



Executive Summary – Impact Testing of Managed Lane Channelizer Posts

Testing was conducted on two of Pexco's City Post products in March of 2016 by Texas A&M Transportation Institute (TTI*), sponsored by the Florida Department of Transportation. This letter is an executive summary of two reports.

FDOT Project BDR74: Development of Delineator Material/Impact Testing Specific to Managed Lanes

- Task Report #3, Perform Compliance Testing on Delineator Products (Data)
- Task Report #4, Finalize Compliance Standard Evaluation Criteria

The FDOT project was based upon a previous study by Texas A&M Transportation Institute from 2013/2014. The project goal was to identify a minimum level of performance to ensure that the highest performing products will be used on Managed Lanes in the State of Florida as compared to posts currently in use in Phases 1 and 2. The end result was the establishment of minimum levels of performance in the ability to withstand both bumper and tire (wheel-over) impacts at high speeds.

Test Protocol:

- 36-inch (91cm) tall posts mechanically or adhesive anchored to concrete pavement
- Temperature above 65 degrees Fahrenheit (18 degrees Celsius)
- 8 posts anchored in two rows of four:
 - 4 posts for bumper impacts – 2 facing traffic, 2 with a 25 degree rotation
 - 4 posts for tire (wheel-over) impacts – 2 facing traffic, 2 with a 25 degree rotation
- 70 MPH (112 km/h) impact speed with MASH-standard small car **
- Test stopped at 200 impacts or complete failure, whichever came first



Array of eight posts in two rows of four.



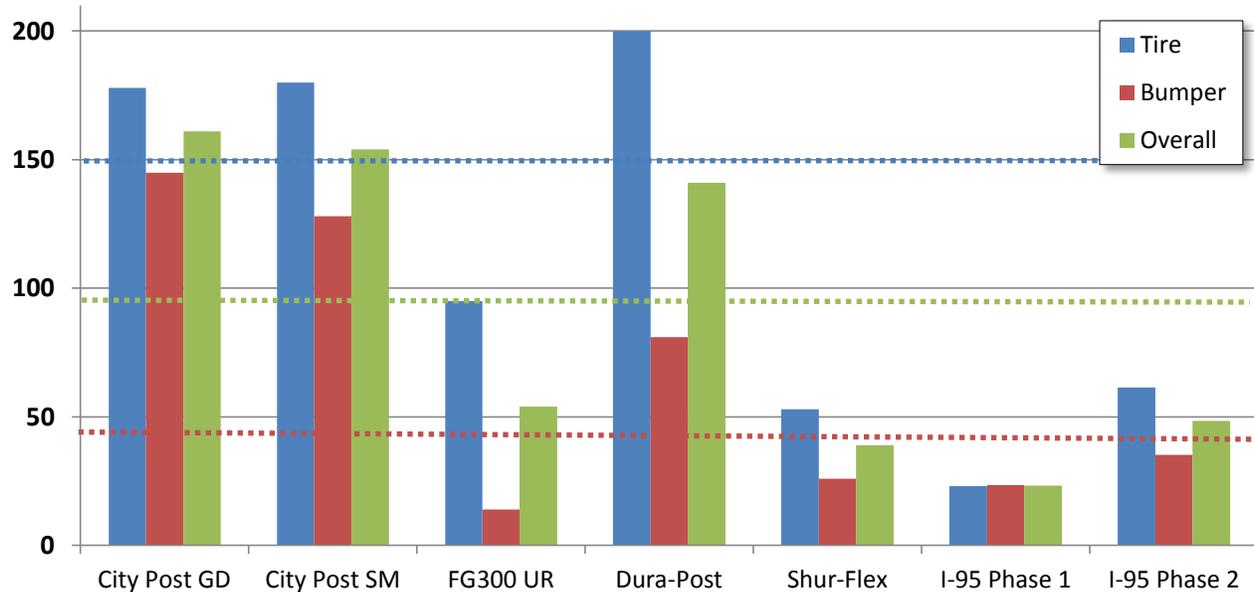
MASH-standard test vehicle.

Seven products from four different manufacturers were tested in the study at College Station, Texas. The results were summarized in Task Report 4, which included the researcher's recommendation to Florida DOT for a minimum performance standard. Actual test results are shown in the following graph (see page 2).

* The Texas A&M Transportation Institute (TTI) is an American Association for Laboratory Accreditation (A2LA) certified testing facility, and conforms to the requirements of ISO/IEC 17024:2003.

** The test vehicle met 1100C requirements set in current Manual for Assessing Safety Hardware (MASH). The vehicle model year was within 10 model years of the date the test was performed.

Average Number of Impacts Resisted – Tested Products



The City Post GD (Glue Down) and City Post SM (Surface Mount) came out as the top two performing posts. The researchers recommended the following minimums for impact resistance at 70 MPH:

- 150 tire (wheel-over) impacts average – **BLUE DOTTED LINE**
- 45 bumper impacts average – **RED DOTTED LINE**
- 95 overall average impacts – **GREEN DOTTED LINE**

The researchers provided many key points to back up their recommended minimum standards:

- **The researchers emphasized that bumper impacts (red bars on graph) are the most important indication of longevity;** overall average is next, with tire (wheel-over) impacts being the least important in predicting longevity.
- FDOT wanted two manufacturers to be approved for competitive purposes, thus the performance of minimum bumper impacts was diluted to allow this, setting the minimum at 45:
 - City Post SM mounted w/bolts tested 184% higher than this minimum
 - City Post GD mounted w/epoxy tested 222% higher than this minimum
- Researchers recommended that the minimum bumper impacts be raised to 100 by August 2019, allowing competitors time to attempt to develop a product that could meet minimum levels of impact resistance with which Pexco's City Posts already comply.

This State DOT-sponsored testing is the first head to head testing ever done at an accredited 3rd party test facility. This was meant to be a comparative test, to show the best performing posts on the market. The project was successful in this respect.

Contact your Pexco Sales Representative for additional information about the **City Post GD** or **City Post SM, the two top performing posts**, or a copy of the full memo released by the FDOT.

Best regards,

Craig Schulz

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