



CAREC Road Safety and Sustainable Mobility Course

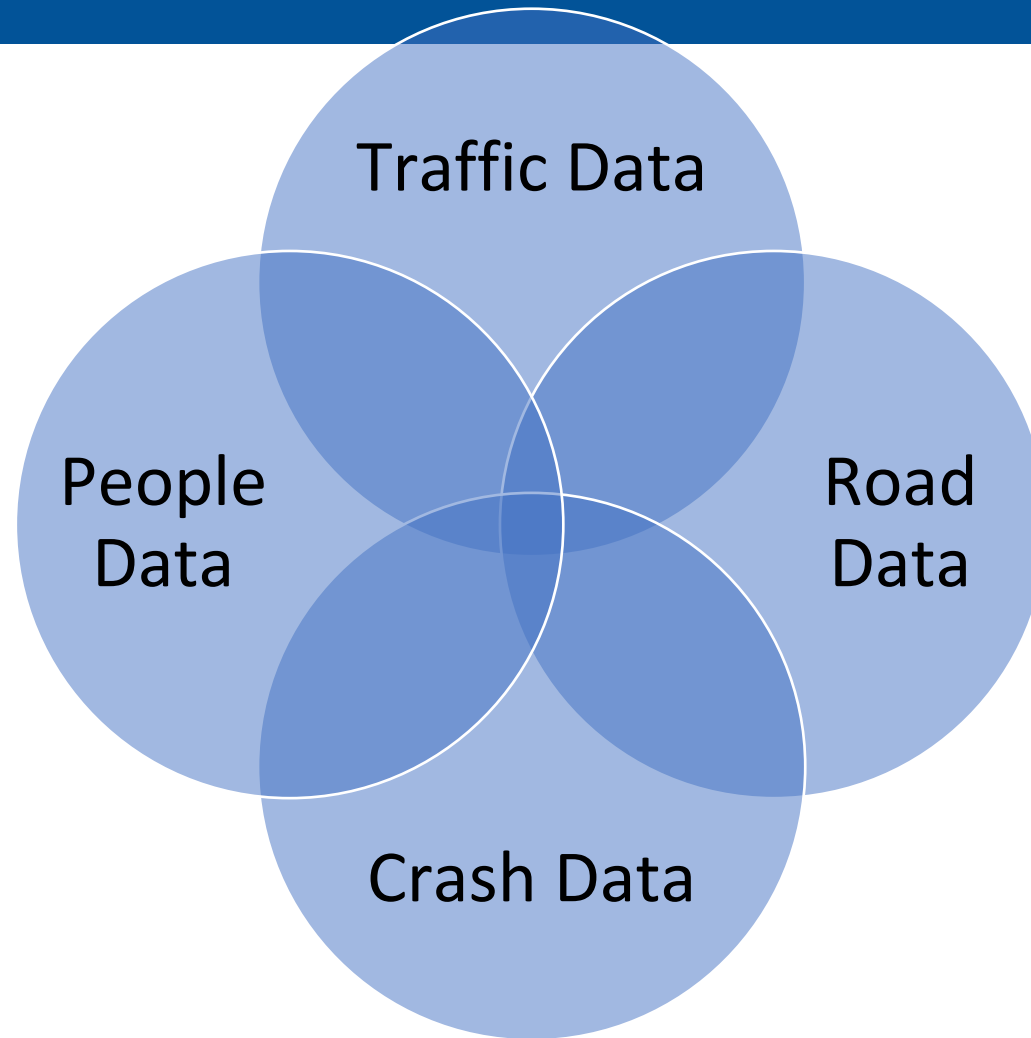
February 2024

Data systems to inform road safety management and implementation

