

I-75 Median Cable Barrier Design Build Project



Florida Department Of Transportation District One



Contact Information

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Project Background

- The FDOT District One Safety Office first identified the locations along I-75 where a number of significant crashes were occurring.
- They determined that one-mile either side of the interchanges had the greatest potential for “cross-over” and “run-off the road” type crashes.
- The Design/Build approach was chosen as a method to get this safety improvement constructed in a timely manner.
- The project consisted of 33 miles of Cable Barrier installed along I-75 in Charlotte, Manatee, and Sarasota Counties.
- The cost of the project was \$5.3 Million.
- This project was the 1st Cable Barrier project constructed in District One.
- The project’s main objective was to prevent “cross-over” type crashes in the median of I-75.

Location of Project

INTERCHANGES IN CHARLOTTE COUNTY

CR 762 @ I-75

CR 768 @ I-75

US 17 @ I-75

CR 776 @ I-75

CR 769 @ I-75

INTERCHANGES IN MANATEE COUNTY

SR 70 @ I-75

SR 64 @ I-75

INTERCHANGES IN SARASOTA COUNTY

SUMTER ROAD @ I-75

CR 777 @ I-75

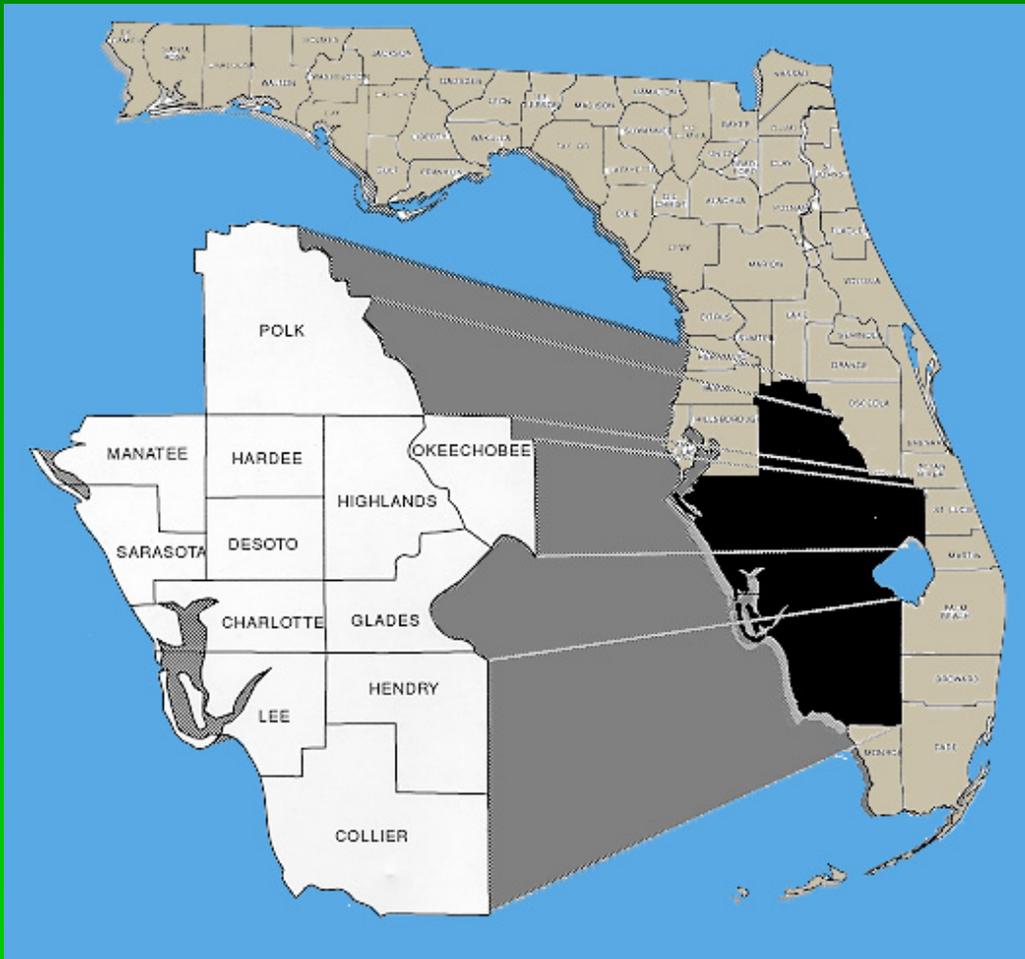
JACARANDA BLVD. @ I-75

SR 72 @ I-75

SR 758 @ I-75

CR 780 @ I-75

UNIVERSITY PARKWAY @ I-75

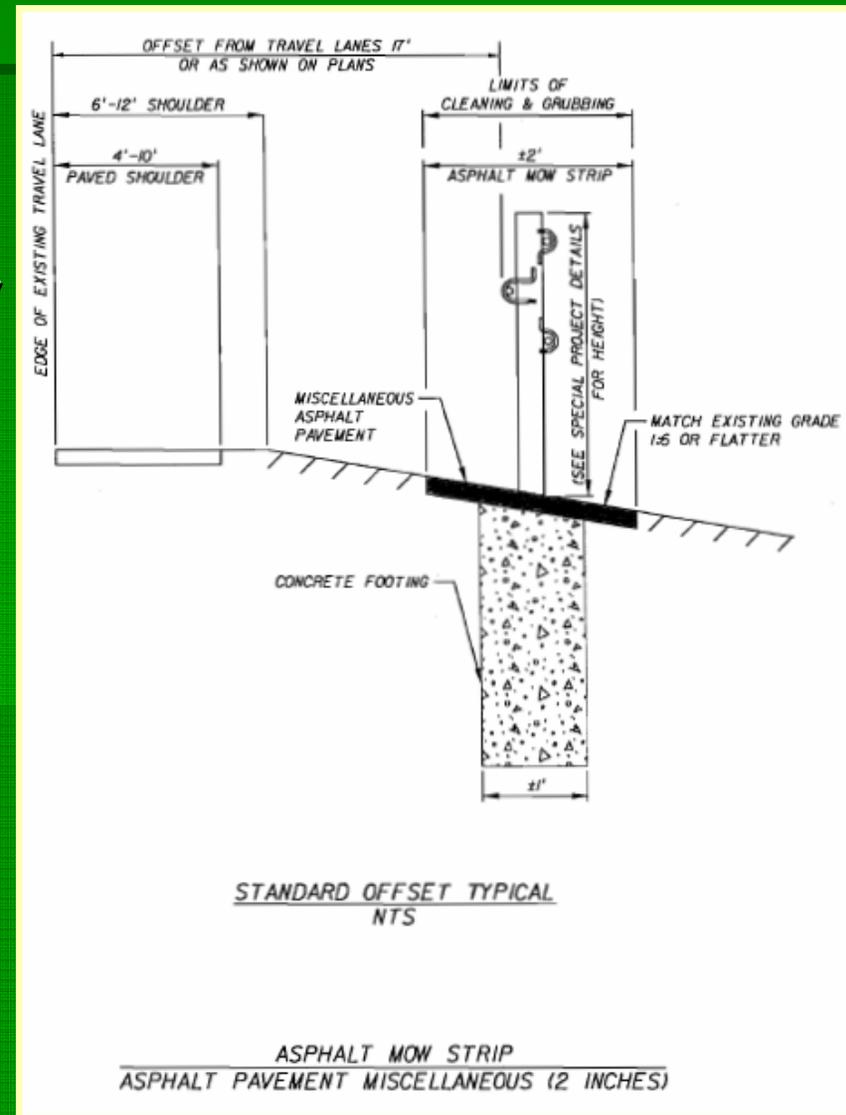


Type of Cable Barrier

- FHWA Approved - NUCOR Cable Barrier System
 - 1 of 5 FDOT approved cable barrier systems
- National Cooperative Highway Research Program Report 350 (NCHRP-350) rating of Test Level 3 (TL-3)
 - NCHRP Report 350 establishes six test levels (TLs) for longitudinal barriers. TL-3 requires successful tests of an 1810 lb. car impacting a barrier at 20 degrees, and a 4410 lb. pickup truck impacting a barrier at 25 degrees, at 62.2 mph.
- 3 strand system
- High Tension (Approx. 4500-5500 lbf)
- Socketed post, as opposed to driven post
- Post spacing of 16'-8" max.
- Designed for bi-directional traffic flows
- Installed on 1:6 slopes or flatter

