

guard cable

FAQ

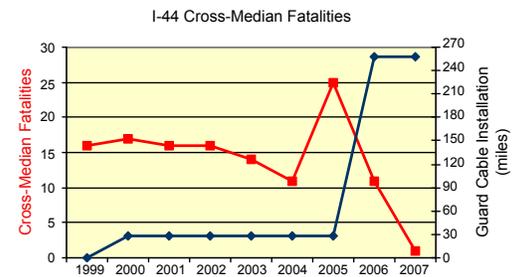


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What purpose do guard cables serve?

The purpose of high-tension guard cable is to prevent vehicles that, due to mechanical failure or driver error, have left the intended travel portion of the roadway from sliding across the median and hitting oncoming traffic. Head-on collisions are some of the most severe and deadly crashes on our roadways.

On Interstate 70 in 2002, there were 24 fatalities involving cars that crossed over the median. In 2007, a year after guard cable was completely installed on all of I-70, there was one fatality involving a cross-median crash.



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What is the difference between high-tension and low-tension cables?

Low-tension cable systems drop to the ground when they are hit and stay there until they are repaired. Repairs require specialized equipment and may take seven to 10 days for a contractor to mobilize and complete. High-tension systems are designed to survive multiple hits and can be easily repaired by maintenance personnel.



Why were high-tension cables selected for the Interstate 55 and Route 67 projects?

Based on studies of costs and ease of repair on both high and low-tension cables, the high-tension cable system proved to be the clear choice. Low-tension cable systems can take longer to repair, which could potentially make the system ineffective for a longer period of time. High-tension cables are easier to repair and maintain, which will allow the system to be quickly repaired. The long-term reduction in maintenance costs associated with a high-tension system quickly pays for the increased cost of installation.

How was I-55 between Oak Ridge and Sikeston selected to have guard cables installed? How was Route 67 between Crystal City and Route E near Fredericktown selected?

Interstate 55:

Studies of other Interstate Corridors in Missouri have shown that when the volume of traffic reaches the number now using Interstate 55 between Oak Ridge and Sikeston, the number of severe accidents trends upward unless action is taken.

Route 67:

Route 67 from Crystal City to Route E at Fredericktown was selected as an example of a divided highway that could have the type of accident that the cable systems have been designed to prevent.

Are there future plans to extend the guard cable on Interstate 55 or Route 67?

Based on traffic studies, current efforts were focused on 45 miles of the most heavily traveled portion of the Interstate 55 corridor. Similar studies were completed on Route 67. MoDOT will continue to monitor traffic volumes on both corridors. Through continued monitoring of traffic volumes and accident data north and south of both project areas, additional needs will be addressed as they arise.

How were the Interstate 55 and Route 67 guard cable projects funded?

Federal funds specifically earmarked for safety improvements were used to fund both projects. The funds were not available for construction or maintenance of roads.

How much did each guard cable project cost?

Both cable systems cost about \$105,000 per mile.

Why are the guard cables not placed in the center of the median?

The cable systems specified on Interstate 55 and Route 67 are an improvement on the previous design. When a vehicle hits the cable, the cable stays up and the posts will bend. Each post has a metal sleeve (or socket) installed in a four-foot concrete footing, allowing for quick replacement after an accident. However, benefits of the system would be lost if the ground was not stable. When the median is wet and the soil is saturated, a system with the guard cables placed in the center of the median would not be effective. In this situation, if the posts are hit they do not perform to their maximum capabilities and the footings will not survive the accident, making the system very costly and time consuming to repair.



Completed I-55 guard cable system

On Interstate 55, why do the guard cables shift from one side of the median to the other?

The cable system will stop a vehicle from either direction. This gives increased flexibility to shift from one side of the median to the other when necessary to avoid other roadway features. Near Sikeston there are overhead sign trusses on the southbound lanes that were not economical to relocate. Therefore, additional costs were avoided by relocating the cable to northbound lanes.



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On Interstate 55, why are the poles placed in an alternating pattern rather than a straight line, like the system on Route 67? Will both systems perform the same?

