Fight, flee or adapt: Rebuilding after Hurricane Harvey

In the wake of Hurricane Harvey, mounds of sodden building materials lined the streets of Houston and other flooded areas. As residents began the long process of rebuilding, the storm's unprecedented flooding rekindled a long-running debate in the Houston area over the best way to move forward: rebuild the same way in the same spot, abandon chronically flooded properties to nature or find more flexible, adaptable ways to build in areas at risk of flooding.

By choice or by necessity, some residents are digging their heels and staying put. They are stripping out wet drywall and other ruined materials to be replaced with the same.

Unfortunately, only 17 percent of Houston residents have flood insurance, and much of that is capped to a level that barely covers the cost of recovery.

To flee or not to flee

Residents looking to relocate are faced with the daunting task of selling a flood-damaged property.

The seller's task has been made more difficult by online tools that enable prospective buyers to assess risks at the click of a mouse. Just weeks before Harvey hit, Texas A&M University launched "Buyers BeWhere," a lot-by-lot risk assessment tool for the Houston area. It rates risks for hurricanes, floods, wildfires, air pollution (a key concern in the area) and sea level rise.

Some property owners may get relief from the government. Harris County, for example, embarked on a voluntary flood buyout program just a few years ago. The program involved 3,000 buildings, about 2,000 of which were covered by federal funds through FEMA.

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The up-front cost to taxpayers from buyout programs is recovered by avoiding future rescue and recovery costs, insurance payouts and other expenses. Properties returned to a natural state can also absorb more stormwater, helping to lower the risk of flooding in nearby areas.

Adaptation is good, but re-imagination is better

One alternative strategy involves "wet-proofing" the lower level of buildings (or entire buildings) in risk zones by relocating HVAC equipment. Durable materials like concrete, brick and tiles are key features of this strategy.

Readers of the aptly named Houston area real estate website SwampLot have been wondering why architects don't come up with flood-hardy designs. Well, they do — but there are compromises.

The "floating house" strategy, for example, involves a waterborne lifestyle that dovetails with the tiny house trend. It's a popular movement, though not a good fit for many households. Safety and permitting issues could also get in the way.

A more encompassing approach to resiliency — and a more realistic one — is illustrated by recent Texas A&M graduate Zixu Qiao, who received a competitive and "highly coveted" 2017 Student Honor Award for designing a medium-density development, for an area southeast of Houston that is vulnerable to both flooding and sea level rise.

Qiao surveyed resiliency strategies globally and deployed the National Stormwater Management Calculator, one of many sustainable urban planning tools developed by the Center for Neighborhood Technology.

The final concept includes a generous helping of open space, bioswales and other elements that route floodwaters away from buildings. Wetlands preservation and natural pollution filtration are also important features.

One key element that may have influenced the judges: much of the flood control landscaping doubles as recreation and other amenities that add value to the overall development.

Smarter, stronger solutions are at hand, and a more sustainable quality of life could be the wave of the future — even in areas facing climate change impacts.

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