Placement of Barrier

- Barrier is placed one mile either side of the interchange.
 - The FDOT District One Safety Office determined the locations of the barrier. They determined most crashes occur within one mile of the Interchange.
- Barrier is placed 17' from the travel lane.
 - Required to be placed on 1:6 slope or flatter
 - Placed so that maintenance of system is not an issue (areas under water during rainy season, muddy conditions, etc.)
 - Placed so that one direction of traffic has as great a distance to travel as possible before impacting the barrier.



What is Cable Barrier used for?

- The #1 reason that Cable Barrier was installed in District One was to prevent “cross-over” crashes.
 - There is one crossover fatality for about every 200 freeway miles.
 - An average of 250 people are killed annually in freeway crossover crashes.
 - Median crashes are 3 times more severe than other highway crashes.
*Statistics from NCDOT
- Cable Barrier is fitted with mile marker plaques at 1/10th of a mile intervals. The plaques can be used to assist emergency management crews with reporting the location of an incident, and they help the Safety Office evaluate where crashes are occurring.



Why Cable Barrier?

- Cable Barrier can offer a minimum deflection of 5 ft and a maximum deflection of 9.81', so it's strong. Deflection varies due to post size, barrier rating, and post spacing.
- Utilizes pre-tensioned, strong, yet economical 4 lb. Nucor Marion Steel posts, galvanized for long life.
- The Cable Barrier's appearance makes it an attractive alternative to traditional W-beam and concrete barriers.
- The cost of Cable Barrier is *50% to 75% less* than W-beam or concrete, and up to *20% less* than other high-tension cable systems.

Why Cable Barrier?

- Cable Barrier is easy to maintain and repair, so the lower installation costs are supplemented by continuing savings.
- Cable Barrier is NCHRP 350-approved system that tested superior in deflection tests compared to competitive cable systems that use plastic inserts instead of hook bolts.
- The posts can be driven in soil or installed in sleeves set in asphalt or concrete foundations.
- Cables are stretched and tightened on-site by turnbuckles. Installers can customize deflections to meet site needs.
- Cable barriers can take a hit and remain effective.

How does it work?

- The tensioned cable and the end anchorages, not the posts, absorb the impact of the vehicle.
- The vehicle is “captured” in the system and safely slowed to a stop.
- The vehicle is not redirected or “bounced” back into adjacent traffic.



Cable Barrier Hits on I-75



Cable Barrier in the Media

Excerpts from "Will New I-75 Barriers Save Lives?"

By: Christopher O'Donnell

N.Y. Times Regional Media Group

- "the innovative barriers being installed in Manatee, Sarasota and Charlotte counties have already saved several I-75 motorists from crossing over the median and having head-on-collisions, the most deadly of road accidents."
- "the new wire fences are less likely to bounce a vehicle back onto the interstate and into moving traffic."
- "Sixty-one motorists died in Florida from cross-over accidents in 2005, the most recent year that statistics are available."
- "They appear to be very effective and probably from a cost standpoint are less costly," said Kevin Bakewell, Senior Vice President of AAA Auto Club South. "The main thing is to keep cars from crossing the median."

Other Media Coverage



What does this mean for you?

- The number of fatal crossover crashes will be reduced.
- The mile post plaques will allow accurate reporting of the incident.
- No more worrying about out of control drivers crossing the median and hitting vehicles head-on.
- Less crashes that involve major or minor injuries.

Pop Quiz – True or False?

- Cable Barrier “slingshots” or “bounces” the vehicle back into adjacent traffic.

FALSE

- The post absorbs most of the impact from a crash.

FALSE

- Cable Barrier is a new idea.

FALSE



And Now...



It's QUESTION TIME !!