UNIVERSITY OF FLORIDA *seeks partner to license*

Portable Temporary Low-Profile Barrier (PTB) for Roadside Safety

More than 1,000 fatalities and 40,000 injuries occur in U.S. construction zones each year. Florida ranked fourth in roadway construction fatalities in 2001, which prompted the Florida Department of Transportation to seek an alternative to its traditional work-zone barrier. They hired University of Florida civil engineering researchers to come up with a new design, and the result has drawn excitement and attention from State transportation agencies across the Nation. The novel barrier can successfully redirect both a small car (1800 lbs.) and a standard pickup truck (4000 lbs.) approaching from a 25-degree angle, preventing it from crashing into the work zone and protecting the passengers in the vehicle. The novel barrier can be broken down into 12-foot segments that are inexpensive, and easy to install and move around. Additionally, the barrier system provides an innovative connection mechanism that permits layouts with both horizontal and vertical curvature. As the crash tests on this new device have shown, this portable temporary low-profile barrier (PTB) is an effective way to increase safety in construction zones.

Applications

Roadway construction barrier to protect construction workers and pedestrians from traffic

UF's low profile traffic barrier provides greater visibility, making roadways safer for drivers and construction workers

Advantages

- The system was built, tested, and certified according to NCHRP-350 Level 2 federal requirements and complies with required highway safety codes, speeding its path to market
- The Florida Department of Transportation is already specifying this system for its highway projects, and other state agencies from across the nation have shown interest in purchasing the system as well, providing a pre-existing market for the technology
- The low profile design of the barrier provides workers with an unimpeded view of oncoming traffic at points of crossing, dramatically decreasing the chances of on-site accidents to workers and pedestrians
- Each barrier segment is lightweight and does not need to be connected to the pavement, increasing the ease of installation and removal while reducing the time, labor, and costs required for roadway construction
- Multiple individual segments may be connected in straight, concave, or convex arrangements to allow for easy deployment on a range of geometries including uneven surfaces

The Technology

With its low-profile design of just 18 inches in height, the barrier permits increased visibility to both vehicle occupants and roadside workers. A steel channel in each segment is connected via steel bolts, providing a continuous steel path to transfer the load of impact throughout the entire installation.

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The Inventors

Dr. Kurtis Gurley (at right in photo) is Associate Professor at the University of Florida Department of Civil and Coastal Engineering. His research focus is the modeling of extreme loads on structures. He received the NSF Career Award from 2000 to 2004 for his work, "Modeling and Simulation of Wind Loads for Wind Hazard Mitigation." He was awarded the 1999 Munro Prize for the best paper published in the International Journal of Engineering Structures. Dr. Gurley earned his master's and doctoral degrees in Civil Engineering from the University of Notre Dame, and his bachelor's degree from the University of Illinois.

Dr. Ralph Ellis (at left), Associate Professor at the University of Florida Department of Civil Engineering, earned Bachelor of Science in Civil Engineering, Master of Engineering and doctoral degree in Civil Engineering from the University of Florida. He also holds a Master of Business Administration Degree. Dr. Ellis served as Projects Director of the FMI-Hammer Joint Venture of Miami, Florida and Panama City, Panama, which was a general construction services partnership delivering off-shore projects principally for the US Army Corps of Engineers. He currently serves as a member of the Board of Directors and Director of the Education and Research Directorate of the Construction Institute of the American Society of Civil Engineers.

Dr. Gary R. Consolazio (center) is an Associate Professor of Civil & Coastal Engineering (Structures Group) at the University of Florida. Dr. Consolazio earned his bachelors, masters, and doctoral degrees in Civil Engineering from the University of Florida and has served on the faculties of Rutgers University and the University of Florida. His areas of specialization include the characterization of extreme-event loading of civil infrastructure systems, numerical analysis of structural response, and numerical methods. In particular, his current research activities focus on dynamic loading and response of structures subjected to vessel collisions, vehicle impacts, and blast loading. His research has been supported by agencies such as the National Science Foundation, the Florida Department of Transportation, and the United States Air Force Research Laboratory.

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Reference UF #11052
Patent Pending

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