NCHRP 17-113 COUNTERMEASURES

Automated 911 Call Systems from Vehicles

POST-CRASH CARE

Automated 911 call systems use in-vehicle sensors to detect crashes and automatically notify emergency services.

Implementation Strategy

How and Where to Apply

- Install American Association of Critical-Care Nurses (AACN) systems in vehicles to enable automatic crash detection and emergency call functions, ensuring integration with cellular or satellite networks for reliable data transmission.
- Implement in high-risk settings such as rural roads, commercial vehicle fleets, and programs for older drivers, where quick emergency response can significantly reduce injury severity and fatalities.
- The **NHTSA** states that this marking can be used "AACN systems can reduce emergency response times and improve crash outcomes by transmitting critical data such as crash severity."

Use in a Safe System Approach

Supports the SSA by enabling faster emergency medical services response, reducing crash consequences and improving post-crash care. It addresses the system's ability to protect users even after a crash occurs.

Key Stakeholders

Automakers, 911 Emergency Communication Centers, NHTSA (National Highway Traffic Safety Administration).

Proactive Implementation

Proactive implementation equips vehicles with AACN systems that use cellular or satellite networks to transmit crash data such as location, impact direction, and severity to 911 centers. It also involves training emergency dispatchers, upgrading to NextGen 911 infrastructure, and promoting public awareness to ensure faster, more accurate emergency response and improved outcomes after severe vehicle crashes.

Countermeasure Overview

Objective: Reduce time from injury to appropriate definitive care

Strategy: Improve compliance of rural 911 centers with FCC wireless "Phase II" automatic location capability

Targeted Solution

CONTRIBUTING FACTORS	▪ High speed ▪ Frequent lane changes ▪ Distance to hospital
TARGET CRASH TYPE	▪ Run-off-road
ROAD FACILITY TYPE	▪ All
AREA TYPE	▪ All

Safety Linkage

NCHRP 500 Series	SAFE SYSTEM APPROACH
Emergency Medical Services	Post-Crash Care
AASHTO'S TOWARD ZERO DEATHS	SAFE SYSTEM ROADWAY DESIGN TIER 1 TIER 2 TIER 3 TIER 4
Enhanced Emergency Medical Services	N/A

Selected Related Countermeasures

- CM1 Next Generation 911 (NG911) Deployment
- CM2 Advanced Driver Assistance Systems (ADAS)
- CM3 Crash Notification and Telemetry Integration

Cost: $ (Moderate to High)

Service Life: >5 years

Street Lighting . Source: abc news

Safety Benefits

40% to 50%

4%

Reduces emergency response times (urban: 40%, rural: 50%)[1]

Lowers fatalities by 4%[1]

[1]AACN, ITE, 2019

Resources

- NHTSA. Advanced Automatic Crash Notification (AACN) System Benefits
- FHWA. Connected Vehicle Applications and Deployment Scenarios.