



National Transportation Safety Board

Safety Issues: Speed Limits and Data-Driven Speed Enforcement

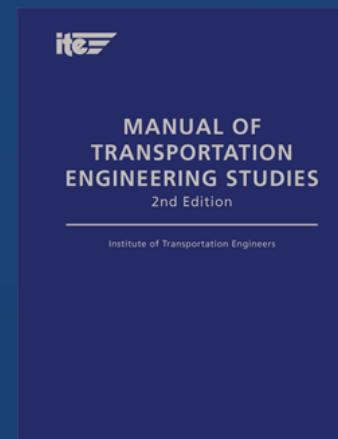
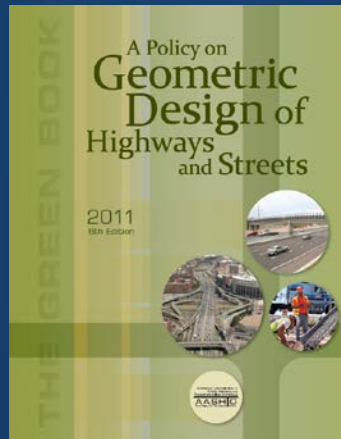
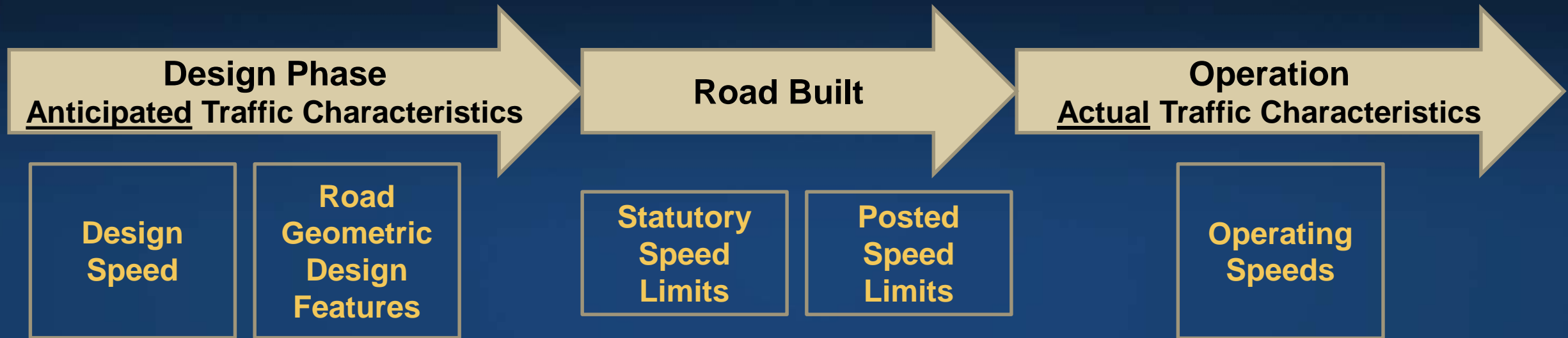
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Transportation Research Analyst