While both systems are designed to perform the same, the systems have a different manufacturer. Both systems are high-tension systems that look and behave very similar to each other. The main difference between the two is the differing post design for the systems. On Interstate 55, the posts are designed to facilitate an alternating pattern, while Route 67 posts are designed to flow in a non-alternating fashion.

Interstate 55: Every other post is on the opposite side of the cable, so it can resist hits from north and southbound traffic. When the posts are hit, they bend over. The post sockets are slightly larger than the posts, so the bent posts can be easily removed.

The Interstate 55 guard cable system looks like this:



Route 67: The post design for Route 67 is slightly different, in that the cable is in a slot in the middle of the post and the posts do not alternate. These posts can resist hits from north and southbound traffic without placing the poles in an alternating pattern because of the post design.

The Route 67 guard cable system looks like this:



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How are the poles going to be replaced?

Each concrete footing includes a metal sleeve. When replacing a post, the bent post is pulled out of the sleeve and a new post is set in the footing. At that point, the guard cables are placed in a hairpin and lockplate system, securing the cable to the post.



Metal sleeve



Hairpin, lockplate and cable



Complete guard cable structure

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How close was the guard cable installed to the passing lane?

The cable was installed eight feet from the inside stripe of the passing lane. The widest passenger vehicle for sale is the GM Hummer H1 at 7.2 feet. The average car is less than six feet wide and the average truck is less than seven feet. Essentially, the width of another lane exists between the passing lane and cable system.



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During the ice/snow season, what will happen if a vehicle runs off into the median?

Winter driving in Southeast Missouri is always challenging. Motorists can travel too fast for conditions, lose control, and slide into the median during snow and ice events. While some vehicles slide to a stop in the median, depending on the depth of snow and ice and the hardness of the ground underneath, occasionally a vehicle will slide across into the opposing lanes of traffic. The ability of opposing traffic to stop or avoid a collision in the same conditions that led to the first motorist leaving the pavement is marginal at best. Given those circumstances, the severity of the crash could be substantially reduced if a vehicle hits the cable.

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What happens if a vehicle breaks down and must pull over?

According to the Missouri Drivers Guide (chapter 6 - highway driving), individuals should not be in the left lane (“passing” lane) on a divided (four-lanes or more) highway unless they pass another vehicle or yield to a vehicle entering at a ramp. If an individual experiences mechanical difficulty while in the left lane, it is recommended they signal to enter the right hand lane (“driving” lane) and then signal to pull off onto the outside shoulder.

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What will happen if a vehicle hits the guard cable?

The guard cable was installed lower than the passing lane of traffic. The cable was designed to absorb the majority of a vehicle’s momentum. When a vehicle leaves the passing lane, it travels down the slope. As it hits the cable, the cable deflects and absorbs the impact. At the cable’s maximum deflection of eight feet, the vehicle is 25 inches lower than when it left the passing lane. The vehicle will have little momentum left to travel back up the slope into traffic.

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What will happen if a motorcycle hits the cable system?

Structures installed on the interstate highway system, such as bridge railings, signs, and the cable system, must meet crash test standards established by the Federal Highway Administration and the American Association of State Highway and Transportation Officials. The standards are established based on the predominant vehicle types used on the highway system: enclosed passenger vehicles such as cars and trucks. An unprotected motorcyclist is not part of the standard to which these systems are designed, so there is not a standardized crash test scenario that we can refer to that would accurately predict the behavior in this type of accident.

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If a vehicle hits the guard cable, who is responsible for the cost of repairing the cable system?

Federal funds specifically earmarked for safety improvements provided for installation of the guard cable system. Now that installation is complete, motorists are responsible for damages to the guard cable system. Much in the same way motorists are responsible for damages caused to other vehicles or property in collisions, any individual who causes damages to the guard cable system must pay to repair the damages.

for more INFORMATION

For additional information regarding installation, please contact District Construction and Materials Engineer Andy Meyer at 573-472-5296.

For additional information regarding repairs or accident response, please contact District Interstate Corridor Engineer Eric Krapf at 573-472-5261.

To report an accident, please contact MoDOT at 1-888-ASK MoDOT (275-6636).