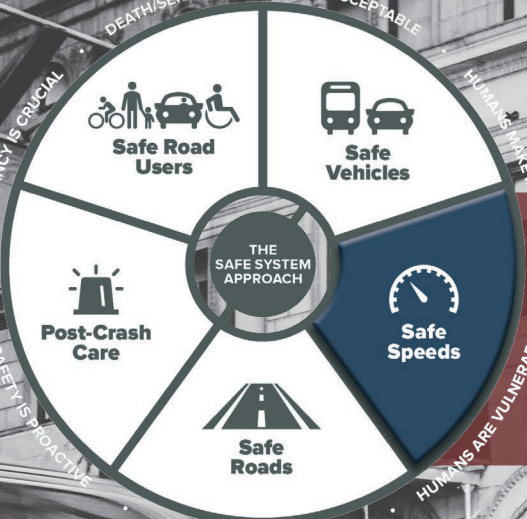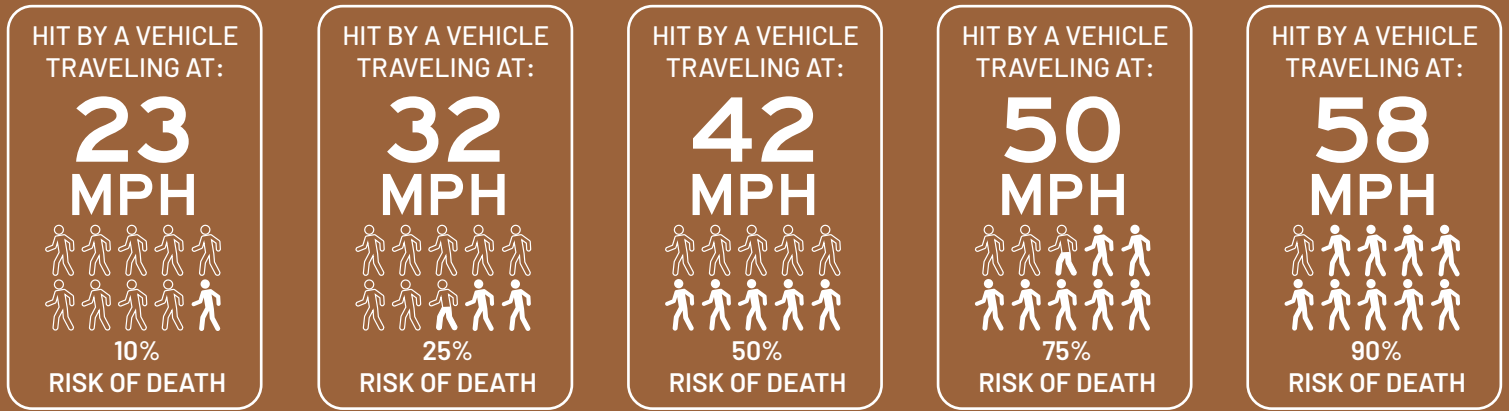# Safe System Approach for Speed Management

Drive Change: Insights into Roadway Speed Management

The most significant safety factor on our roadways today is speeding, contributing to a staggering 29% of all fatalities in 2021. Speeding is a risky behavior that has resulted in killing nearly 100,000 people over the past decade. Fatalities among all users have been increasing, and fatalities among pedestrians and bicyclists have been increasing even faster. Our National Roadway Safety Strategy calls for transportation practitioners to shift focus to prioritize safe speeds and make them a fundamental component of traffic safety programs.

Speed management efforts are undergoing a transformative shift, with focus on identifying and reducing harmful speeds rather than simply trying to control speeding behavior. The focus is on adopting innovative technologies and evidence-based strategies to improve the safety and crash survivability of all road users, both inside and outside of vehicles.

How Speed Impacts VRU Safety

HIT BY A VEHICLE TRAVELING AT:	HIT BY A VEHICLE TRAVELING AT:	HIT BY A VEHICLE TRAVELING AT:	HIT BY A VEHICLE TRAVELING AT:	HIT BY A VEHICLE TRAVELING AT:
23 MPH	**32 MPH**	**42 MPH**	**50 MPH**	**58 MPH**
10% RISK OF DEATH	25% RISK OF DEATH	50% RISK OF DEATH	75% RISK OF DEATH	90% RISK OF DEATH