Authority to Set Speed Limits

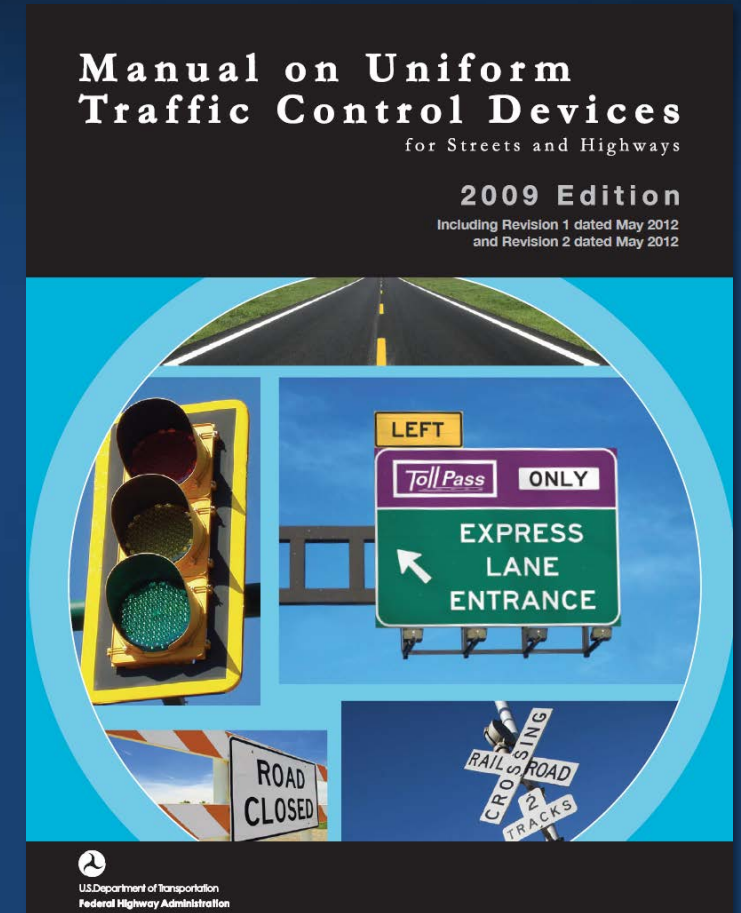
- State and local governments establish speed limits
- Statutory speed limits
 - Vary by road type or location
 - Apply throughout a jurisdiction
- Posted speed limits
