SAFETY INVESTIGATION MANUAL

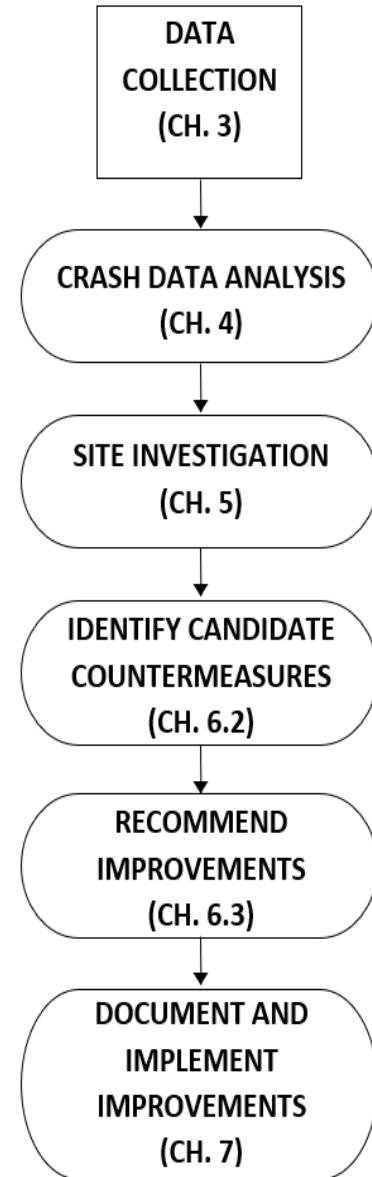Online Training

Presented by:

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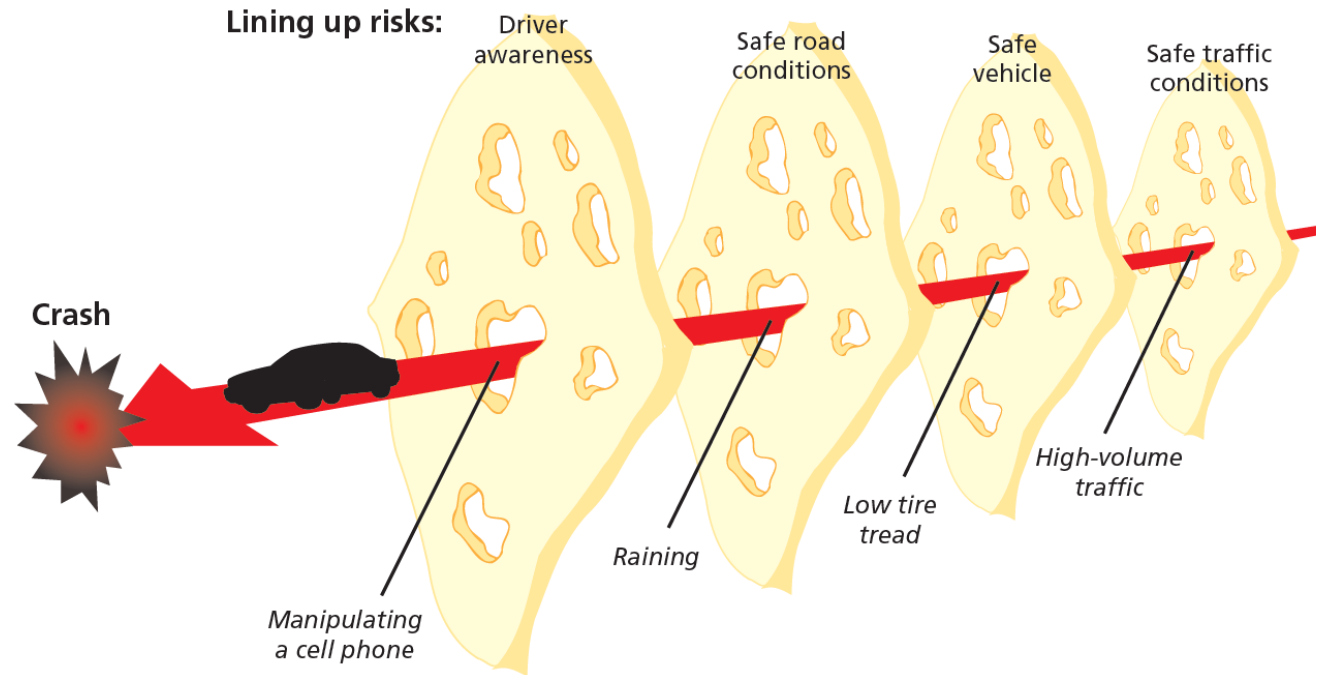# Manual Overview and Purpose (Ch. 1)

- Outline the steps for Safety Investigations
  - Six step process
- Provide a resource for ODOT safety investigators
  - Screening, Evaluation, Documentation

DATA COLLECTION (CH. 3)

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CRASH DATA ANALYSIS (CH. 4)

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SITE INVESTIGATION (CH. 5)

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IDENTIFY CANDIDATE COUNTERMEASURES (CH. 6.2)

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RECOMMEND IMPROVEMENTS (CH. 6.3)

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DOCUMENT AND IMPLEMENT IMPROVEMENTS (CH. 7)

