

# Accident Investigation

## Instructor: Allen Ashby

Allen Ashby is a Sergeant with the Idaho State Police and is currently assigned to the Coeur d'Alene, Idaho, District 1 Office. Sgt. Ashby has a bachelor's degree in Criminal Justice; he started his career in law enforcement in 2000 and has worked various assignments in his law enforcement career including Patrol, Jail, School Resource Officer, and DARE positions. Sgt. Ashby is an accredited Crash Reconstructionist through the Accreditation Commission for Traffic Accident Reconstruction (ACTAR). ACTAR is an internationally recognized certification program, including being accepted by the National Highway Traffic Safety Administration as an established standard for crash reconstruction, for both police and civilian Crash Reconstructionists.

Sgt. Ashby is currently assigned to the ISP District 1 Patrol Division and supervises a patrol team out of the ISP District 1 Office. With the ISP, Sgt. Ashby has worked extensively on the Crash Reconstruction Unit (CRU). He investigates and reconstructs serious injury and fatality collisions that occur in Idaho and works with Idaho's Region 1 Critical Incident Task Force assisting in processing, interpreting, measuring, and diagramming nearly all major crime scene investigations in northern Idaho. Sgt. Ashby is qualified as an expert witness in various collision reconstruction subjects and has testified throughout Idaho on various crash-related topics.

In his current capacity, Sgt. Ashby also reviews and approves all crash-related cases generated by the ISP in District 1. Sgt. Ashby serves as a liaison with the Idaho Vehicle Collision Reporting system's officials through the Idaho Transportation Department and has assisted in the development of courses for improved quality recording and reporting of collisions in Idaho.

Within the ISP, Sgt. Ashby has also served as the department's Crash Reconstruction Program Coordinator and, as such, approved all ISP Crash Reconstruction Reports while also coordinating ISP's training and equipment for ISP's Collision Reconstruction Program. Sgt. Ashby is a certified Idaho P.O.S.T. instructor for various crash-related disciplines and instructs Basic Collision Investigation through Advanced/Reconstruction topics for ISP, allied Idaho agencies, Idaho P.O.S.T., and the North Idaho College.

## Course Objectives:

This 20-hour course will provide the necessary skills for a law enforcement officer to properly complete any level of traffic crash investigation. Participants will learn the current procedures in place for complete crash investigation, learn and apply the Systematic Approach to Traffic Accident Investigation, recognize and interpret evidence at a crash scene, and be able to successfully prepare comprehensive crash reports.

### Course Objectives and Purpose:

**Evidence from The Traffic Way:** In fact, all the engineers from all the reconstruction firms in this or any other country are all but important in the face of a lack of on-scene evidence, properly identified, interpreted, and collected by the on-scene investigator.

In this block of instruction, we will look at evidence that is (or should be) collected from the traffic way, including:

- |     |                                  |     |                           |
|-----|----------------------------------|-----|---------------------------|
| 1.) | <b>Condition of Roadway</b>      | 4.) | Pavement Grinding         |
|     | a.) Environmental                | 5.) | Tire Prints               |
|     | b.) Engineering                  | 6.) | Furrows and Trenches      |
| 2.) | <b>Traffic Control Devices</b>   | b.) | Gouges and Grooves        |
| 3.) | <b>Damage to Fixed Objects</b>   | c.) | Pavement Scratching       |
| 4.) | <b>Marks Left on the Roadway</b> | 5.) | <b>Debris</b>             |
|     | a.) Tire Marks                   | a.) | Vehicle Parts, Dirt, etc. |
|     | 1.) Skids                        | b.) | Vehicle Fluids            |
|     | 2.) Scuffs                       | c.) | Body Tissue and Fluids    |
|     | 3.) Scrubs                       | d.) | Spilled Cargo             |

**Evidence from The Vehicle:** To develop an awareness in the student of the various forms of physical evidence left in and on vehicles after a collision; and to establish an awareness of how to properly locate, interpret, collect and preserve all the various forms of evidence.

State the importance of post collision vehicle examinations and inspections.

State the importance of determining pre-collision, during collision and post collision damage.

List the six major categories of vehicle damage.

List the two major types of vehicle damage and the causes of each.

**Coefficient of Friction:** To develop an awareness in the student of the concepts and principals involved in the study of coefficient of friction. Further, to develop an understanding of the applications involved in determining coefficient of friction values for given surfaces.

Discuss the concepts and principals involved in the studies of coefficient of friction.

Identify and apply the equations recognized in the applications of coefficient of friction in determining values of given surfaces.

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**Center of Mass Braking Percentages and Equation Worksheets:** To develop an awareness in the student of the concepts and principals involved in considering an objects center of mass and a vehicle braking efficiency and percentages. Further, to develop an understanding of the applications involved in determining "field" approximated center of mass for vehicles and braking percentages.

**Grade and Superelevation:** To introduce the student to the concepts of grade and superelevation and their application to speed estimates from skid marks.

Define the terms grade and superelevation as they apply to roadways and accident scenes.

Obtain the proper measurements and determine grade and superelevation at an accident scene.

Adjust drag factors (Coefficient of Friction) to account for differences in grade from a test site to an accident site.

**Minimum Speed from Skids:** To develop a working understanding of and abilities in the applications of minimum speed, and basic time and distance equations.

Identify the equations required to solve minimum speed, and basic time and distance problems.

Properly list the application and steps involved in the process of problem solving for minimum speed and basic time and distance problems.

Determine vehicles minimum estimated speeds, time, and distance considerations using identified equations.

## Day 1

8:00 a.m. - 8:30 a.m.

### Registration

8:30 a.m. - 9:30 a.m.

Introduction/Orientation

9:30 a.m. - 10:20 a.m.

Physical Evidence from The Roadway

10:30 a.m. - 12:00 p.m.

Physical Evidence from The Vehicle

12:00 p.m. - 1:00 p.m.

### Lunch (On Your Own)

1:00 p.m. - 3:50 p.m.

Coefficient of Friction  
Drag Sled AND Skid Test  
Practical Exercise

4:00 p.m. - 5:00 p.m.

Center of Mass and Braking Percentage

## Day 2

8:00 a.m. - 9:20 a.m.

Equation Form-Definitions-Symbols

9:30 a.m. - 10:00 a.m.

Determining Grade and Superelevation

10:00 a.m. - 11:00 a.m.

Adjusting Coefficient or Friction  
For Grade and Superelevation

11:00 a.m. - 12:00 p.m.

Minimum Initial Speed from Skid Marks

12:00 p.m. - 1:00 p.m.

### Lunch (On Your Own)

1:00 p.m. - 3:00 p.m.

Minimum Initial Speed from Skid  
Marks (*Continued*)  
Class Exercise

3:00 p.m. - 5:00 p.m.

Minimum Initial Speed from Multiple Surfaces

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## Day 3

8:00 a.m. - 12:00 p.m.

Minimum Speed  
Classroom Problem Exercise

Minimum Speed Multiple Surface  
Classroom Problems Exercise

Combined Speeds and Problems  
Classroom Exercise

12:00 p.m.

**Certificate Presentation**

