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Project No.: 211083-1-62-14

Secretary Greg Evans
Florida Department of Transportation
1109 S. Marion Avenue
Lake City, FL 32025

16 Jul 2015

I-295 (SR 9A) Buckman Bridge Safety Study – Summary of Findings

Dear Secretary Evans

History:

As result of a vehicle departure on I-295 from the Buckman Bridge in the summer of 2014, the Florida Department of Transportation, District Two, sought to conduct research on crash history data in an effort to identify any improvements that could be made to reduce the number of crash occurrences.

Study Limits:

This memo is a summary of findings for the traffic safety study performed on the Buckman Bridge in Jacksonville, Florida. The team reviewed and sorted recorded traffic crash data for the most recent 5 year period (2009 to 2014) for which data is available between SR 13 (San Jose Blvd.) and US 17 (Roosevelt Blvd.) on I-295; including the limits of the Buckman Bridge. Long term strategies were explored and evaluated with respect to benefit/cost for reducing crashes. Additional short term solutions were also explored.

Crash Rate:

Although the crash rate in close proximately to the interchanges of Roosevelt Blvd. and San Jose Blvd. on I-295 is higher than the average rate of the I-295 corridor studied, the crash rate within the limits of the Buckman Bridge is lower. Almost half of the crashes recorded are rear-end crashes with a majority being attributed to careless driving. Eight percent of the crashes hit the barrier wall on the bridge. Crash history shows that the bridge has a significantly lower crash rate than the interstate roadway on either side of the bridge.

Interstate Location	Crashes per Million Miles of Travel*
I-295 Study Area	0.90
Within Buckman Bridge Limits (on bridge)	0.58
Roadway Near Bridge Ends (off bridge)	1.33

*Average between 2009 and 2013

Fatalities on the Bridge:

There are 6 fatalities recorded in the crash history between 2009 and 2014 on the Buckman Bridge. Two distinct causes for these crashes were identified: impairment (alcohol and drugs) and careless driving. No fatalities or crashes have been attributed to any design issues with the Buckman Bridge, the I-295 mainline, or the interchanges at US 17 and SR 13.

Vehicles Departing the Bridge:

There were two recorded vehicle departures on the bridge during the study period. Of which, one was the incident during 2014 that initiated the interest of this study. From the crash information researched, the departures have been a result of a vehicle being sideswiped resulting in that vehicle spinning and eventually rolling over the bridge barrier wall. There were an average of 120,000 vehicles that traveled over the Buckman Bridge each day for the 5 year period studied. The instances of a vehicle departing the bridge are extremely low when compared to overall traffic volumes. To put this in terms of a different perspective:

- According to the National Weather Service, there is a 1 in 1 million chance of being struck by lightning each year (http://origin-www.nws.noaa.gov/om/lightning/odds.shtml). With 2 vehicle departures over the 5 year period studied, there is an approximate 1 in 20 million chance of a vehicle departing the Buckman Bridge each year. This means that an individual is 20 times more likely to be struck by lightning than being in a vehicle that departs the bridge.

Short Term:

The average speed on the bridge recorded for all lanes for the period 04/2010 to 04/2015 is 72 mph, which is11% higher than the posted speed limit of 65 mph. Recommend FDOT continue to coordinate with FHP for increased enforcement.

Long Term:

The only viable long term solution on the Buckman Bridge is one in which cost/benefit studies have shown can reduce incidences of crashes – and that is to institute an active traffic management system. This technology could place a variable message board above each lane to provide the public real time information. This system could be used to notify the drivers of lane closures or speed reductions ahead of congestion.

Bridge Railing:

The bridge railing type is the national and state standard for crash worthiness. The State of Florida has over 4 million linear feet of the same type and height of railing as that on the Buckman Bridge. There is no research available to suggest that raising the railing height would eliminate the possibility of a vehicle departing the bridge.

Additionally, crash data research indicates that a revised railing type could not reduce the number of crashes, even by a single crash.

Conclusion:

- The Buckman Bridge meets national design criteria for highway design.
- A reduction of speed and careless driving may reduce crashes on the Buckman Bridge.
- Bridge railing height above the national and state standard does not suggest a reduction of bridge departures.
- Driver error is the clear leading cause in crashes on the Buckman Bridge.

Sincerely,

Will Watts, P.E.
Sr. Project Manager