As global greenhouse gas emissions increase beyond modeled worst-case scenarios, a changing climate introduces new dimensions of uncertainty into an already rapidly evolving real estate marketplace. Storms, surges, and sea-level rise reshape the risk profile for land use along shorelines and in coastal regions. Hurricane Sandy provided devastating evidence that land use must be reconsidered through the lens of rising sea levels. The first in a series of three, this Info Pack provides readers with leading coverage of Hurricane Sandy that raises questions in regards to land use, honing in on resilience, adaptation, infrastructure, planning, real estate, disaster insurance, and financing.

Sandy Facts and Figures

[Hurricane Sandy vs. Hurricane Katrina](The New York Times Nov. 27, 2012)
[A Closer Look at Cuomo’s Sandy Stats](The Wall Street Journal Nov. 27, 2012)

*These two articles are critical of Governor Cuomo’s claim that aside from the death toll, Hurricane Sandy was more damaging than Hurricane Katrina. Regardless of their “ranks,” the impacts of both storms will echo for decades to come.*

Climate Change & Sea Level Rise


*An interactive series of graphics reveal how major coastal cities in the US will be affected by sea level rise.*

[Rising Seas, Vanishing Coastlines](The New York Times Nov. 24, 2012)

*With more than six million Americans living less than five feet above high tide, two daunting climate studies released in the summer of 2012 make it clear that the mitigation/adaptation question is not either/or but both/and.*

"Climate change is a national and global security issue, yet government resources for programs like the C.I.A. Climate Change Center and the American weather satellite program are shrinking."


"The latest climate modeling suggests that global warming is likely to occur in line with some of the most extreme projections. With a possible increase of eight degrees Fahrenheit by 2100, dangerous weather events and disappearing coastlines are realities that must be addressed."

**Resilience**


"Many “sustainability” proponents are now using the term “resilience” when referring to strategies that address rising sea levels and climate change. “Resilience thinking” is playing an increasingly important role in the way decision makers are addressing infrastructure, development, and urban systems."

**Making Our Coastal Cities More Resilient Can't Wait** *The Atlantic Cities* Nov. 1, 2012

"Providing a scan of vulnerable waterfront regions around the world using information from a 2007 OECD study, this article goes on to provide a list of good references on the topic of resilience."

**Urban Resilience** *SEED Magazine* Feb. 16, 2010

"Written in 2010, this article explains the concept of urban resilience, examining how cities can withstand shock through enhancing the complex adaptive systems through which they function."

**Adaptation Strategies & Infrastructure**


"Looking to the success of the surge barrier that saved Stamford, Connecticut, from the destruction of Sandy, this article weighs the pros and cons of implementing a similar system in New York City, a project likely to cost upwards of ten billion dollars."


"The *New York Times’* front page piece in the Metropolitan Section following Sandy analyzes several practical infrastructure approaches to protect New York City’s most vulnerable neighborhoods."


"This article takes a look at five leading solutions for New York City in the wake of Sandy. The options span the range of hard and soft infrastructure improvements, including sea gates and surge barriers, elevated infrastructure, wave attenuators, oysters and sand, and adopting different development patterns."
**New Amsterdam: Should New York Do Like the Dutch and Build Some Skyscraper-Sized Sea Gates**

The Director of Columbia’s Center for Urban Real Estate weighs in on sea barriers for New York City, providing his own proposal to construct a series of protective barrier islands paid for by the new real estate they would provide.

**Planning & Development**

**The Future Question for Sandy Storm Victims: Can the Past be Rebuilt?** The Wall Street Journal Nov. 16, 2012

With the destruction of Sea Bright, New Jersey, as a backdrop, this article seeks out other options than rebuilding what was destroyed, taking into consideration relocation and retrofit programs.

**Heeding the Cruel Housing Lessons of Hurricane Sandy** The Washington Post Nov. 16, 2012

Preventing future development on vulnerable waterfront property, modifying building codes, and providing incentives for relocation are less costly than hard infrastructure solutions to rising sea levels.

**Hurricane Sandy causes N.J. to remake its master plan for land development** NJ.com Nov. 13, 2012

New Jersey is faced with reconsidering its own master plan for land development after Sandy ravaged its coastline. The modified plan may provide incentives to retreat from the shore.

**Hurricane Sandy Damage Amplified By Breakneck Development Of Coast** Huffington Post Nov. 12, 2012

Developing irresponsibly along the coasts not only has devastating and fatal results, but coastal development also amplifies the damage. Among other initiatives, New York’s PlaNYC is reviewing building and zoning codes to reduce these problems in the future.

**Would We Leave Disaster-Prone Cities in the Absence of FEMA?** The Atlantic Cities Nov. 9,2012

Federal disaster relief may have produced the unintended consequence of supporting development areas that are ill-prepared for natural disasters. This article raises the question of how coastal development would change in the absence of FEMA aid.

**Hurricane Sandy Shows It’s Time to Embrace Workplace Flexibility** TIME Nov. 8, 2012

Speaking to the concept of workplace resilience, Sandy may play a part in an increase in tele-commuting and remote work for “knowledge workers” whose physical presence in the office is not required.

