



Damages to original construction's columns.

Why is Mayaguez's viaduct collapsing?

By Wallace J. de la Vega

Mayaguez, PR - As we saw in news capsules after the January 7 seismic tremor, Mayaguez's viaduct, located on the urban section of route PR-2, has one of its sections closed due to "cracks on two columns". This one being the most important roadway in "The City of Pure Waters", some residents have had the disturbing question of why is this structure is collapsing and not older ones in the neighborhood.

Two days after the tremor we met under the viaduct with engineer Juan Hernandez, a Rio Piedras native. The specialist in this matter has practiced his profession in this city since graduating from the then Mayaguez Agriculture and Mechanical College in 1965 and then completed postgraduate studies in the U.S.

As he made it clear, the viaduct is composed of two structures, each one built under different building codes. "I arrived here in (19)61 and it was already being built", said Hernandez about the original highway. "This other one was built under the new code, which became effective in the (19)80s".

At plain sight, the structure seen by motorists does not show any significant difference, but underneath, the keen observer will notice it. Asked about his use of the word "collapsed", Hernandez cleared it for us:

"A collapse is defined as when a structure gives way; it can give way and stay upright, even if tied to a stick. The solution here is to remove these ones and build new ones using the new code. This must be informed immediately to the Society of Professional Engineers", Hernandez said.

"Look carefully to the columns' sizes", the engineer told us with a smile. "That says it all ... it has to be said because nobody notices that".

A measurement taken of the original columns versus the newer ones showed a difference of three feet and one inch. At plain sight one can also gather the support the traffic girders have, the originals resting on concrete



The newer traffic girders are shown supported by steel blocks.



Damage to a new column.

block while the newer ones rest on steel blocks.

Hernandez also pointed out a key technique in the viaduct's newer byway.

“The greatest difference it has is that the (traffic) girders are supported over the other one (cross expansion); like the other ones (originals), but these ones have steel cables, so if the column collapses the (traffic) girders remain hanging on the cables.

After Hurricane Maria's impact the local Transportation and Public Works Department informed that more than 100 bridges had suffered damage across the island. Hernandez said that although the strongest earthquake amongst the recent ones must have contributed to the viaduct's collapse, “the lack of maintenance on bridges like this one” is the main cause of these damages.