and a method for taking measurements when tools are not available with seventy percent accuracy.

**ENABLING PERFORMANCE OBJECTIVES:**

EPO #1: Identify five marking tools, six measuring tools, eight recording tools, and three drawing tools necessary to creating a visual representation of an accident scene.

EPO #2: Identify the techniques necessary to take measurements without measurement tools.

**STUDENT SPECIAL REQUIREMENTS:**

There are no special requirements.

## **Instructor Guide**

### **METHODOLOGIES:**

1. Lecture.
2. Discussion.
3. Demonstration.

### **TRAINING AIDS AND EQUIPMENT:**

1. Instructor
  - a. Clipboard (with a pivot hole).
  - b. Traffic template.
  - c. Drafting compass.
  - d. Magnetic or electronic compass.
  - e. 100-foot steel or fiberglass measuring tape.
  - f. 25-foot steel or fiberglass measuring tape.
  - g. "Rolatape" or measuring wheel.
  - h. Yellow lumber crayon.
  - i. Spray chalk (optional).
2. Student
  - a. Pen and paper for writing notes.

### **INSTRUCTOR SPECIAL REQUIREMENTS:**

There are no special requirements.

## Outline of Instruction

### I. INTRODUCTION

#### A. Establish Rapport and Motivating Statement

1. The field of law enforcement is a professional career.
2. This is especially true in the area of traffic accident investigation.
3. Many agencies have specially trained officers designated as accident investigators.

#### B. Lesson Plan Overview

1. Your ability to investigate a traffic accident is a critical skill for every patrol officer to master.
2. An accident investigator needs to know how to use special tools to process an accident scene.
3. Recording equipment expedites documenting and interviewing at the accident scene.
4. Measuring equipment aids in accurately positioning physical evidence to diagram the scene for later presentation in court if required.
5. The traffic template and calculator help the accident investigator determine the speed of the vehicles from skid marks and draw to scale diagrams of the accident scene.
6. Other equipment helps insure the safety of accident victims, public, and personnel working at the accident scene.

### II. PRESENTATION

#### A. EPO #1: Identify five marking tools, six measuring tools, eight recording tools, and three drawing tools necessary to creating a visual representation of an accident scene.

##### 1. Marking tools:

- a. **Yellow lumber crayon** – You can mark most surfaces, in most weather conditions with lumber crayons. You can buy these crayons in most home centers or lumber yards.

- b. **Chalk** – Chalk is easy to carry and store, but a little messy. In addition, chalk marks wash off in the rain.
- c. **Spray chalk** – Surveyors use a bright orange spray chalk.
  - (1) It is a good tool for marking the position of vehicles on dry surfaces.
  - (2) However, it will wash off the pavement in rain or even wear off after several days in dry weather.
- d. **Spray paint** – You should use spray paint only as a last resort. Why, because it is semi-permanent, so use it with caution.
- e. **Bottle caps, washers, and nails** – You can nail a bottle cap or metal washer to mark zero on the base line and establish a reference point (RP).

2. Measuring tools:

- a. 100-foot, steel or fiberglass measuring tape.
- b. 25-foot, steel or fiberglass measuring tape.
- c. Eight-foot, steel measuring tape.
- d. Measuring wheel – This is a lightweight, wheeled device that provides excellent accuracy for measuring distances.
  - (1) Caution, these devices follow the terrain and may introduce error when making linear measurements.
  - (2) For example, using the wheel to measure across a ditch.
- e. Surveyor pins –used to anchor tapes, etc.
- f. Hammer and nails – used with washers, etc. to create reference points.

**NOTE:** There are pros and cons to both steel and fiberglass tapes. Steel tapes tend to hold a straight line better, but are easily damaged if run over by vehicles. They require frequent cleaning to prevent rust and the accumulation of grit. Fiberglass tapes must be monitored while being used to maintain a straight line, as they are much lighter and easily disturbed by wind. They can be run over without problems, but can soak up fluids from accident scenes.