PART 1: OTHER NON-CRASH DATA

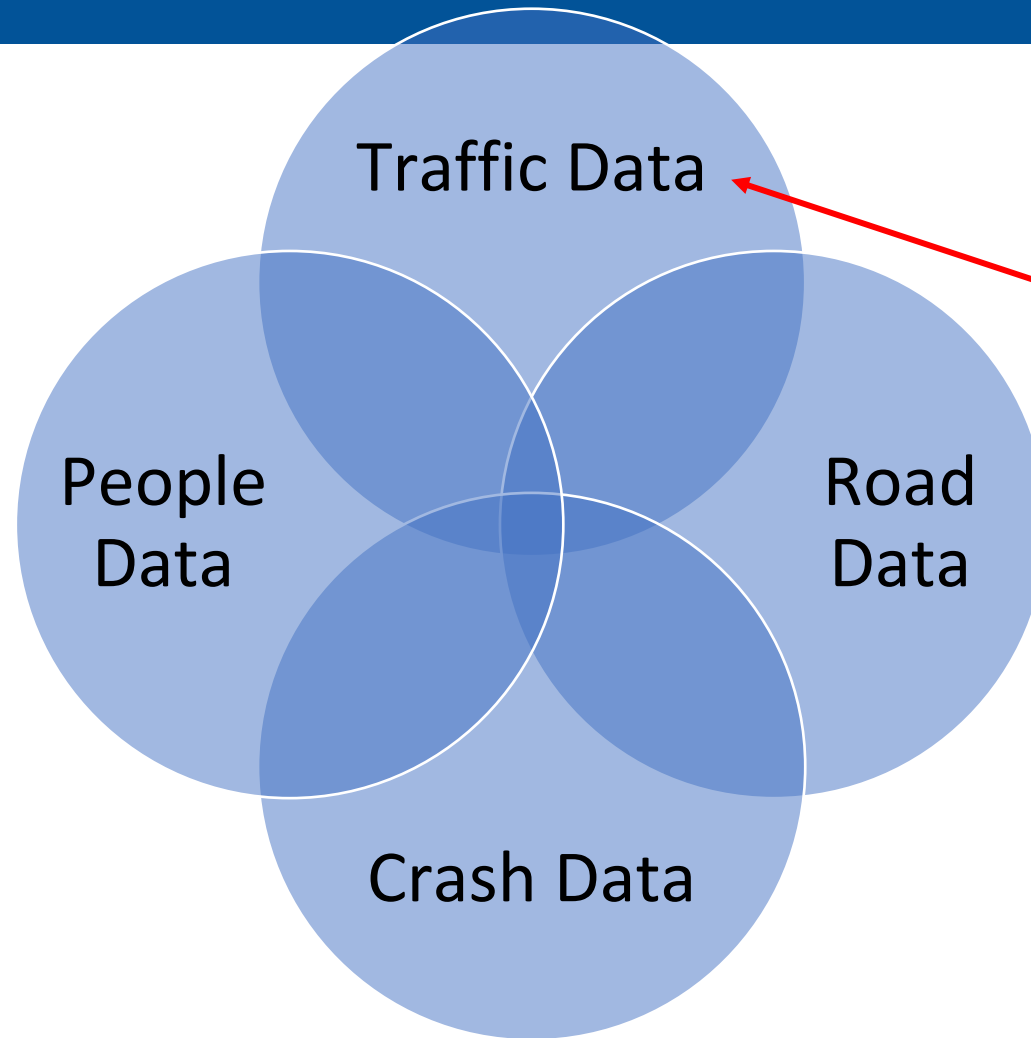
Dave Shelton, ADB

Road safety data



Source: Modified from US FHWA 2017

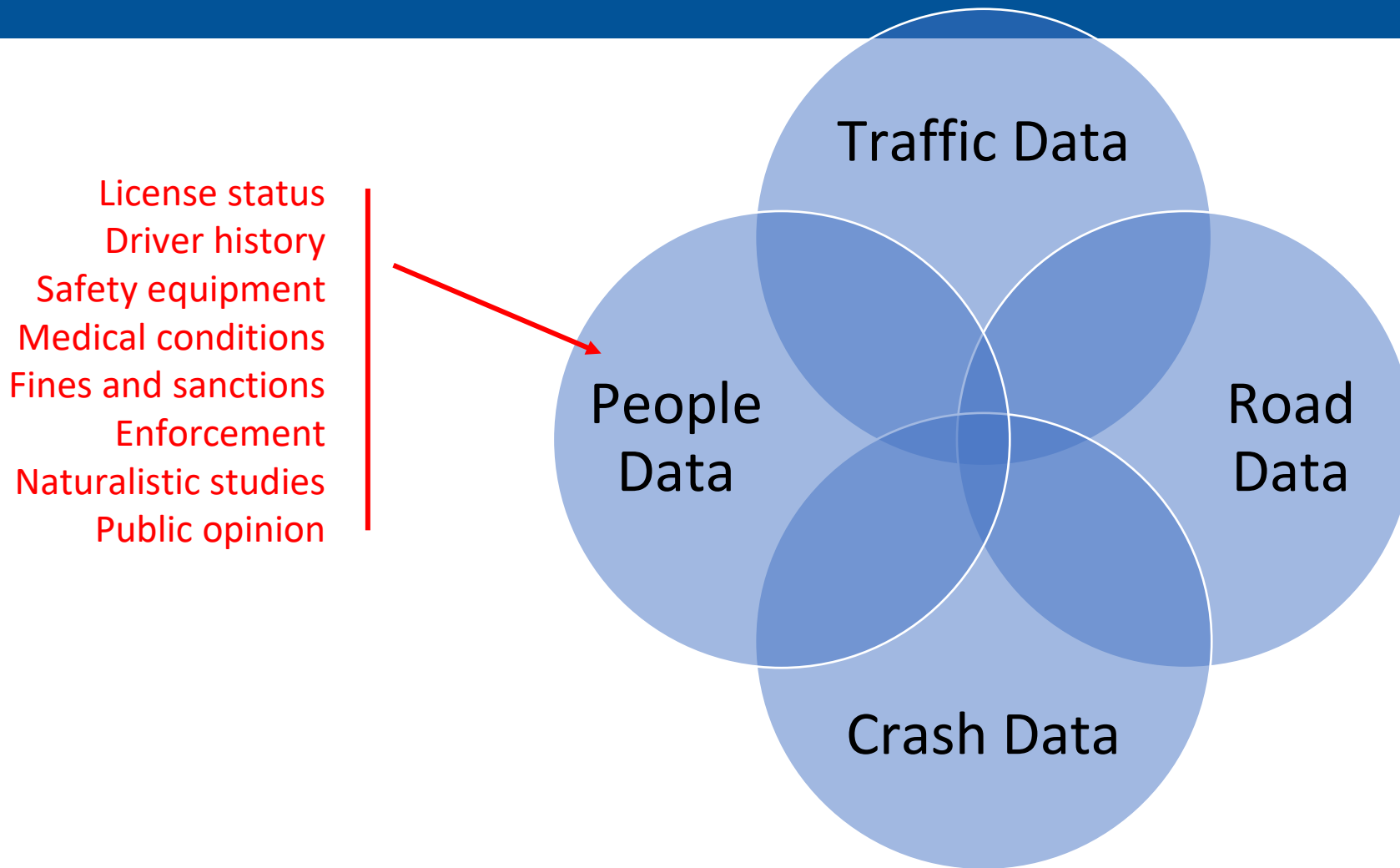
Road safety data



- Traffic volume and flow
- Traffic mix
- Vehicle kilometers travelled
- Vehicle registrations
- Vehicle age and roadworthiness
- Fleet safety features
- Crash tests