 - State and local governments can establish speed zones where statutory limits are not suited to specific road or traffic conditions

Design Speed, Speed Limit, and Operating Speed



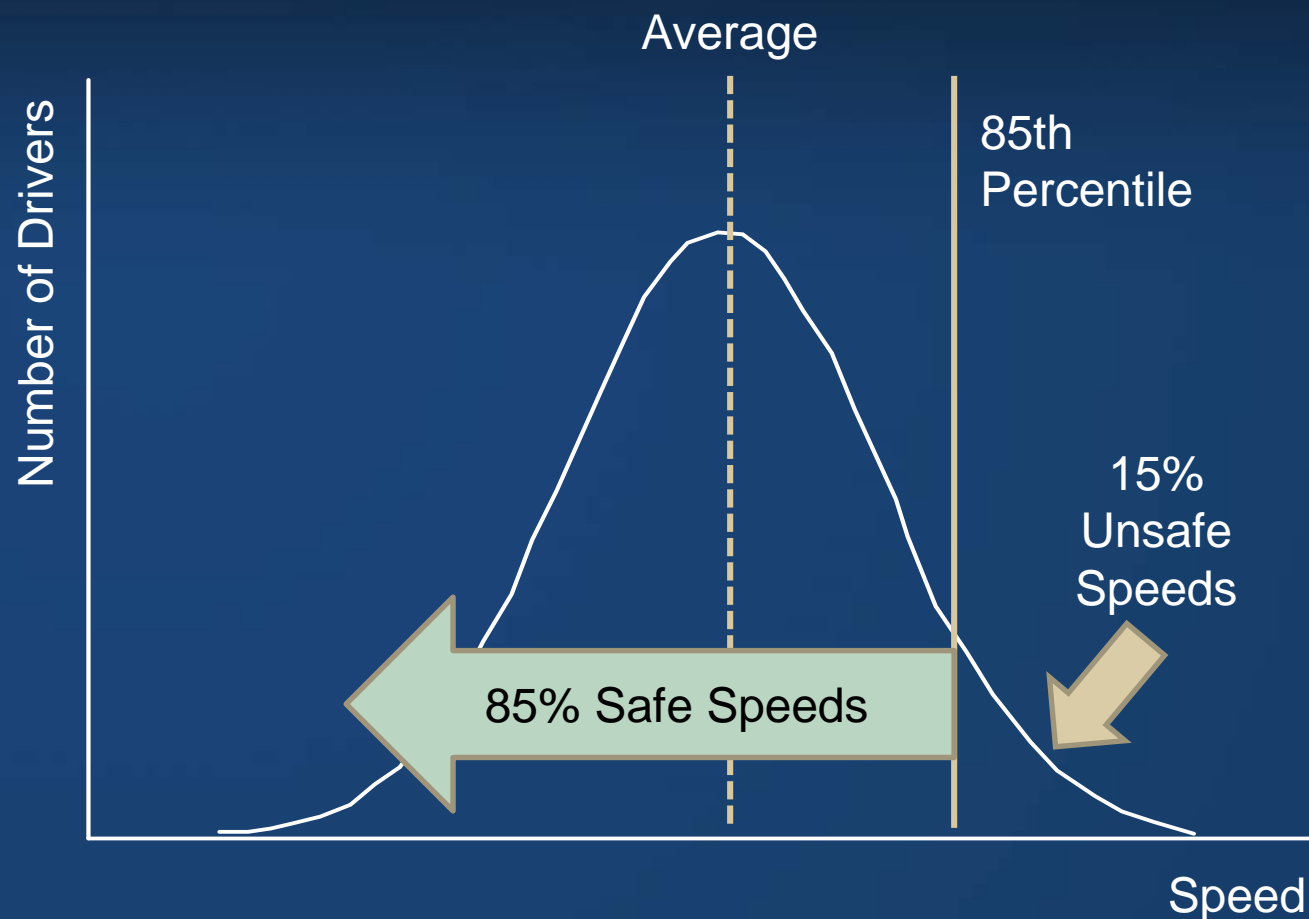
Guidance on Setting Speed Limits in Speed Zones