**Rethinking Waterfronts** The Wall Street Journal Nov. 8, 2012

Demand for waterfront development is unlikely to decline, however building standards are likely to become more stringent. Furthermore, requiring development to withstand extreme weather events raises construction costs, which are often passed on to renters and buyers.
Flood Risk & Insurance

More Businesses Seek Government Flood Insurance After Sandy: Marsh My New Markets Nov. 20, 2012

Businesses are increasingly seeking National Flood Insurance Program coverage after Sandy, often in tandem with private flood insurance programs, to further reduce their financial vulnerability.


The debate surrounding the Federal Flood Insurance Program revolves around whether or not taxpayers should bail out the program and essentially subsidize reconstruction in vulnerable coastal regions.

Risk Experts Say It’s Not Climate Change, It’s Coastal Communities, Stupid The New York Observer Nov. 2, 2012

Framing the conversation around land use policy instead of climate change, risk analysts argue that development in vulnerable coastal regions is the greatest issue associated with Sandy.


Experts are putting pressure on the federal government to restructure the way in which the government evaluates flood risk. However, policymakers tend to be wary of the potential backlash of such measures.

P/C Insurers Can Handle Sandy Losses; Flood Program to Bear Brunt Insurance Journal Oct. 30, 2012

The National Flood Insurance Program will receive the brunt of Sandy’s financial impact, while private insurers are likely to face the biggest impacts from business interruption losses and wind and downed tree damage.

Real Estate

Rising Sea Levels Plummeting Waterfront Property Values The Atlantic Cities Nov. 16, 2012

As governments become unable to compensate everyone for the risk of living on the water, something has to give. Rising insurance rates, changing demographics, and policy decisions all have the potential to change the waterfront real estate market.

Hurricane Sandy Does Little to Dissuade Buyers From Lower Manhattan The New York Observer Nov. 13, 2012

Lower Manhattan real estate doesn’t show signs of decreasing in value after Sandy, but discussions around storm-proofing, generators, and insurance rates are becoming more prominent in the real estate market.

Jersey Shore’s Lure to Homebuyers Seen Surviving Hurricane Sandy Businessweek Nov. 12, 2012

Living on the waterfront will most likely continue to be an alluring decision for Americans despite the risk and added costs of insurance.
Could Home Prices Come Back Even Stronger After Sandy  The Fiscal Times Nov. 8, 2012

According to recent research, real estate values actually tend to bounce back and even peak after natural disasters, with pricing rebounding faster in areas with high density.


Rising sea levels bring social equity issues to the surface, revealing the geography of wealth and begging the question of who will stay on the waterfront.


New zoning may reduce waterfront occupancy, yet America’s short-sightedness and the allure of the waterfront has the potential to override more responsible land use.


Even if Sandy doesn’t negatively impact coastal property values in the long run, the immediate and short-term impacts on the real estate market are significant.

Financial Impacts

Fitch: Sandy Won't Trigger Widespread Downgrades  Reuters Nov. 12, 2012

Fitch Ratings provides its outlook on Sandy’s short-term and long-term financial impacts and claims that the storm will not result in drastic rating changes from insurance or reinsurance agencies.


The large federal deficit is making it so municipal resources are at risk of being depleted in many areas during the Sandy recovery, more so in small towns than cities.

Op-Eds

New York Can Protect Itself Without Federal Aid  Bloomberg Nov. 26, 2012

A Harvard economist urges New York to spend billions for its own protection, or else coastal regions across the US will all look to Washington to fund their protective projects.


Two Wharton School professors argue that the status quo of disaster insurance in unsustainable. They call for premiums that reflect risk, a means-based federal disaster insurance program, and multiyear insurance contracts in order to create a higher functioning system.
Preparing For The Next Sandy Forbes Nov. 16, 2012

Mindy Lubber of Ceres and the Investor Network on Climate Risk (INCR) lays out recommendations for both the public and private sector, including incentives for storm-proofing and tightened land use policies from government-backed insurance programs.

Preparing for Future Disasters in the Wake of Sandy Huffington Post Nov. 14, 2012

Vicki Arroyo of Georgetown Climate Center outlines direct steps the President and Congress can take to improve our resilience in both the short and long term.

Wreckonomics: Hurricane Sandy and Real Estate Risk Management The Commercial Observer Nov. 8, 2012

A PhD economist hones in on what Sandy means for insurers and investors.

Resilience and Flood Risk State of the Planet Nov. 6, 2012

In the wake of extensive research on the topic, two Columbia graduates weigh in on the pitfalls of New York City’s flood insurance market.

Finally Thinkin' Small But Can We Build on What We've Learned PlaceMakers Nov. 5,2012

With the “Katrina Cottages” and similar “pocket community” projects in other coastal areas in mind, Ben Brown of PlaceMakers looks at the benefits of downsizing after Sandy.


An environmental studies professor urges stakeholders to frame the conversation around land use and not energy policy as a means to initiate swift and effective change in coastal regions.