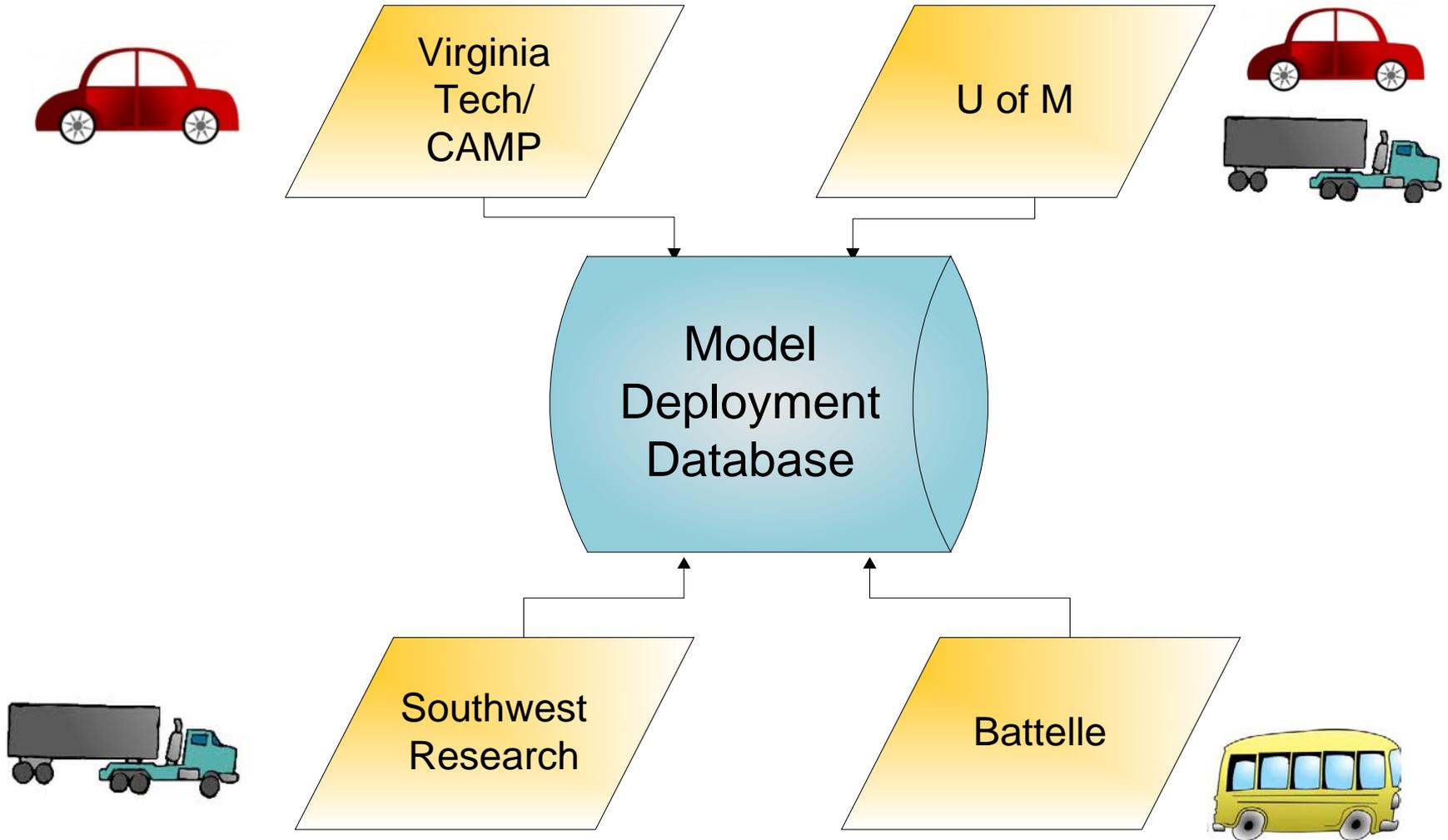


Model Deployment Data

Data Coordination



Model Deployment Data

Numerical Data

- In-vehicle
- GPS
- V2V
- External sensors

Model Deployment Data

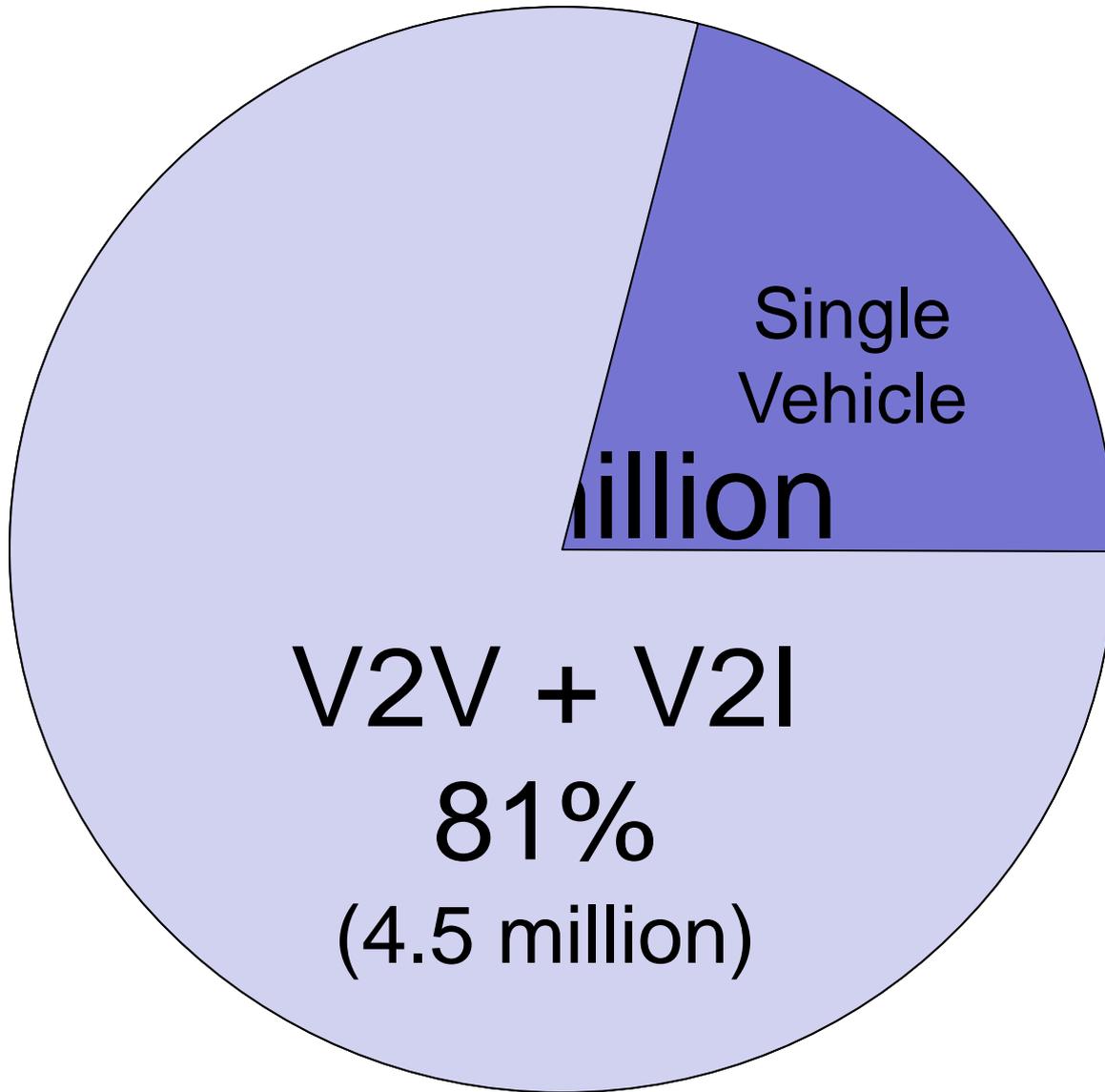


Source: USDOT

Data Analysis

