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## Living in the floodplain: Not an easy decision - by Daniel Calano

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Last September I wrote about flood impacts on real estate, basking in the fact that there had been no hurricanes of consequence. This year clearly is very different. After one of the larger hurricane seasons in history, it's time to weigh in again. While there are lots of threats to our built environment, including forest fire, earthquake, tornados and sinkholes, flooding in general and hurricanes in particular are the ones that get the most attention. Hurricanes are like the "Jaws" of waterborne threats.

Whether you believe in climate change or not, many more people are being impacted by increasingly violent storms. As we know, the big ones this summer include Harvey, Irma, Jose and Maria. The combined losses incurred by the big four storms range in estimates from \$250 to \$300 billion, but nobody really knows yet. Just to give some context, Katrina was estimated at \$80 billion and the recovery is still not complete after twelve years, with the real tab not in. Puerto Rico, severely damaged by Maria and still without electricity after two months, is estimated to cost \$95 billion. It would seem to the casual observer that this will move higher.

Who are the players in insuring our built environment in flood prone areas? At the top of the hierarchy is FEMA, the Federal Emergency Management Agency. It is involved in almost all natural disasters. The payor however is the National Flood Insurance Program (established 1968), which provides up to \$250,000 of damage relief for those residential houses in the floodplain. In addition to flood damage, wind impact from hurricanes and severe storms can be even more costly. This insurance is typically covered in homeowner's policies and varies dramatically depending on compliance with building codes, age and strength of structure, etc. It goes without saying that there are many structures in the coastal floodplain overlooking beautiful beaches and normally quiet waters worth well more than \$250,000. Thus, many homeowners insure over that government provided amount with private insurers at typically quite large costs.

There are also costly secondary impacts of these storms. A well-built and elevated structure may be the last one standing in a devastated neighborhood, with remaining flood waters, loss of electricity, polluted and inadequate drinking water, ruined infrastructure and no access. Citing the sad example

of Puerto Rico again, while there are many people whose properties were not destroyed, they are clearly impacted. Obviously many families and lives have been ruined, at least for an indeterminate future. For those who have been less directly hurt, rebuilding around them can be slow and frustrating. A typical expectation is three years, but everything varies, and as mentioned it has been twelve years since Katrina. There are also hidden costs to businesses, service, tourism and of course real estate related industry.

What are the consequences to insurance companies and other relief? At this point, estimates are that FEMA will be responsible for about \$10 billion related to the four hurricanes, although that is obviously a small part of the difficult puzzle, and expectations will easily be higher. In fact, FEMA has added over the years over a trillion dollars to our federal budget, and was allegedly out of money prior to these storms. On the private insurance side, it is estimated that \$20-\$40 billion of underwriting loss will be coming from them for this year's storms. Again, premature in the estimates, the insurance industry has estimated that they may be able to cover losses from profits, rather than delving into their principal investments. One of the more recognizable insurers, Lloyds, has estimated that Harvey and Irma will cost them \$4.5 billion, creating a loss of profit of 16%.

What can we expect in the future? It is clear it will be more difficult and costly to build in flood prone areas. As we speak, floodplain maps are being redrawn to accommodate generally rising waters. Additionally, building codes in floodplains will be made more stringent. Buildings will be stronger, more appropriately elevated, and hopefully infrastructure such as electricity and roads will be similarly improved. These are good things. Despite the fact that more people are concerned about climate change and resulting coastal flooding, ironically there are also more people interested in living in the coastal zone. It appears that many people are less or not at all worried about the next 50 to 100 years. Given the allure and beauty of coastal areas throughout the world, it is very unlikely that residents will pack up and move inland. Summing it up, the issues are far from solved, but getting plenty of attention.

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