- Standard
 - Based on engineering study in accordance with traffic engineering practices
 - Shall include an analysis of the current speed distribution of free-flowing traffic
- Guidance
 - When a speed limit within a speed zone is posted, it should be within 5 mph of the 85th-percentile speed of free-flowing traffic
- Options
 - Other factors, such as pedestrian activity and reported crash experience



85th Percentile Speed and Assumptions

- Speed at or below which 85% of vehicles are traveling
- Represents operating speeds of free flowing traffic
- Assumptions
 - Majority of drivers are reasonable and prudent
 - Small number of drivers are responsible for crashes



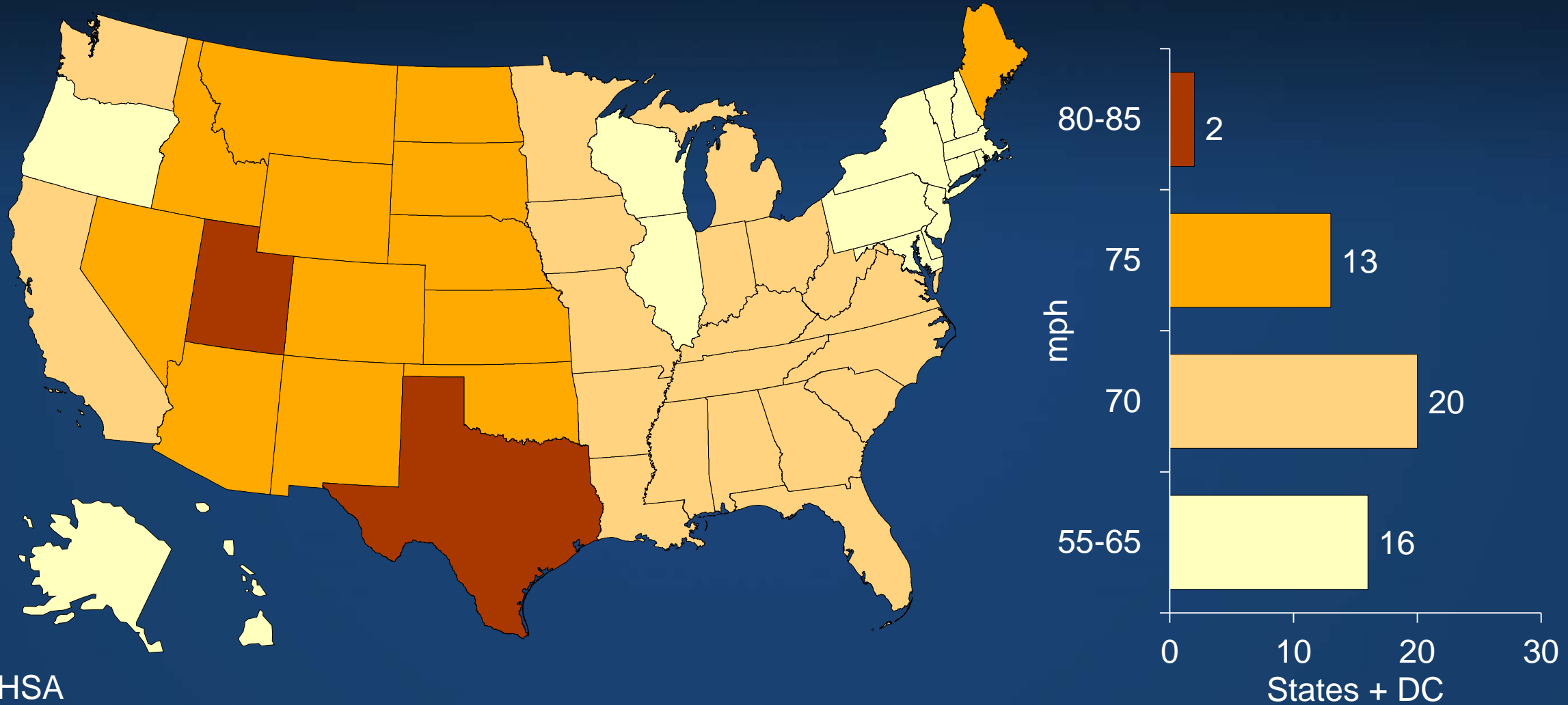
Research on 85th Percentile Speed

- Research was conducted in the late 1950s
 - Based only on rural roads
 - May not apply to all road types
- Basic assumption that drivers are reasonable and prudent has been challenged