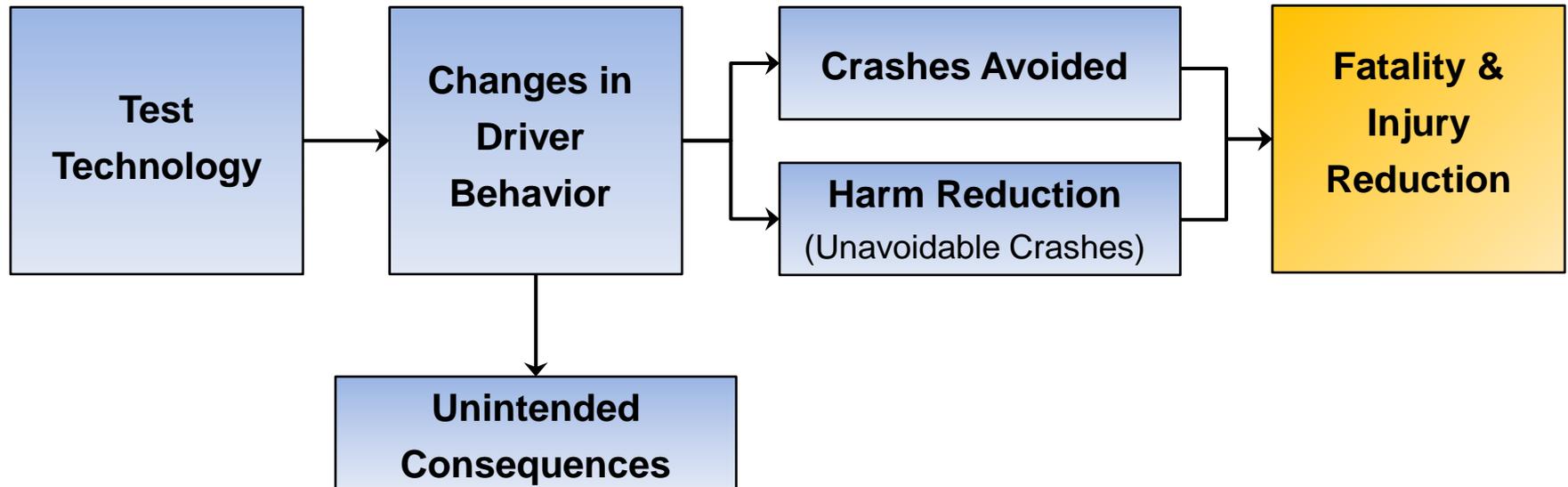
Evaluation Goals

1. Safety Impact
2. System Capability
3. Driver Acceptance



*Frequency of Target Crashes for IntelliDrive Safety Systems, DOT HS 811 381, 2010

Safety Benefit Estimation Framework



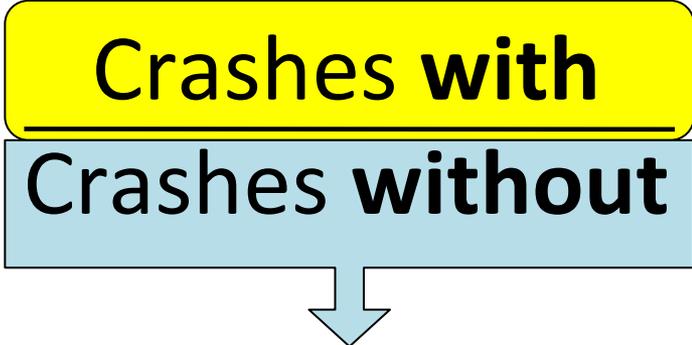
Basic Equations

$$\text{Crashes Prevented} = \text{Crashes **without** technology} - \text{Crashes **with** technology}$$

$$\text{Crash Harm Reduction} = \text{Harm **without** technology} - \text{Harm **with** technology}$$

