

INTEGRATING THE SAFE SYSTEM APPROACH IN THE HIGHWAY SAFETY IMPROVEMENT PROGRAM

ARKANSAS

CASE STUDY

The Arkansas Department of Transportation (ARDOT) organized their [2022–2027 Strategic Highway Safety Plan](#) (SHSP) into four emphasis areas in alignment with the Safe System Elements (Safe Road Users, Safe Vehicles, Post-Crash Care, and Safe Roads and Safe Speeds combined) to support their long-term goal of zero fatalities and serious injuries. SHSP implementation purposefully engages with many of ARDOT’s partners across the State, centered upon encouraging stakeholders to:

- » Update plans to align with the SHSP vision and strategies.
- » Educate employees on the Safe System Approach (SSA).
- » Promote a Safe System by implementing SHSP strategies.
- » Promote initiatives that enhance a traffic safety culture.
- » Support policies and projects that promote highway safety.

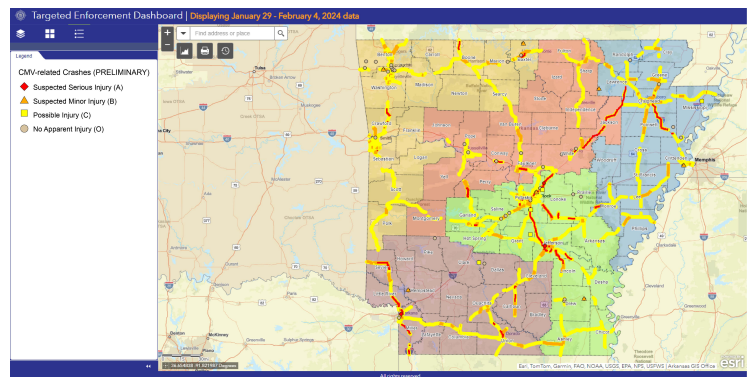


NOTEWORTHY PRACTICES

SAFETY IS PROACTIVE. In 2023, ARDOT updated the State Department’s internal strategic plan [“Full STEAM Ahead”](#) (Safety, Trust, Excellence, Accountability, Modern). The strategic plan promotes five core values starting with safety, reflecting ARDOT’s organization-wide traffic safety culture. The intentional placement of “Safety first, working together as TEAM” promotes the SSA principles Responsibility is Shared and Safety is Proactive. ARDOT’s safety culture has focused on succession planning to support an organic culture shift as junior staff safety champions are promoted into leadership positions.

DEATH/SERIOUS INJURY IS UNACCEPTABLE. ARDOT leads the Arkansas Traffic Incident Management Committee, engaging a wide range of stakeholders who meet twice a year to address Post-Crash Care and prevention of secondary crashes. It is important for an injured person to receive life-saving medical care quickly to prevent injuries from becoming deaths. At the same time, emergency responders should be protected while on-scene at a crash. As an example stemming from this collaboration, ARDOT provides a free, in-cab electronic system software to all commercial motor vehicles (CMVs) traveling on Arkansas roadways. The software shares transportation safety messages in connected CMVs, alerting drivers about upcoming congestion, crashes, detours, and other safety incidents. The software is intended to increase driver situational awareness and may prevent secondary crashes from occurring.

RESPONSIBILITY IS SHARED. ARDOT developed the Targeted Enforcement Dashboard (TED) to provide the Arkansas Highway Police (AHP) with strategic insights on CMV compliance with posted speed limits (figure 1). The dashboard identifies where CMV-related crashes occurred on roadways, average truck speeds, speed limits, and crash hotspots. The TED complements AHP traffic enforcement patrols in areas experiencing staff shortages. This collaborative and data-driven solution helps AHP focus enforcement in high-impact areas and supports Safer Speeds.



Source: ARDOT.

Figure 1: Screenshot. ARDOT Targeted Enforcement Dashboard.

HUMANS MAKE MISTAKES. ARDOT continues to deploy wrong-way driving detection systems statewide. The detection systems warn drivers entering an entrance or exit ramp in the wrong direction with visible feedback systems and communicate with the Traffic Incident Management Center (figure 2). The detection and warning system accommodates for human error to reduce both crash occurrence and severity, since no person should be injured or killed because of their mistakes. These systems also allow ARDOT to identify which exit ramp a driver entered in the wrong direction, which was previously a challenge to determine in after-event crash reporting.



Figure 2: Screenshot. Wrong way research project.

Source: ARDOT.

SAFETY IS PROACTIVE. ARDOT uses the publicly available application [iDrive Arkansas](#) to monitor and share real-time roadway conditions, congestion, work zones, lane closures, and traffic incidents on the State’s roadways (figure 3). This application allows the public to check for potential incidents along their route and make safer transportation choices. In addition, ARDOT has installed over 400 cameras on their freeways in strategic locations to promote timely and proactive traffic incident management, supporting law enforcement, first responders, and the traveling public. ARDOT will continue to expand and build out their highway camera network to further Safe Roads, Safe Road Users, and Post-Crash Care.

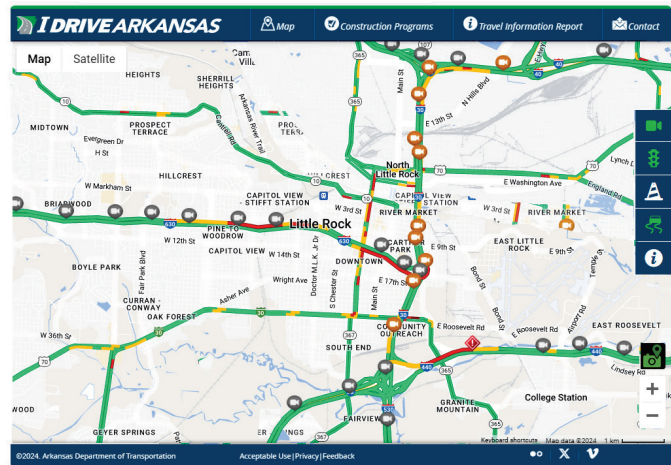


Figure 3: Screenshot. iDrive Arkansas.

Source: ARDOT.



UPCOMING/IN-PROGRESS INITIATIVES

REDUNDANCY IS CRUCIAL. ARDOT is revising policies for the implementation of rumble strips and cable median barriers to support proactive installation of these countermeasures systemwide. These countermeasures serve as redundant systems to alert and protect vehicle occupants if a driver mistakenly leaves the travel lane or roadway. Before-and-after evaluations of rumble strip installations in Arkansas demonstrated effectiveness in both the centerline and edges of a roadway. ARDOT also performed a pilot study using sinusoidal rumble strips (also called “mumble strips”) to address environmental constraints; the study showed mumble strips had a similar reduction in fatal and serious injury crashes compared to rumble strips. Evaluations of cable median barriers had similarly beneficial results. These policy updates will allow ARDOT to implement these countermeasures in projects beyond the Highway Safety Improvement Program, as part of maintenance, preservation, and rehabilitation projects. ARDOT may also implement rumble and mumble strips in more locations by lowering the implementation policy’s speed threshold criteria.

For more information, please visit <https://highways.dot.gov/safety/zero-deaths>.

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