Unintended Consequences of 85th Percentile

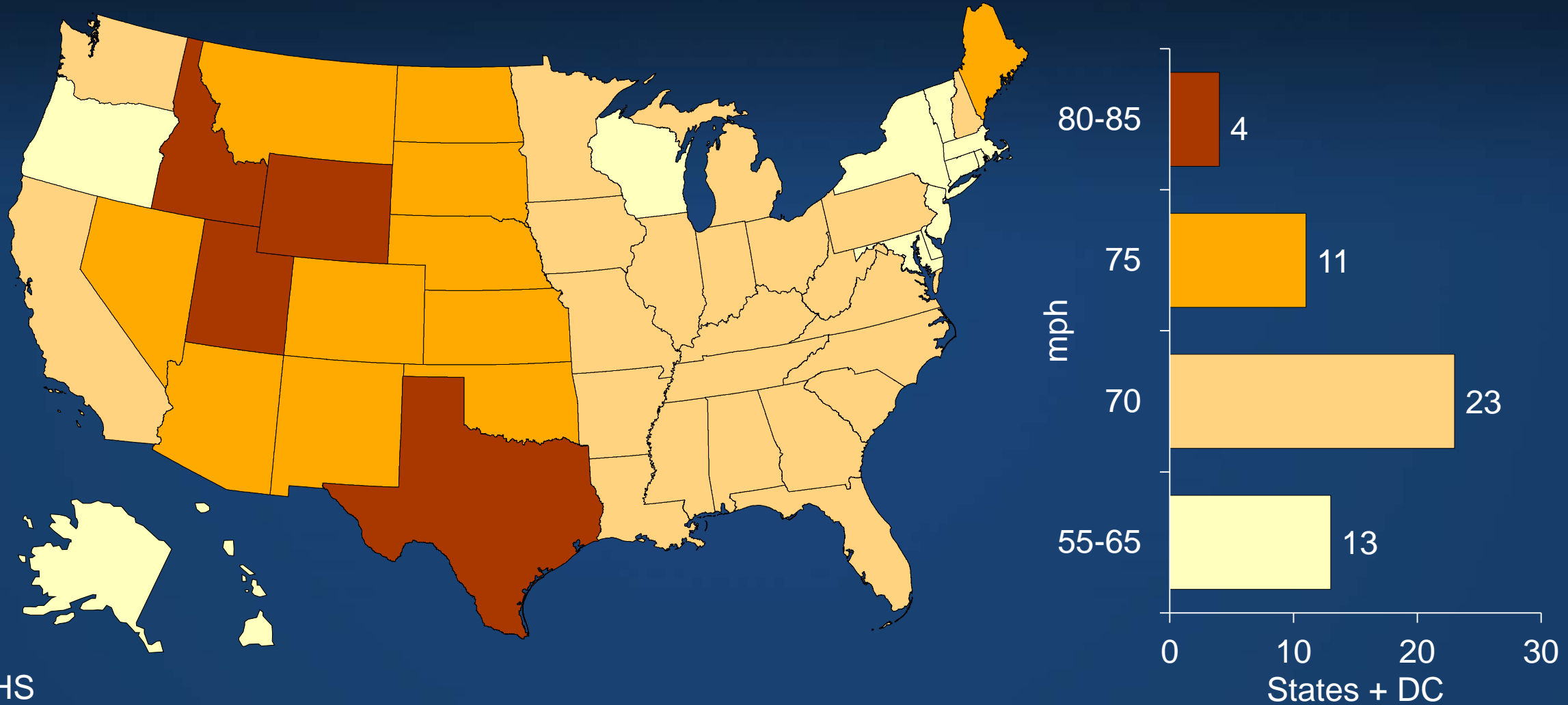
- Feedback loop leads to overall pressure to further increase speed limits
- Spillover effects lead to higher speeds in areas outside of speed zones with increased speed limits