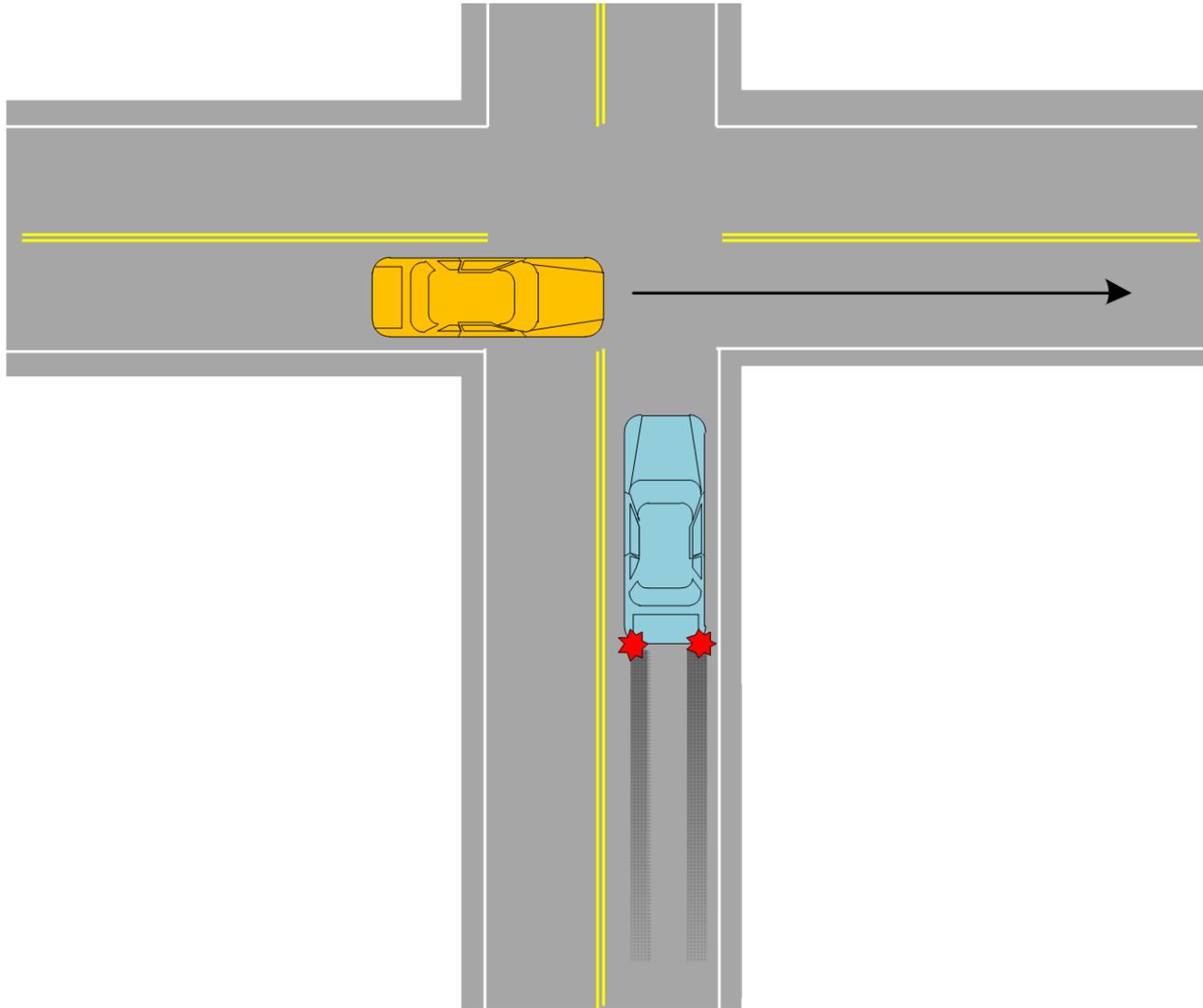
Basic Equations

$$\text{Crashes Prevented} = \text{Crashes without} \times \left(1 - \frac{\text{Crashes with}}{\text{Crashes without}} \right)$$

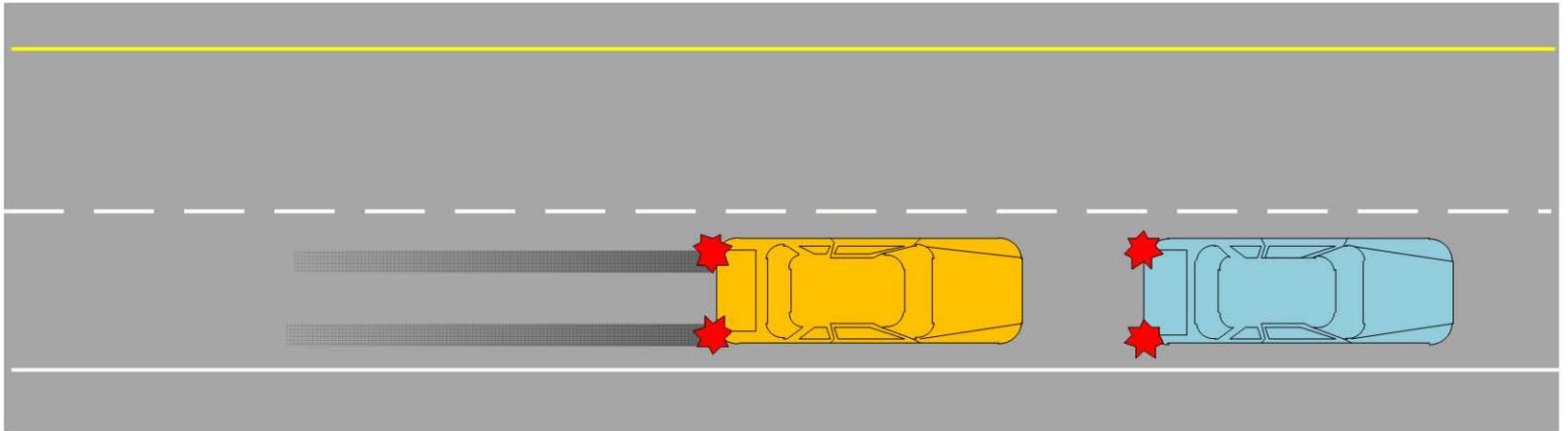
$$\text{Effectiveness} = 1 - \frac{\text{Crashes with}}{\text{Crashes without}}$$