3. Recording tools:
  - a. Clipboard – You can modify the clipboard with a pivot hole for using with a traffic template as a clinometer.
  - b. Traffic accident report forms.
  - c. Pre-drawn intersection diagrams (check for acceptance in your local courts).
  - d. Paper.
  - e. Mechanical pencils.
  - f. Pens.
  - g. Clear plastic sheet (8.5 x 11 inches) or plastic bag to cover reports, etc., while working in rain.
  - h. **Micro tape recorder** (optional) – A small tape recorder is convenient for recording field notes and witness statements taken at the scene. You can transcribe the notes and statements later and maintain the tape as evidence.
  - i. **Camera** (e.g. film, instant exposure Polaroid, or digital) – Officers must balance the advantage of producing instant pictures against the advantage of having negatives as evidence.
  
4. Drawing tools:
  - a. **Templates** – There are several templates available to help officers make scaled drawings of accident scenes including:
    - (1) Northwestern Accident Investigator’s Template.
    - (2) NJ Templates (A-D).
    - (3) Institute of Police Technology and Management (IPTM) Blue-Blitz Template.
    - (4) “Go-Write” Traffic Template.
  - b. **“Flexi-curve”** for drawing irregular contours to scale.
  - c. **Drafting compass.**
  - d. **Pre-drawn intersection diagrams**

- e. **Mechanical pencils** for drawing fine lines of uniform width (.05 or .07 mm).
  - f. **Vinyl-based drafting eraser.**
  - g. **Eraser shield.**
5. Other tools:
- a. Flashlight – three or more cells, extra batteries, and a spare bulb.
  - b. Evidence envelopes.
  - c. Magnetic or electronic compass.
  - d. Emergency flares.
  - e. Emergency blanket.
  - f. Traffic cones.
6. Container or carrying case for accident investigation tools:
- a. Attaché case.
  - b. Briefcase.
  - c. File box.
- B. EPO #2: Identify the techniques necessary to take measurements without measurement tools.
1. When measuring equipment is not available:
- a. Walk off distances while counting the steps.
  - b. If there is less than a step at the end, estimate it as a quarter, a half, or three-quarters of a step.
  - c. Record the number of steps.
2. Later, when you have access to a tape measure, step the distance off and measure the distance with the tape.
- a. As an accident investigator, you should know how long your pace is.
  - b. Measure off a distance of 100 feet.

- (1) Walk the distance using your normal gait and count the number of steps it takes you to cover 100 feet.
- (2) Repeat this process about 20 times to get a good average number of steps.
- (3) Once you establish the average number of steps, it takes you to cover 100 feet, divide 100 by the average number of steps.
- (4) The result is the average length of your gait.

### **III. SUMMARY**

#### **A. Review the performance objectives.**

1. EPO #1: Identify five marking tools, six measuring tools, eight recording tools, and three drawing tools necessary to creating a visual representation of an accident scene.
2. EPO #2: Identify the techniques necessary to take measurements without measurement tools.

#### **B. Review the teaching points.**

1. Obtaining and using the proper tools will allow the traffic accident investigator to work in the most efficient manner possible.
2. Moreover, the selection of proper marking devices can contribute to better community relations in that the scene is not permanently marked.
3. The selection of a few inexpensive tools for marking, measuring, recording and drawing will also make the traffic accident investigator's job easier.
4. With proper tools, the officer can accomplish the job quickly and without frustration.
5. Work performed under these conditions and in relative comfort is usually more accurate

### **IV. APPLICATION**

None.

## REFERENCES

- Baker, J. Standard. (1975). Traffic Accident Investigation Manual. Evanston, IL: Northwestern University.
- Baker, J. Standard and Fricke, Lynn R. The Traffic Accident Investigation Manual at Scene Investigations and Technical Follow-up, Ninth edition 1986. Evanston, IL: Northwestern University Traffic Institute.