

Utility Pole Crashes

Roadway departures accounted for 57,475 highway deaths between 2016 and 2018. Utility poles were the most harmful event in 2,562 of these fatalities.

Hitting a utility pole¹ is the most harmful event in over 2 percent of all U.S. traffic fatalities each year and 4 percent of roadway departure² (RwD) fatalities. There were 854 average annual RwD fatalities between 2016 and 2018 where a utility pole was identified as the most harmful event. Figure 1 shows the key characteristics where utility poles are overrepresented in fatal crashes.

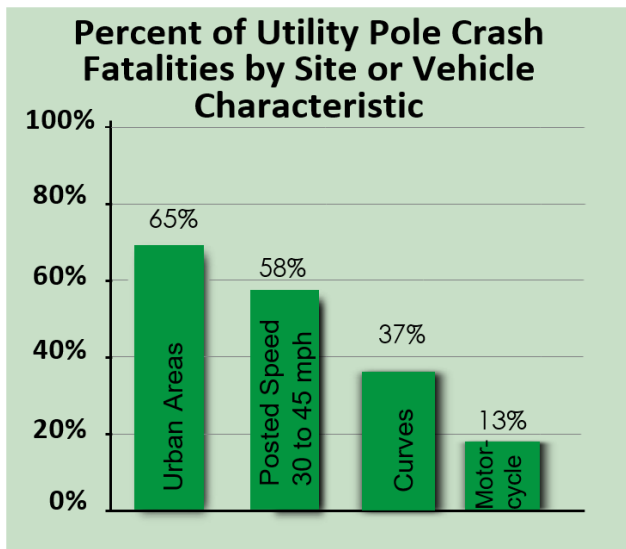


Figure 1. Characteristics of RwD fatalities associated with utility pole crashes as the most harmful event — FARS data 2016–2018.

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To reduce severe RwD crashes, FHWA recommends that State and local agencies consider three broad strategies:

1. Keep vehicles on the roadway.
2. Reduce the potential for crashes when vehicles leave the roadway.
3. Minimize the severity of crashes that do occur.

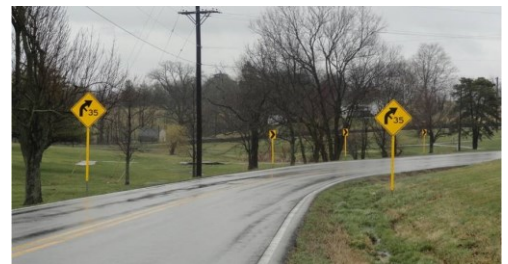
This brochure describes solutions that can be used to reduce fatal and serious injuries resulting from RwD utility pole crashes in each of these three broad strategy areas (Ref. [Roadway Departure Safety](#)).

Keep Vehicles on the Roadway

- **Delineation Treatments** — Installing chevron signs at horizontal curves on rural two-lane undivided roads can

produce a 16 percent reduction in non-intersection fatal and injury crashes and a 25 percent reduction in nighttime, non-intersection crashes of all severity types (Ref. [FHWA-SA-17-058](#), CMF Clearinghouse IDs [2438](#) and [2439](#)). Installing new fluorescent curve signs or upgrading existing curve signs to fluorescent sheeting on rural two-lane undivided roads can result in approximately a 25 percent reduction in non-intersection fatal and injury crashes and a 34 percent reduction in nighttime, non-intersection crashes of all severity types (Ref. CMF Clearinghouse IDs [2433](#) and [2435](#)). Widening edge lines, along rural two-lane highways, from 4 inches to 6 inches can reduce non-intersection, non-winter fatal and injury crashes by approximately 37 percent (Ref. [FHWA-HRT-12-048](#), CMF Clearinghouse ID [4737](#)).

- **Shoulder and Edge Line Rumble Strips** — Two multistate studies and more than a dozen state studies report reductions in single-vehicle run-off-road crashes of 13 to 80 percent when milled rumble strips are installed on two-lane rural roads, with a widely accepted reduction of 17 percent for fatal and injury run-off-road crashes at rural freeway locations. A reduction of 36 percent can be expected for single-vehicle run-off-road injury crashes at rural two-lane roadways (Ref. [Rumble Strips and Rumble Strips](#), CMF Clearinghouse IDs [3447](#) and [3454](#)).