Maximum Speed Limits by State, 2012



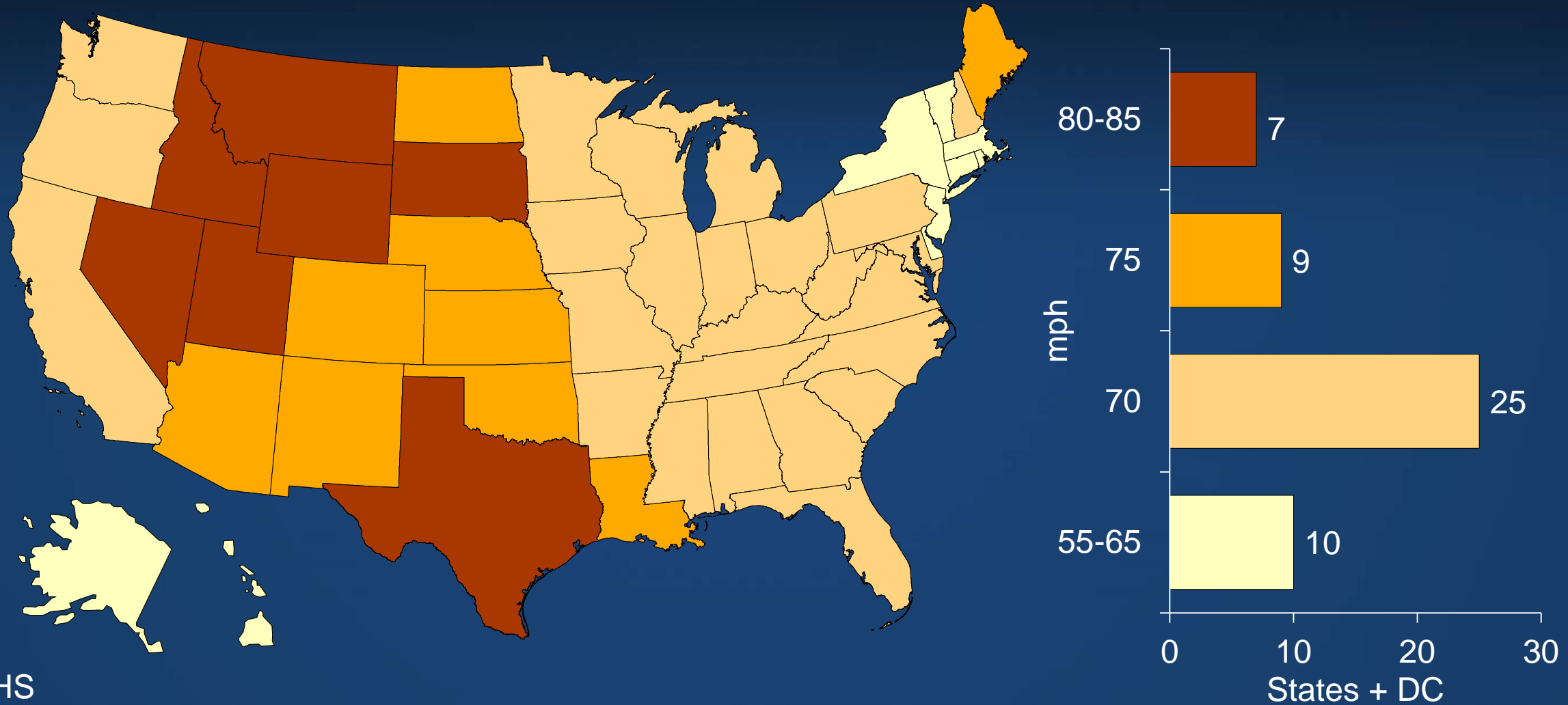
Source: GHSA

Maximum Speed Limits by State, 2014



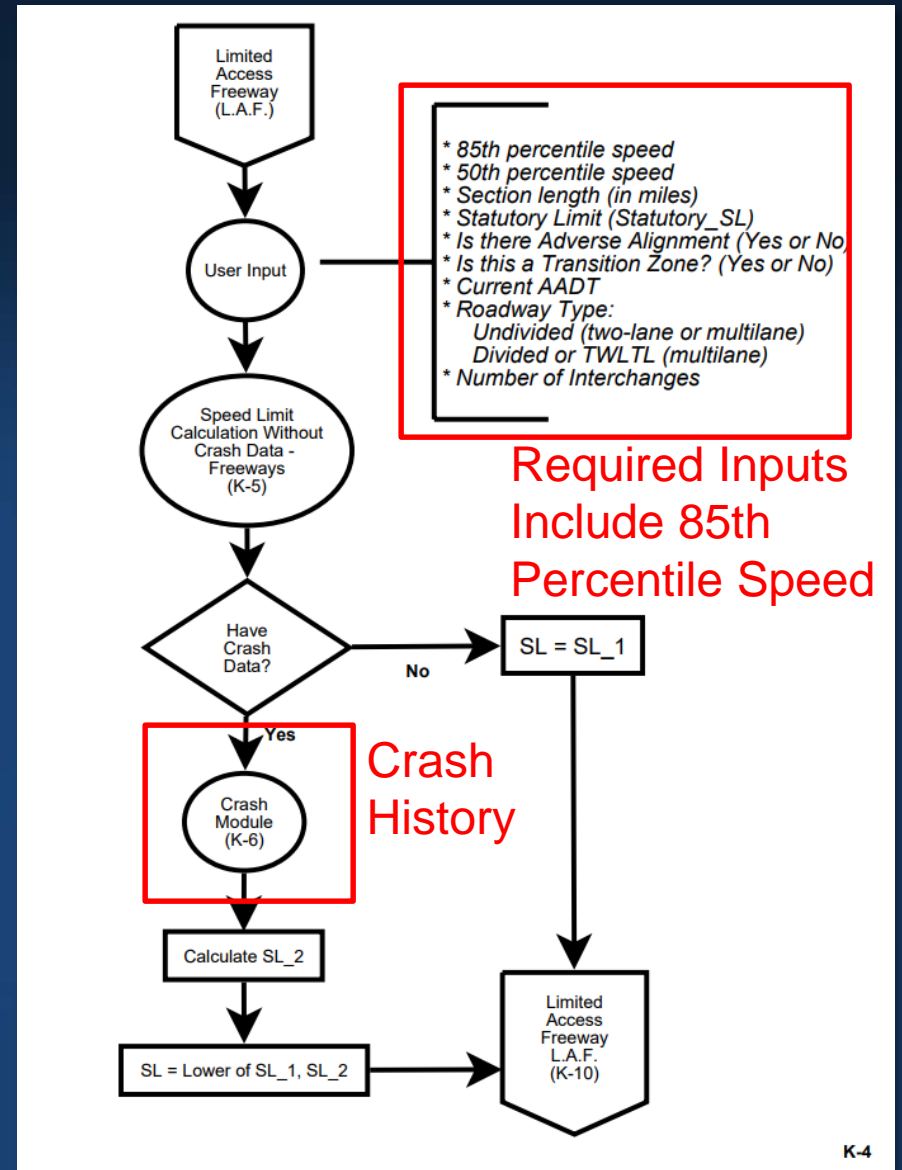
Source: IIHS

Maximum Speed Limits by State, 2016



Expert System for Setting Speed Limits

- Addresses inconsistency
- Knowledge-based computer system
 - Simulates decision-making process
 - Based on a set of rules and required input factors
- Example: USLIMITS2



Source: FHWA

Safe System Approach to Traffic Safety

- Urban roads and pedestrian safety
- Strengthens all elements, challenges the traditional view that drivers choose reasonable and safe speeds
- Acknowledges humans make mistakes and are physically vulnerable
- Emphasizes target speed

