

TAP IT!

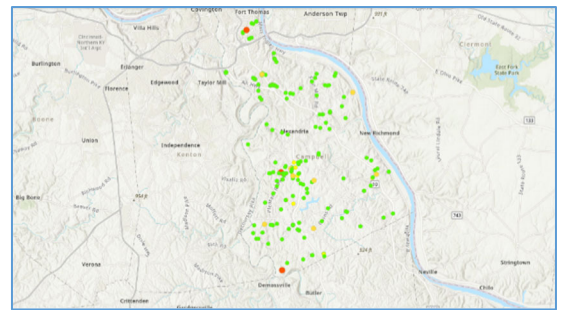
Technical Assistance Program, Information Transfer
KY Local Technical Assistance Program

Introduction to Road Safety

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Road safety is measured by three factors: crash frequency, crash rate, and crash outcome. Crash frequency measures the number of crashes occurring on a roadway in a specified amount of time. Crash rate compares the number of crashes to the population. Often, we measure crash rate in vehicle miles traveled (VMT). Lastly, the crash outcome considers the severity of injuries from crashes. We want our roadways to be as safe as possible. Analyzing this data allows us to make smart decisions to protect drivers and passengers as they travel our roads.

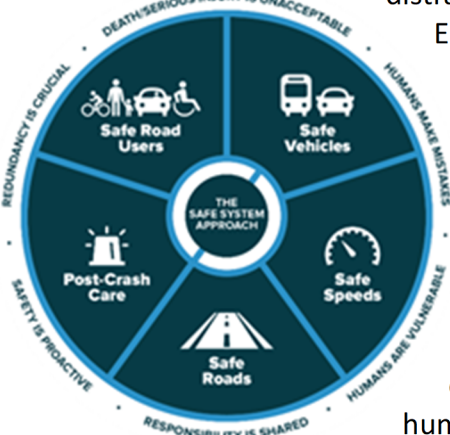
In statistics from Road Safety Fundamentals, we see that Americans are involved in 6,756,000 police-reported crashes per year.¹ The fatality rate is 1.11 per 100 million VMT. These crashes cause an average of 36,096 fatalities, 2,740,000 injuries, and 4,806,253 incidents of property damage. Additionally, the community is impacted financially by crashes. In an average year, our nation spends \$242 billion in crash-related costs. Each fatality incurs a \$1.4 million lifetime cost to society.



The rural crash rate is double the rate on urban roads. Crash data helps us to prioritize rural roadways that need maintenance or repair. Data is pulled from reliable sources, including the National Highway Traffic Safety Administration (NHTSA) and Fatality Analysis Reporting System (FARS).

Though crashes are often referred to as “accidents,” many are preventable. Over 90% of crashes are attributed to driver factors or human error. Other factors, like roadway and roadside factors and vehicle factors, also play a part. Driver factors include demographics and behaviors (aggressive driving, driving while impaired, or distracted driving). Vehicle factors consider survivability and component failure.

Environmental factors and roadway conditions affect crash rates, too. By drawing attention to the root cause, we can improve roadways to significantly reduce crashes.



The Federal Highway Administration (FHWA) Safe System Approach² addresses these overlapping factors. With a goal of zero roadway deaths, this model focuses on safe vehicles, safe speeds, safe roads, post-crash care, and safe road users to reduce or eliminate fatalities. The approach accommodates for human mistakes and highlights that redundancy is crucial. Employing redundancy allows us to cover any gaps caused by human, roadway, and vehicle factors.

Local roadways are more inclined to face single vehicle rollovers, rural roadway departures, and head-on crashes. Local roads and road owners face many unique challenges, like lack of communication, longer travel distances, limited data, infrastructure challenges, and increased EMS response time. Local cities and counties may also face shortages of funding, engineering staff, and awareness of low-cost solutions to improve roadways. These figurative roadblocks often inhibit lasting change on our rural roadways.

Federal Safety Programs assist local and state agencies with roadway design and planning. These utilize the Safe System Approach in all planning, implementation, and evaluation stages.

- Strategic Highway Safety Plan (SHSP): Provides a comprehensive framework for reducing highway fatalities on all public roads. Advises on a statewide level.
- Railroad-Highway Crossings Program (RHCP): Provides funding for the elimination of hazards at railway-highway crossings.
- Highway Safety Improvement Program (HSIP): Planning, implementation, evaluation, and reporting of activities, plans, and reports related to highway safety.
- High Risk Rural Roads (HRRR): Enforces funding allocations dependent on rural road fatality rates.

Statewide SHSPs exist to provide strategic direction and coordination, provide a process for implementing strategies, and effectively evaluate programs, plans, and improvements. This informs HSIPs, Highway Safety Plans, Commercial Vehicle Safety Plans, and Local Road Safety Plans (LRSP).



Local Road Safety Plans can also inform necessary changes for safer roadways. LRSPs follow a six-step process to define, implement, and evaluate countermeasures and safety enhancements needed on local roadways. SHSPs and LRSPs utilize data-driven safety analysis. While crash-based analysis can provide benefits, a systemic approach renders more usable data and aids in the planning process.

Reactive Approach: Hot Spot/Crash-Based Analysis

- 👍 Addresses locations with high crash history
- 👍 May be normalized by traffic volumes
- 👎 Does not reduce potential risks at sites that have not experienced crashes

Systemic Approach

- 👍 Prevents crashes before they occur
- 👍 Optimizes safety benefit
- 👍 Leverages in-house resources
- 👍 Improves future planning

There is no need to reinvent the wheel. With a multitude of resources at the federal, state, and local levels, road safety improvements are within reach. By enhancing traffic safety culture, we can shift the focus from road maintenance to implementing countermeasures, proactively preventing crashes before they occur.

Sources:

1. Concepts, Strategies, and Practices that Reduce Fatalities and Injuries on the Road, Road Safety Fundamentals. 2017. <https://rspcb.safety.fhwa.dot.gov/RSF/default.aspx>
2. The Safe System Approach, Federal Highway Administration. 2020. https://safety.fhwa.dot.gov/zerodeaths/docs/safety_systems_pres_rv012621.pptx