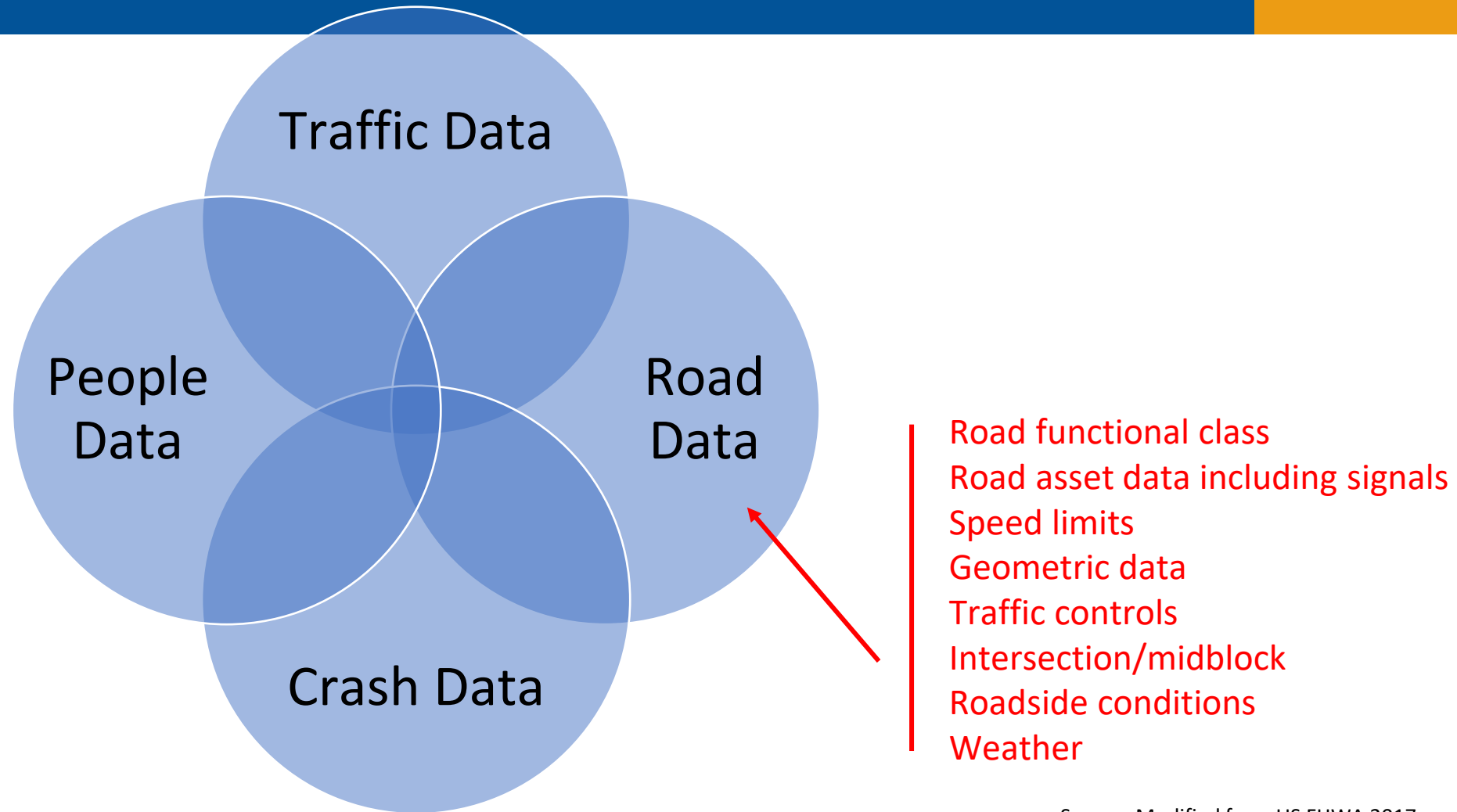
Source: Modified from US FHWA 2017

Road safety data



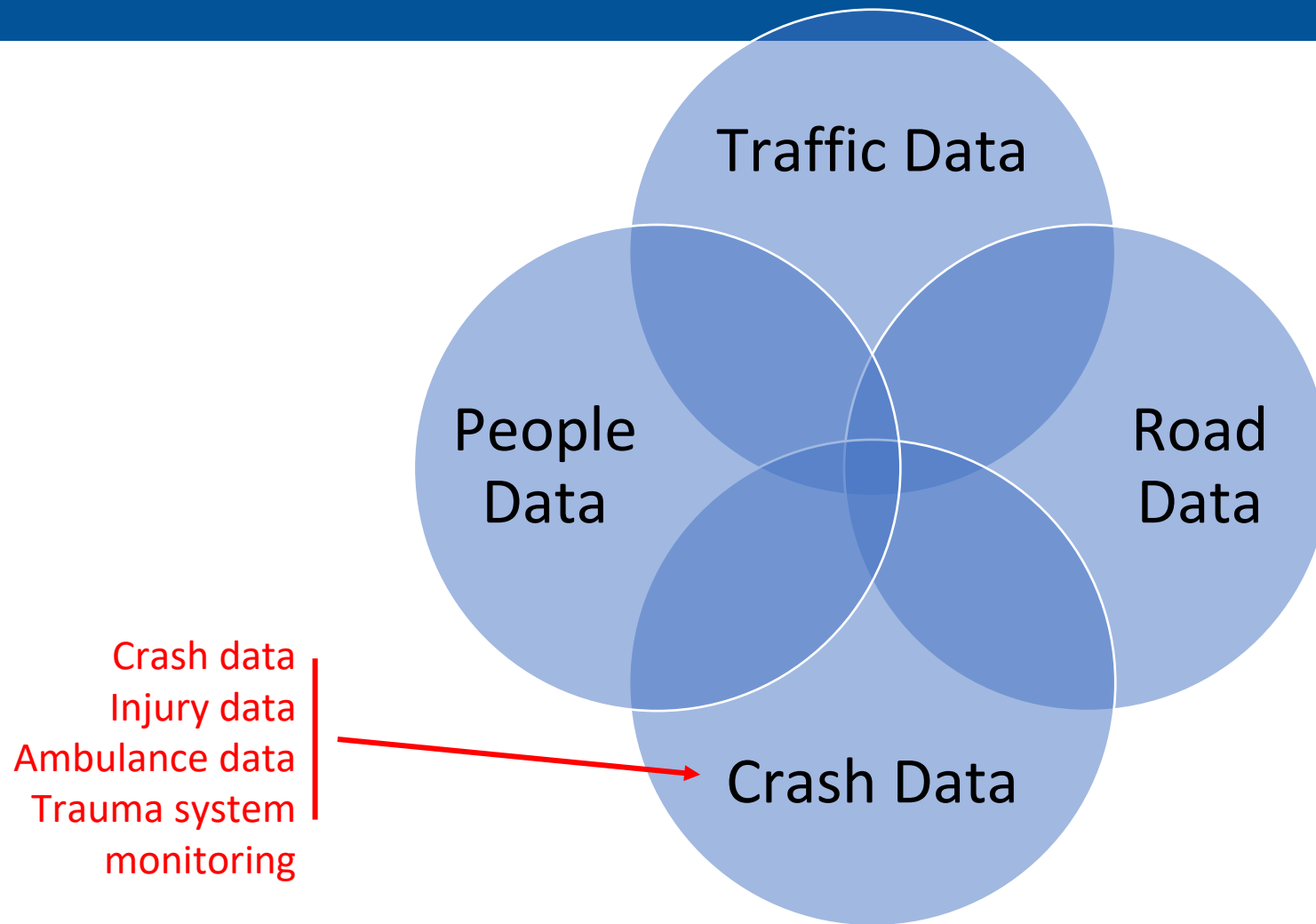
Source: Modified from US FHWA 2017

Road safety data



Source: Modified from US FHWA 2017

Road safety data



Source: Modified from US FHWA 2017

Data and analysis quality

	HIGH QUALITY ANALYSIS	LOW QUALITY ANALYSIS
HIGH QUALITY DATA	<p>BEST CASE</p> <p>The agency is likely to reach the best safety decisions. Analysts are aware of data capabilities and limitations. This is the most expensive to achieve, due to the need for good data and training on how to conduct analyses.</p>	<p>MISSED OPPORTUNITY</p> <p>The agency needs to invest in high quality analysis. Otherwise, the agency has wasted money in databases that are not being utilized to their potential. Good data with poor analysis will lead to poor decisions.</p>
