Safety Benefits Framework

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Advancing transportation innovation for the public good

U.S. Department of Transportation

Research and Innovative Technology Administration

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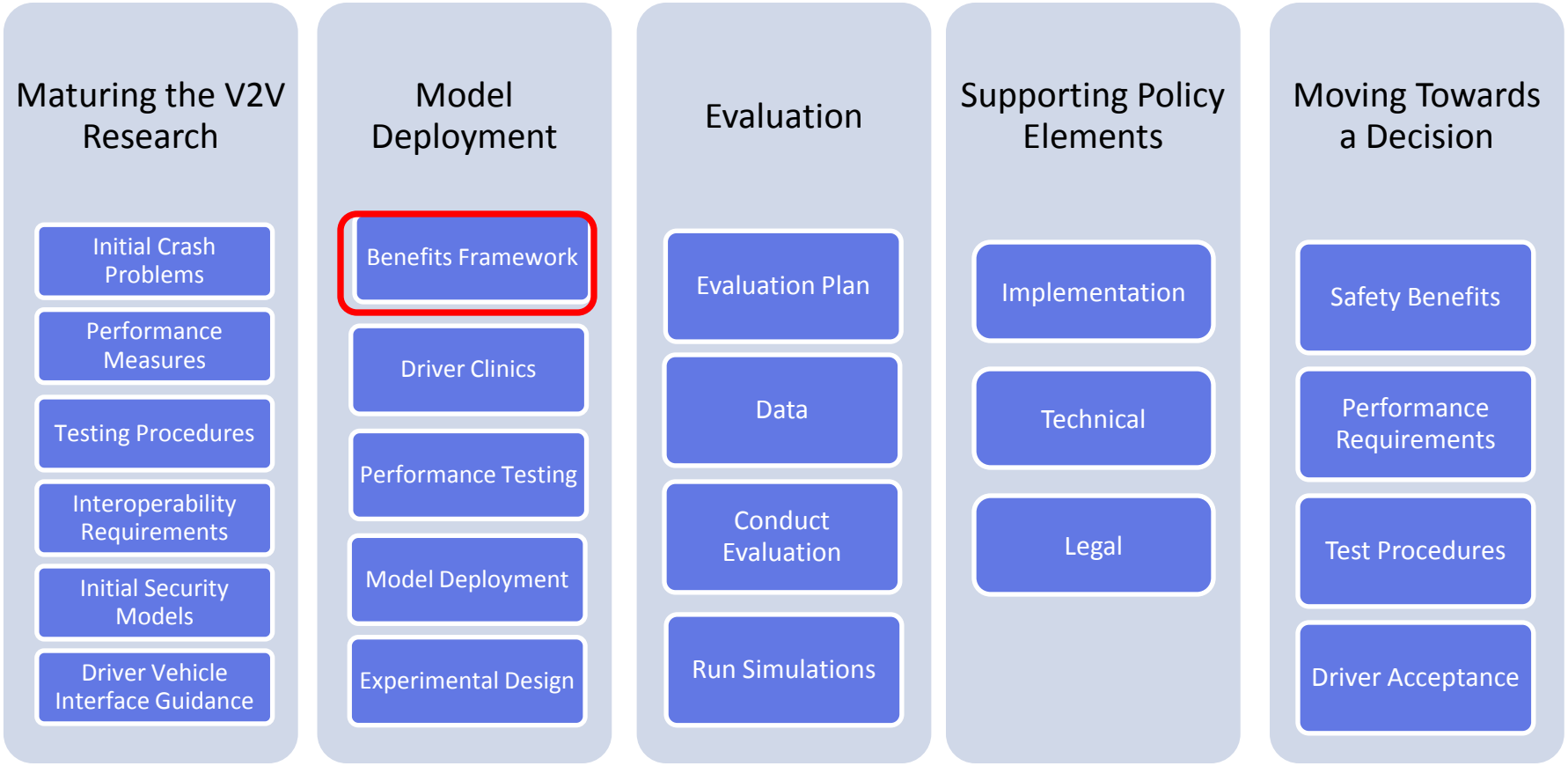
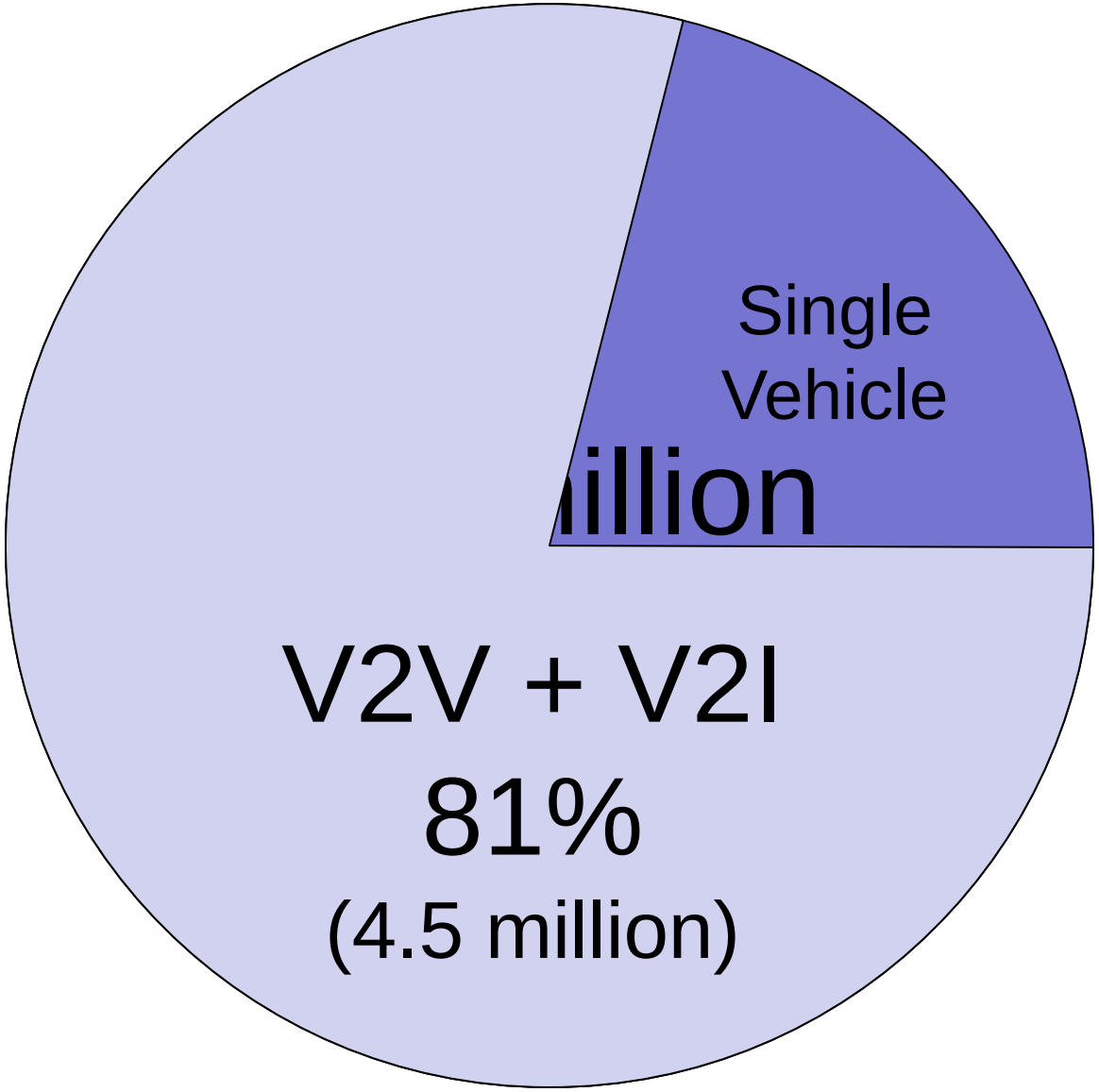
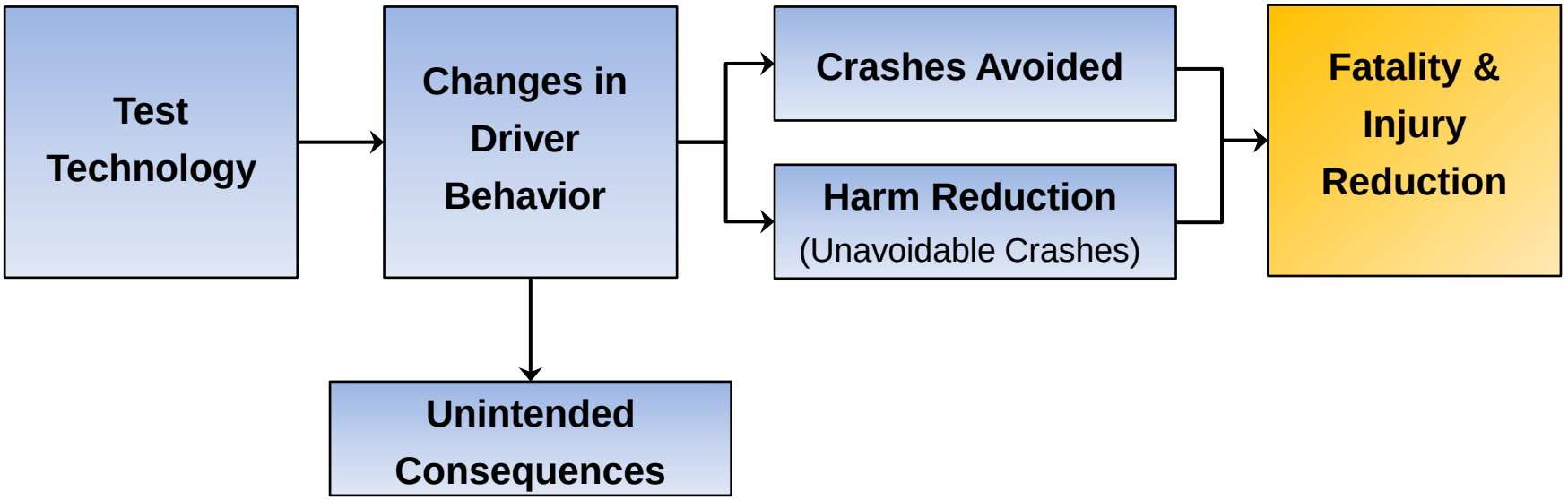
V2V Safety Framework