National crash
databases

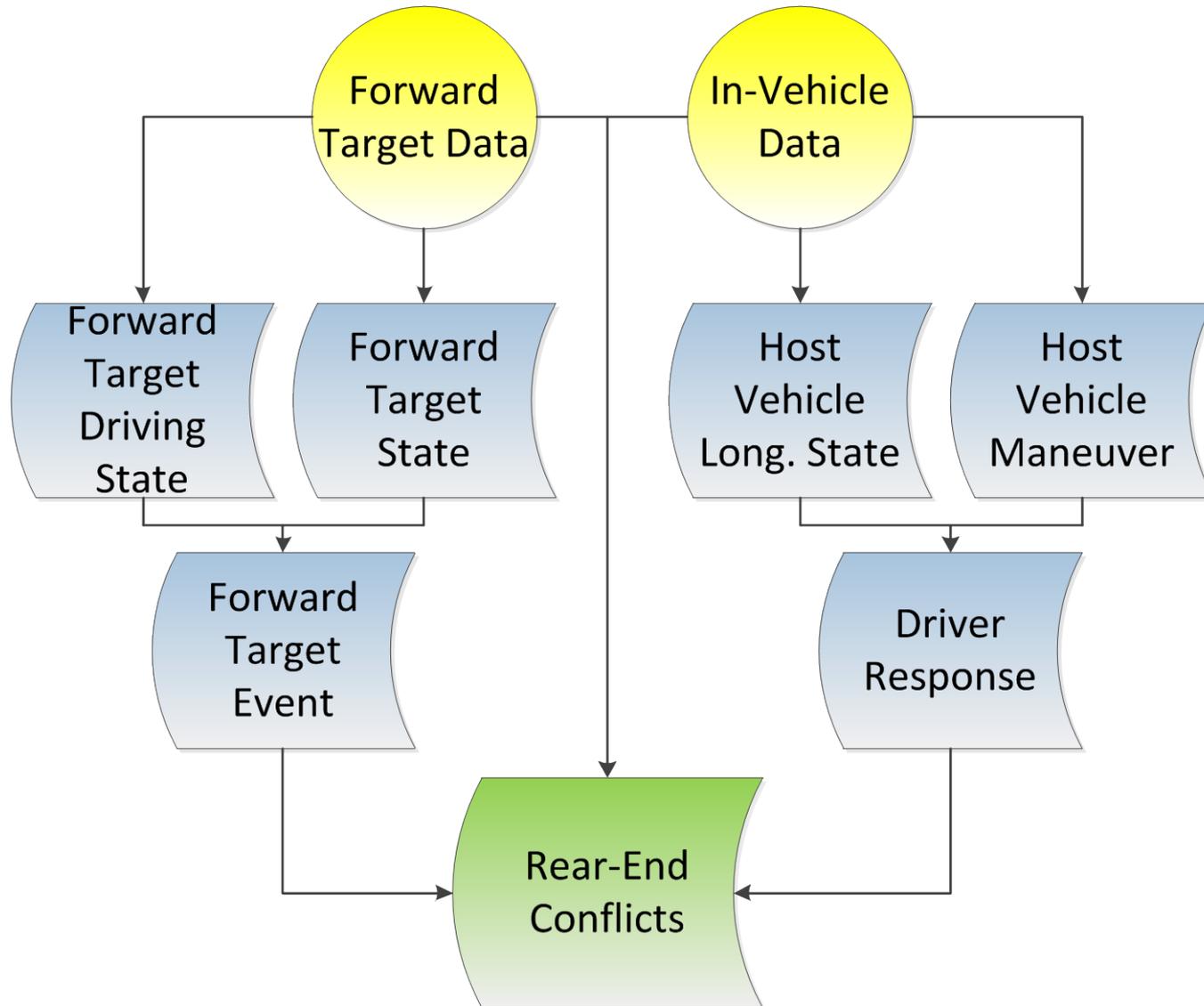
Estimating Crashes: Conflicts



Estimating Crashes: Conflicts



Driving Conflict Algorithms



View



Driver ID: 002
Trip ID: 5116
Vehicle ID: 153
AlertID: 1535116005953023

LDW-LI

47mph

IVBSS Enabled

 Video Available

Crash Imminent

Distractions

Eyes Off Forward Scene

Steering Response

Host Vehicle Maneuver

Host Vehicle Position

Location

Target Type

Target Location

Moving Target Vehicle

Relative Speed

Lane Excursion

Lane Marker

Road Condition

Opposing Traffic

Time To Collision

Alert Status

Comment



Light Vehicle Evaluation Schedule