LOW QUALITY DATA	<p>PROMISING</p> <p>A robust analysis that recognizes the limitations of the data can still produce useful results. The agency should focus on improving data quality.</p>	<p>WORST CASE</p> <p>Poor data and poor analysis will lead to bad decisions. The agency may be better off relying on judgment.</p>

Source: US FHWA 2017

Traffic data – traffic volume

Held by road authorities

The data tells us that higher traffic volume means:

- A higher crash risk and, usually, more crashes
 - Equates to higher economic value and a stronger case to invest in safety
- ✓ Aim for your highest volume roads to be your safest roads



Source: UZ Daily

Traffic data – *traffic mix*

Held by road authorities

The data tells us that diverse traffic mix means interactions between:

- Heavy and light vehicles
 - Vehicles and vulnerable road users
- ✓ For highly mixed traffic, lower speed limits and separate heavy vehicles from pedestrians and cyclists



Vehicle data

Held by vehicle registration authority

The data tells us that vehicle age reflects:

- Roadworthiness
 - Presence of vehicle safety features
 - Kilometers of travel
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- ✓ Conduct roadworthy inspections for older, heavier and high risk vehicles
 - ✓ Continually regulate to mandate new safety features

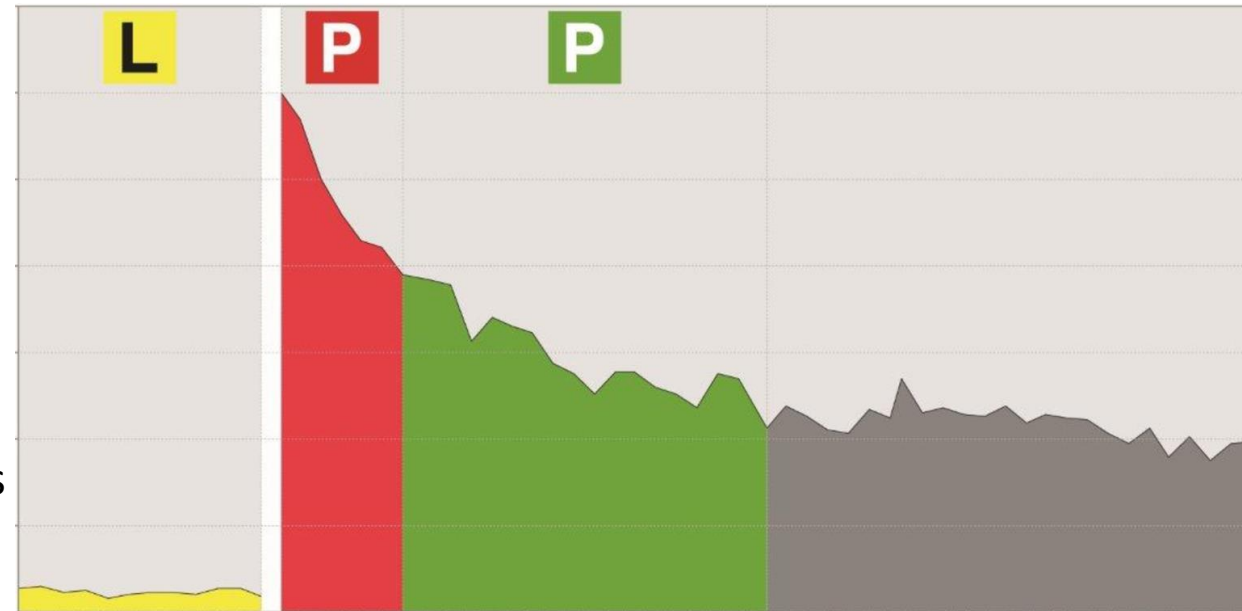


People data - licensing

Held by driver licensing authority

What the data tells us:

- Driver age increases crash risk for young and old
 - Infringement history indicates casualty crash risk
 - High repeat offenders are unaffected by fines and demerit points
-
- ✓ Implement graduated driver licensing
 - ✓ Incentivize elderly to manage medical condition risks
 - ✓ Suspend licenses of repeat offenders
 - ✓ Do not expect education to change behavior



Road data - *asset*

Held by road authorities

What the data tells us:

- Infrastructure safety standards directly influence crash likelihood and casualty outcomes
 - Implementing a strong road hierarchy helps greatly in managing crash risk especially for vulnerable road users
 - Low cost network wide treatments have high benefit costs ratios
 - Road maintenance is the first level of safety for infrastructure managers
-
- ✓ Assess and monitor road safety standards
 - ✓ Create a clear step change in standard and speed with each road hierarchy
 - ✓ Align road maintenance intervention levels and activities with safety performance targets



Road data - *speed*

Held by road authorities and enforcement agencies

What the data tells us:

- Speed is a factor in all crashes
 - There are clear impact speed thresholds for safe road use
 - Speed management is a highly contentious area and requires strong consultation
 - 30km/h is the internationally agreed speed limit for urban streets
-
- ✓ Set speeds limits to match infrastructure safety levels
 - ✓ Implement general and specific deterrence in speed enforcement
 - ✓ Temporarily lower speeds as the first response to new risks
 - ✓ Force speed reduction in high pedestrian areas
 - ✓ Maintain high levels of community consultation and communication



Economic data – *Value of life and injury*

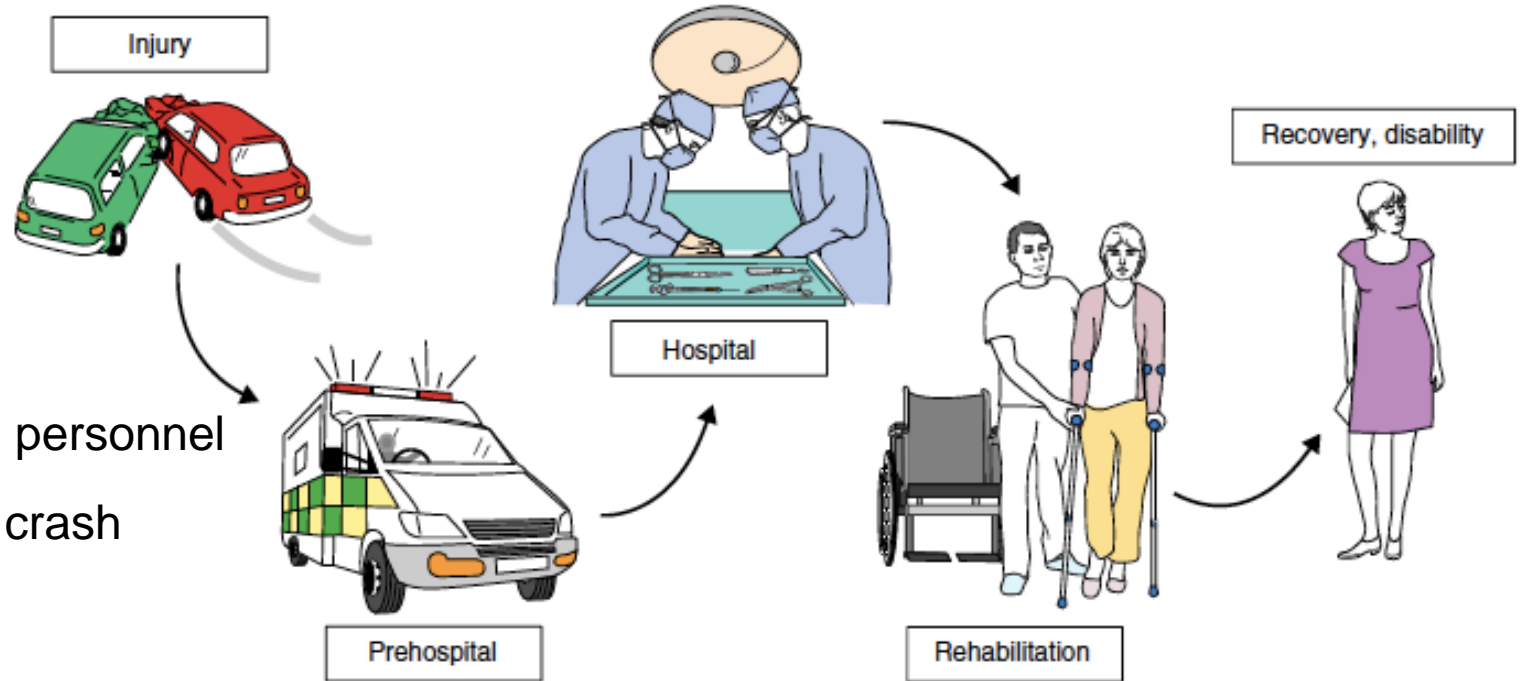
Income Group	VSL (USD)	Country examples
Low income	41,756	Afghanistan
Lower middle income	324,325	Kyrgyz Republic, Mongolia, Tajikistan, Uzbekistan
Upper middle income	1,223,582	Azerbaijan, Georgia, Kazakhstan, Turkmenistan