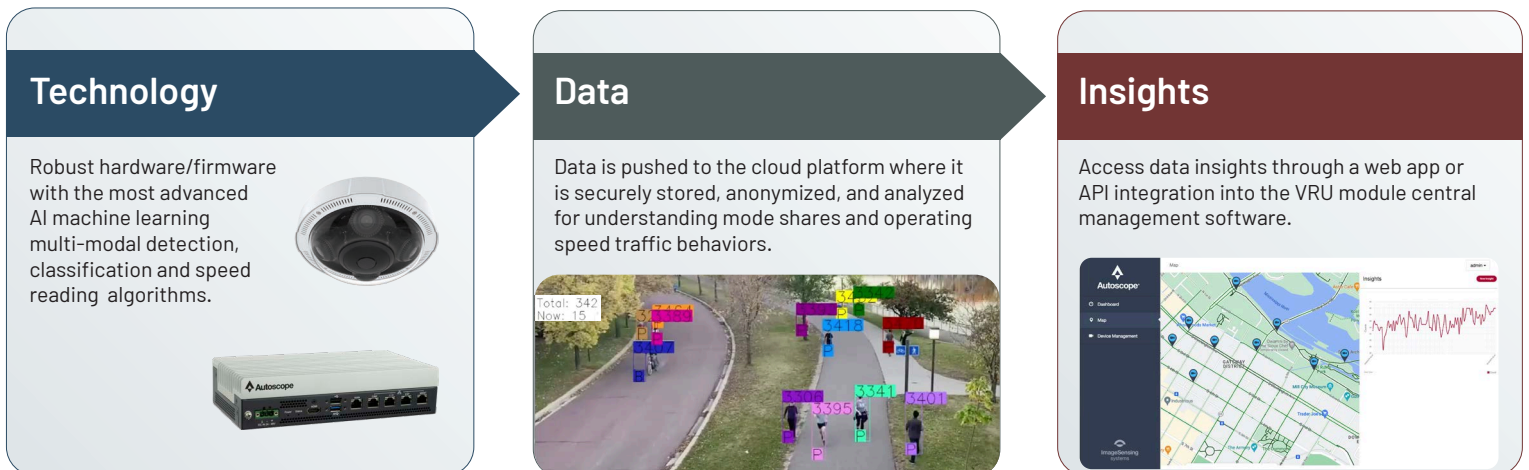# Zero In on the Vision with Autoscope Analytics All Modes

The All Modes module of Autoscope Analytics now empowers your roadway operations to fully and intuitively integrate the safety needs of all VRUs (Vulnerable Road Users) — including pedestrians, bicyclists, and motorcyclists. Vehicles which are more challenged to safely share the road with VRUs, are differentiated, counted, and speed measured.

This cloud-based analytics solution leverages industry-leading detection technologies to generate new data insights with comprehensive safety analytics. VRU data informs how people bicycle, scooter, and walk on streets, sidewalks, and crosswalks, as well as where and when fatal or severe injury crashes are most likely. This information delivers a technical basis to inform decisions on near-term operational changes and proactive selection of the most effective Proven Safety Countermearsures to implement before crashes occur.

All Modes Application Highlights

- Continuously measures volumes and speeds of VRUs and vehicles.

- Calculates VRU mode shares by location - on streets, on sidewalks, and crossing streets - to define the space and pace of road user demands, and enable a strategic view of all modes to balance, or to prioritize, the competing demands for limited road space.

- Documents potential need to adjust speed limit and pedestrian crossing minimum green times based on levels of observed VRU activity.

Autoscope Analytics All Modes System

Technology

Robust hardware/firmware with the most advanced AI machine learning multi-modal detection, classification and speed reading algorithms.

Data

Data is pushed to the cloud platform where it is securely stored, anonymized, and analyzed for understanding mode shares and operating speed traffic behaviors.

Insights

Access data insights through a web app or API integration into the VRU module central management software.

Speed Management Framework[1]

5 Ongoing monitoring, evaluation, and adjustment

1 Establish a vision and build consensus for speed management

4 Select speed managment countermeasures

2 Collect and analyze speed and safety data

3 Prioritize locations for speed managment proactively

1 Establish a Vision

Comprehensive count and speed data of all road users creates a clear understanding of the current situation and the risks associated with speed.

It provides a factual basis for establishing a vision and objectives for speed management, enabling stake-holders to grasp the extent of the problems and the potential benefits of addressing them.

ISS provides an analytical framework to consider target speeds and to demonstrate the benefits that can be achieved.

2 Collect and Analyze

Identify patterns, trends, and potential risk factors associated with speed-related incidents.

By analyzing counts and speeds, insights are gained regarding the relationship between speed, road design, and vulnerable road user exposure. This enables evidence-based decision-making and facilitates a targeted approach to speed management interventions.

ISS collects network-wide speed data for a strategic view of all modes, and presents Mean operating speeds of all traffic on the road over 7-day periods.

3 Prioritize Locations

By examining the data, areas with high traffic volumes, frequent conflicts between different road user types, or a history of speed-related incidents can be identified.

This allows for a proactive approach to prioritize locations that have a higher potential for improved road safety.

ISS provides an analytical lens for identifying risks within a roadway network, and consideration of modal trade-offs according to place and time of day.

4 Countermeasures

Count and speed data provide a basis for selecting appropriate speed management counter-measures.

Tailor countermeasures to address the specific speed-related risks identified at each location.

ISS enables consideration of VRU exposure, as called for in the FHWA's Guide for Scalable Risk Assessment Methods for Pedestrians and Bicyclists.

5 Monitor and Evaluate

Ongoing count, mode-share, and speed data assess the efficacy of implemented countermeasures by measuring changes in speeds and multimodal counts over time.

If the data reveals that the out-comes are not being achieved, ad-justments can be made to improve the effectiveness and ensure ongo-ing progress toward safer speeds.

ISS informs speed management programs incremental improve-ments, and delivers the evi-dence-based quality data to max-imize public understanding and lower mean operating speeds.

1 Safe System Approach for Speed Management, FHWA, May 2023, p. 21.

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