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

Safety Benefit Estimation Framework



Basic Equations

Crashes Prevented = Crashes **without** V2V – Crashes **with** V2V

Crash Harm Reduction = Harm **without** V2V – Harm **with** V2V

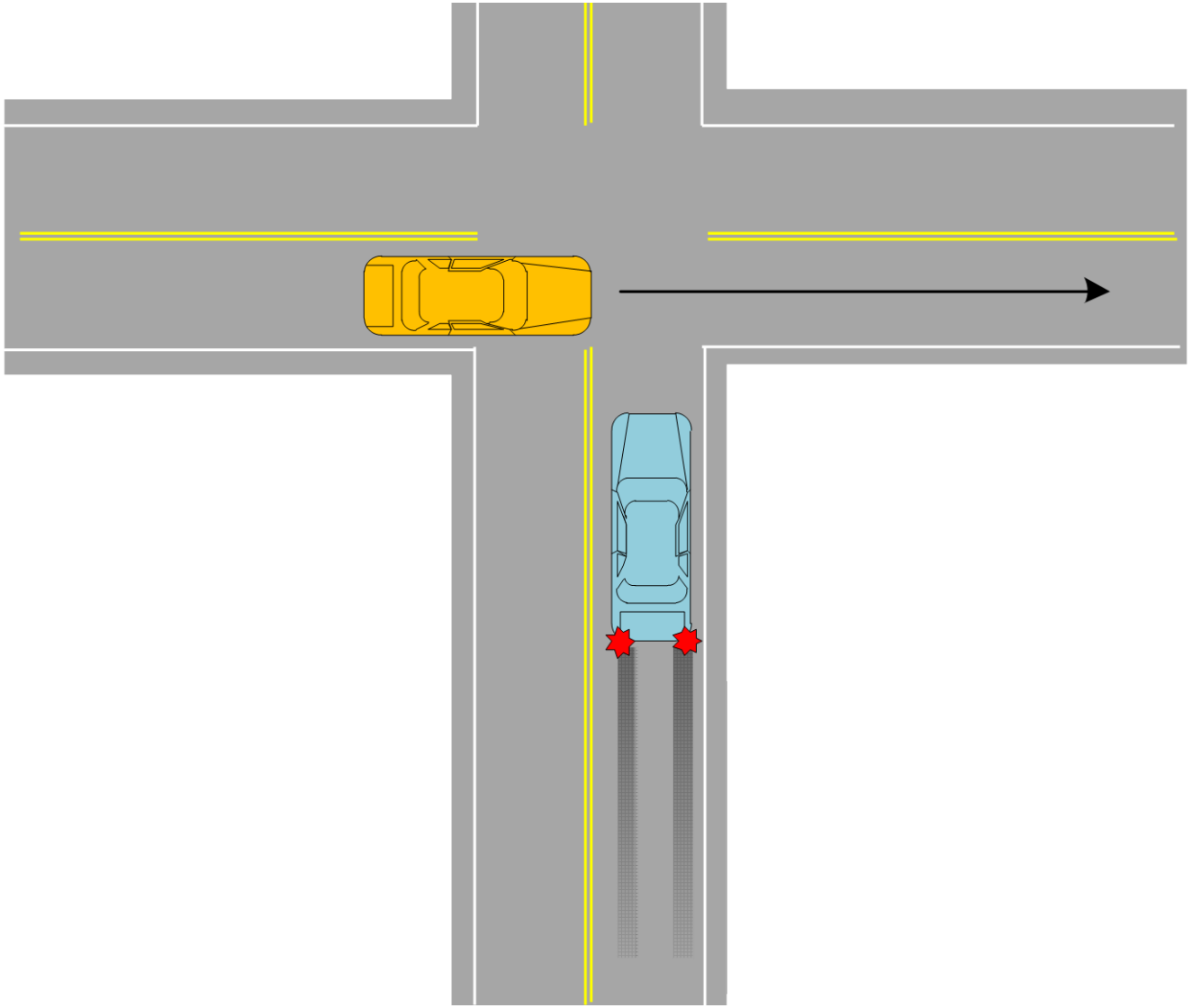
Basic Equations

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

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

National crash databases

Estimating Crashes: Conflicts



Estimating Crashes: Conflicts