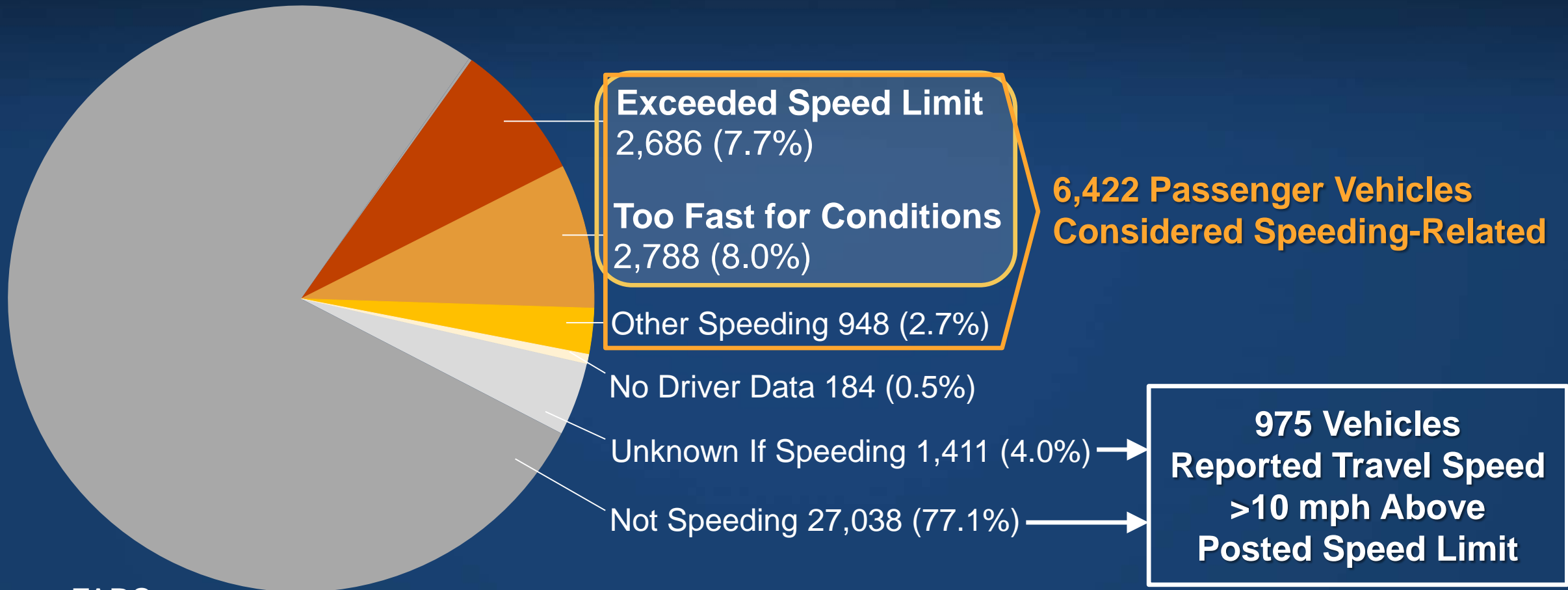
Summary on Speed Limits

- Speed limits are a critical component of speed management
- Balance considerations of operating speed and other factors such as crash experience
- Improve consistency in the practice of setting speed limits
- Incorporate elements of safe system approach

Data-Driven Speed Enforcement

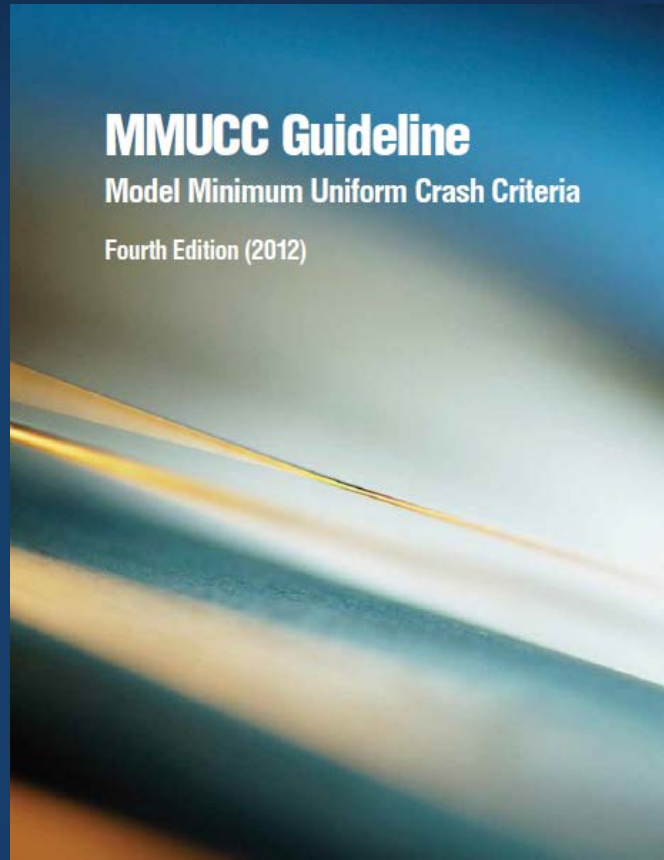
- Local high-visibility enforcement (HVE) is conducted as part of daily patrol by law enforcement agencies
 - Example: Data-Driven Approaches to Crime and Traffic Safety (DDACTS)
- Data is an integral component
 - Identify high crash risk locations
 - Assess effectiveness of HVE
 - Communicate within agencies and with the public

Passenger Vehicles in Fatal Crashes by Speeding-Related Category, 2014



Source: FARS

Limitations of Speeding-Related Crash Data



- “Speeding Related” is a required data element in MMUCC
- Required Attributes
 - Racing
 - Exceeded Speed Limit
 - Too Fast for Conditions
 - No (*Not Speeding*)
 - Unknown (*Unknown if Speeding*)

Summary on Data-Driven Speed Enforcement

- Data are an integral component of using HVE to reduce speeding-related crashes
- Inconsistent reporting of speeding-related crashes hinder effective use of data-driven speed enforcement approaches and lead to underreporting