¹ Crashes where the most harmful event is a motor vehicle impacting a utility pole or light support (FARS code 30).

² Crashes in which the vehicle crosses an edge line, a center line, or otherwise leaves the traveled way.



- **Friction Treatments** — For locations with a history of Rwd crashes and where the pavement surface is in good condition, high-friction surface treatment (HFST) is an effective solution to help reduce crashes. Research conducted by the National Transportation Safety Board and FHWA indicates that about 70 percent of wet pavement crashes can be prevented or minimized by improved pavement friction. At least 41 states have applied HFST to at least one project site. A research report published by FHWA shows HFST is estimated to reduce wet crashes by 83 percent and total crashes by 57 percent (Ref. [FHWA-HRT-20-061](#)).



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Reducing the Crash Potential When Vehicles Leave the Roadway

- **SafetyEdgeSM** — Run-off-road crashes are twice as likely to result in a fatality when a near-vertical pavement edge is exposed (Ref. [SafetyEdge](#)). Installing the SafetyEdgeSM during all paving or resurfacing projects allows drivers who drift off roadways to return to the pavement with much less potential to lose control. A five-state study showed the SafetyEdgeSM will reduce fatal and injury crashes by 11 percent (Ref. [FHWA-SA-17-044](#), CMF Clearinghouse ID [9660](#)).
- **Widen Clear Zones by Relocating Utility Poles** — A clear zone is “the unobstructed, traversable³ area provided beyond the edge of the through traveled way for the recovery of errant vehicles.” Removing or relocating utility poles within the clear zone and/or widening the clear zone are proven strategies to reduce Rwd crashes (Ref. [Clear Zones](#)). Placing lighting on existing utility poles can reduce the number of obstacles. AASHTO’s *Roadside Design Guide* includes suggestions for clear zone width based on average daily traffic, horizontal curve radius, design speed, and sideslopes. One Ohio study determined that the removal or relocation of roadside fixed objects for all road types reduced injury crashes by 38 percent (Ref. CMF Clearinghouse IDs [1024](#) and [1044](#)). Similarly, a Texas study determined that widening the rural two-lane roadway clear zone from 10 to 40 feet resulted in a reduction in single vehicle run-off-road injury crashes of 32 percent at tangent sections and 51 percent at horizontal curve locations (Ref. CMF Clearinghouse IDs [4127](#) and [4128](#)). A British Columbia study determined that an increased offset from the roadway is a more effective safety treatment than reducing the density of the poles (Ref. [El Esawey and Sayed, 2012](#)).

Minimizing the Severity of Crashes

- **Shielding Utility Poles** — Shielding utility poles by constructing a longitudinal barrier, such as guardrail or a crash cushion can reduce the severity of Rwd crashes when it is not practical to remove or relocate utility poles. Because shielding does not fully eliminate the presence of potential roadside obstacles, this treatment should be considered on a case-by-case basis. Research documented in 2004 found that a crash attenuator can reduce 69 percent of fatal and injury fixed object crashes (Ref. CMF Clearinghouse IDs [55](#) and [56](#)).
- **Breakaway Utility Poles and Luminaire Supports** — In locations where poles are likely to be struck frequently, there is a breakaway design that can be used for a single utility pole or a series of poles. Poles that cannot be relocated outside the clear zone should receive high-priority consideration for shielding or using a breakaway design or shielding for the pole and guy wires. Light supports within the clear zone are typically designed to breakaway on impact.
- **Energy Absorbing Utility Poles** — New Jersey is using special fiberglass poles that are designed to collapse on impact instead of breaking away into active traffic (Ref. [Utility Pole Management in New Jersey](#)).



For Additional Information

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³ Foreslopes between 1V:3H and 1V:4H may be considered traversable but non-recoverable if smooth and free of fixed objects.