Source: World Bank

Trauma system data

Effective post-crash care requires:

- ✓ Time-efficient emergency notification
- ✓ Prompt transport by qualified medical personnel
- ✓ Correct diagnosis at the scene of the crash
- ✓ Stabilization of the injured
- ✓ Prompt transport to point of treatment
- ✓ Good quality emergency room and trauma care
- ✓ Rehabilitation service-provision



Sources: WHO 2016, Greun RL et al, 2011

SPI data

Safety Performance Indicators (SPI) show progress towards a safe road transport system.

There are 12 voluntary SPIs provided in the Global Plan for the Decade of Action for Road Safety 2021-2030.

The Global Plan SPIs cover all aspects of the Safe System.



Target 1: By 2020, all countries establish a comprehensive multisectoral national road safety action plan with time-bound targets.



Target 2: By 2030, all countries accede to one or more of the core road safety-related UN legal instruments.



Target 3: By 2030, all new roads achieve technical standards for all road users that take into account road safety, or meet a three star rating or better.



Target 4: By 2030, more than 75% of travel on existing roads is on roads that meet technical standards for all road users that take into account road safety.



Target 5: By 2030, 100% of new (defined as produced, sold or imported) and used vehicles meet high quality safety standards, such as the recommended priority UN Regulations, Global Technical Regulations, or equivalent recognized national performance requirements.



Target 6: By 2030, halve the proportion of vehicles travelling over the posted speed limit and achieve a reduction in speed-related injuries and fatalities.



Target 7: By 2030, increase the proportion of motorcycle riders correctly using standard helmets to close to 100%.



Target 8: By 2030, increase the proportion of motor vehicle occupants using safety belts or standard child restraint systems to close to 100%.



Target 9: By 2030, halve the number of road traffic injuries and fatalities related to drivers using alcohol, and/or achieve a reduction in those related to other psychoactive substances.



Target 10: By 2030, all countries have national laws to restrict or prohibit the use of mobile phones while driving.



Target 11: By 2030, all countries to enact regulation for driving time and rest periods for professional drivers, and/or accede to international/regional regulation in this area.



Target 12: By 2030, all countries establish and achieve national targets in order to minimize the time interval between road traffic crash and the provision of first professional emergency care.

Thank You!