Oregon State University

Oregon Department of Transportation

Portland State University

Safety Investigations (Ch. 2)

- Data driven approach to selecting countermeasures
- Two approaches:
  - Hotspot
  - Systemic
- Two principles:
  - Crashes are rare events
  - Humans make errors

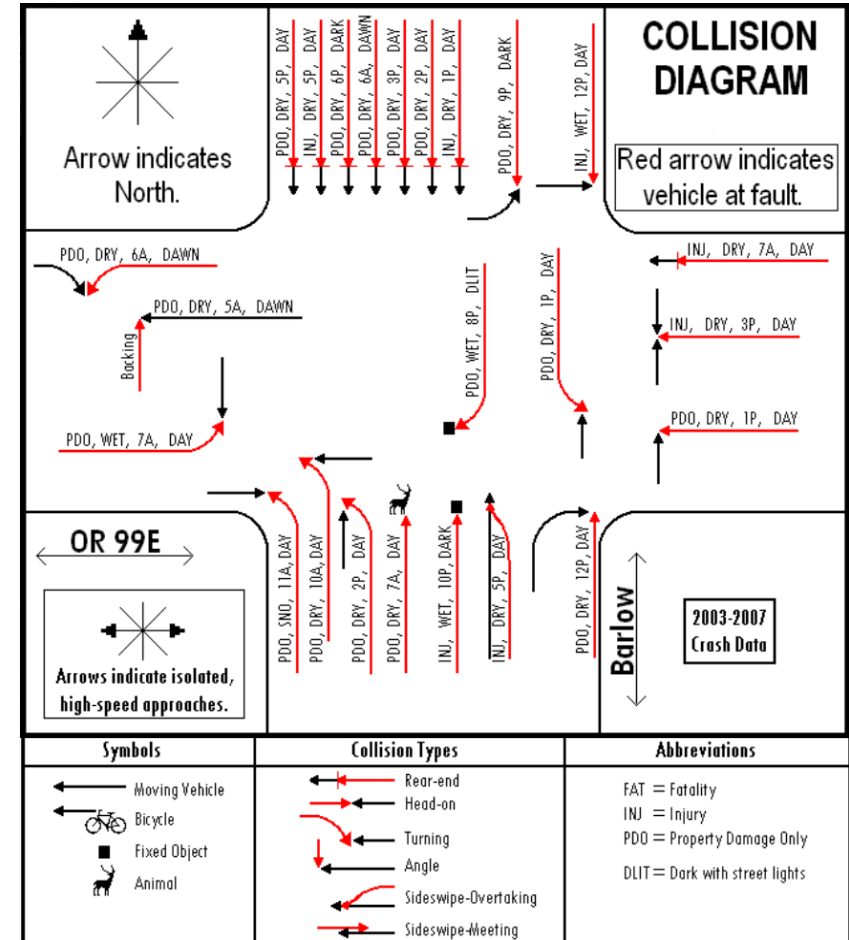**Swiss Cheese Model of Crash Causation**

Lining up risks:
- Driver awareness
- Safe road conditions
- Safe vehicle
- Safe traffic conditions

Crash

Manipulating a cell phone

Raining

Low tire tread

High-volume traffic

SOURCES: Adapted from Seppa (2013) and Reason (2000).
RAND *RR2333-1.3*

Data Types and Sources (Ch. 3)

- A variety of types and sources of data is helpful in safety investigations

- Basic information:
  - Crash data – location, severity, causes
  - Route numbers, functional class, roadway characteristics

- Several sources for data:
  - Crash Data System
  - Digital Video Log
  - TransGIS
  - Virtual Highway Corridor (VHC) tool
  - Site Investigation (Ch. 5)

Crash Pattern Identification (Ch. 4)

- Crash Pattern Worksheet
  - Tests individual parameters
  - Highlights unusual patterns
- Additional training material for Workbook available

Collision Diagram showing five years of crash data. Include severity, pavement conditions, time of day, and light conditions. Indicate vehicle at fault with red arrow. Include description of symbols/abbreviations.

Countermeasure Selection (Ch. 5 and 6)

- Several tables available (Ch. 5)
  - Intersection and Mid-block crashes
  - Provides crash pattern, probable cause, what to document, and general countermeasures
- Cost, availability, feasibility, and effectiveness considered in selection process
- Other sources include:
  - FHWA Safety Emphasis Area websites
  - FHWA CMF Clearinghouse

Site Investigation

Crash Data Analysis

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Review Digital Video Log and Highway Inventory Reports

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Complete the top portion of the Site Investigation Form

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Conduct field investigation and document effort with the completed Site Investigation Form, a completed Roadway Inventory Checklist, and supplemental worksheets as needed

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Identify Candidate Countermeasures

Documentation (Ch. 7)

- Final step in safety investigation process

- Documenting evaluation and project recommendations

- SIM Workbook contains *SIM Report* tab

- **It is important to check if solutions have delegated authority processes**

Additional Content (Appendix)

- Site Distance Evaluation
  - Intersection site distance (with examples)
  - Stopping site distance
  - Decision site distance
  - Passing site distance
  - Sign legibility/message comprehension distance
- SIM Worksheet Instructions