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Fight, flight, or adapt? Responding to climate change and the updated FEMA maps

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Everyone seems to be talking about climate change and sea level rise. How will coastal cities like Boston (amongst others) fare in the future? As owners and developers have discussed the impact of sea level rise on current and potential projects, the Federal Emergency Management Agency (FEMA) prepared new draft Flood Insurance Rate Maps (FIRM), which were released November 2013.

The preliminary FEMA maps show the increase in the number of properties prone to flooding - providing a more accurate representation of the changed environment in which we live. In Boston, the maps show expanded flood zones in East Boston, the Seaport area, the Financial District, and parts of Dorchester. Changes in the floodplain elevation vary from site to site, but the number of Boston homes at risk to flooding almost doubles and affected businesses could expand from 250 to 4,000 (via the Boston Globe). At 25 Northern Ave. in Seaport Sq., where Nitsch Engineering has provided utility planning and site design, the maps show a four-foot increase in floodplain elevation. Reactions to sea level rise and the release of the FEMA maps have varied. Some have recommended we fight nature by constructing monolithic floodgates or seawalls that could protect coastal cities - but these may blight the landscape and affect the environment in unknown ways. Others have asked whether we should abandon flood-prone areas, fleeing the problem. These "fight or flight" responses involve immense social and economic costs, and seem impractical in most cases.

The most practical reaction is to adapt the way we design. The Boston Harbor Association's "Preparing for the Rising Tide" and New York's "PlaNYC 2030" recommend pursuing building/site resilience, preparing custom climate adaptation plans for each building/site or district/neighborhood. Plans could combine green infrastructure; floodable public spaces, and below-grade and grade-level building floors; river and coastal restoration; and/or the construction of dikes, levees, and flood walls. Buildings should consider locating mechanical, electrical, and HVAC systems above the floodplain. Stormwater quantity management also becomes more complex in a floodplain.

Even with all of this, panelists at a recent forum (Troubled Waters) at the BSA Space commented on the potential for adaptive design and planning to increase real estate value. The city of Boston will implement the new FEMA maps in February 2015. As the comment period runs throughout 2014, we have a chance to provide constructive feedback. Urban waterfronts can continue to serve as prime real estate and cultural landmarks; however, ensuring this future will require collaboration and education from everyone who works in coastal real estate.

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