



April 6, 2015

Mr. Dennis Reinknecht, Program Manager  
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Bureau of Flood Resilience  
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RE: Comments on *Draft EIS* for the *Hudson River Rebuild by Design*

**Submitted via email to [rbd-hudsonriver@dep.nj.gov](mailto:rbd-hudsonriver@dep.nj.gov)**

Dear Mr. Reinknecht:

We have learned much over the past several years about flood risk and the appropriate remedies. In my comments, I would like to address major questions based on new information that is now available about the risk of storm surge as well as the cost of building the *resist* infrastructure. I believe a central unanswered question is this: *is the excessive cost of building these floodwalls justified given the low probability of another Superstorm Sandy?*

Also, the original concept developed by the OMA team for Hudson River Rebuild by Design was to implement a comprehensive flood mitigation strategy: *Resist Delay Store Discharge*. However, today the project focuses primarily on a single narrow strategy that will consume all of the currently available funds being provided by HUD. The other strategies -- *Delay Store Discharge* -- as well as additional flood mitigation measures initiated by the City of Hoboken would protect area residents from the more common, regularly occurring flooding. The current direction of the project has concentrated nearly all of the available resources on the costly *resist* infrastructure at the expense of the other critical components of the project.

Finally, are we basing this project on data that accurately reflect the likelihood of another event like Superstorm Sandy occurring in our region? After Superstorm Sandy there were scores of seminars, workshops and conferences with panels of experts advising us on flood mitigation remedies. One piece of advice heard from various experts was not to base a flood prevention program solely on the last major storm that impacted your community; but this appears to be exactly what we are doing.

## **Scientific Analysis of Surge Risk in New York Harbor**

Past studies have determined that Superstorm Sandy was anywhere from a 100-year storm to a 1,500-year storm. Thus, the chances of another Sandy-magnitude storm hitting the New York Harbor range from just 1% to 0.15%.

The latest scientific findings, entitled *A Validated Tropical-Extratropical Flood Hazard Assessment for New York Harbor*, published this past December in the *Journal of Geophysical Research*, determined that Superstorm Sandy was a 260-year event. Dr. Philip Orton, a research scientist at Stevens Institute of Technology, along with Dr. Alan Blumberg, the director of the Davidson Laboratory at Stevens, and four other research scientists authored this study.

For their analysis, they looked at tropical cyclones and northeasters dating back to 1788. Most of these tidal storms measured around 7 feet above the mean sea level. Sandy exceeded 11 feet! The data from these storms were fed into a flood model for the coastline from Maryland to Cape Cod. Using their model, the team of research scientists simulated thousands of storm scenarios to predict what kind of flooding they would cause. Being a 260-year event, this means that Superstorm Sandy has a 0.4% chance of occurring in any given year. The study concluded that the last storm surge comparable to Sandy occurred prior to the year 1700.

However, the Hudson River Rebuild project has based the probability of another Sandy-magnitude storm on FEMA's conclusion that Sandy was a 100-year storm surge event. Therefore, based on all of the available scientific and empirical evidence we have seen, we question the validity of the conclusions that are about to be implemented.

### **FEMA vs. City of New York**

At the end of 2012, FEMA set advisory standards for new flood hazard maps for the first time since 1983. In 2015, after considering public comments, FEMA made revisions and announced its Preliminary Flood Insurance Rate Maps. For this region, the new boundaries for these maps are based on a coastal flood study conducted by FEMA Region II for portions of coastal New York and New Jersey. These preliminary flood maps will officially go into effect in several years.

However, New York City contested FEMA's Preliminary Flood Insurance Rate Maps. With the assistance of the Dutch engineering firm Arcadis, the City of New York challenged its 2015 flood hazard maps contending that FEMA's analysis contained significant technical and scientific errors, overstating the Base Flood Elevations by more than two feet in many areas of the City and unnecessarily expanding the flood hazard area by 35 percent. On October 17, 2016, New York City Mayor Bill de Blasio and FEMA announced an agreement to revise New York City's flood hazard maps, dramatically reducing the number of people and properties in FEMA's flood zone. The City of New York made the case that the revised maps produced an unnecessary financial burden on too many property owners.

The same case could be made in Hoboken. The Preliminary Flood Insurance Rate Maps for Hoboken actually extend beyond the flood levels experienced even during Sandy and include areas of Hoboken that have never flooded.

## Costs

*A critical consideration is this: does the excessive cost of the resist infrastructure and maintenance undermine the funding of other flood mitigation strategies that would protect Hoboken from the far more likely types of flooding caused by non-surge, storms with heavy precipitation? If the \$230 million phase 1 funding from HUD is used exclusively to build the resist floodwalls, doesn't this contradict the original intent of Hudson River Rebuild by Design mandate, which was to develop a comprehensive flood mitigation program?*

Similar projects in New York City have been abandoned after the City concluded that building floodwalls is cost-prohibitive. New York City has more than 500 miles of shoreline to protect. The Rebuild by Design Big U project, originally designed to build a protective system around lower Manhattan from West 57th Street down to the Battery and back up to East 42nd, is now limited to the lower east side of Manhattan which will only protect a small fraction of New York City's shoreline. Floodwalls to protect Hunts Point in the Bronx, a vital part of the city infrastructure, will not be built due to lack of funding.

According to the Draft EIS, the total cost for the proposed Phase 1 of the Hudson River Rebuild by Design project ranges from \$351 to \$416 million. The HUD block grant to fund Phase 1 is for \$230 million. The cost to pay for the Alternative 3 *resist* portion was originally estimated to range from \$230 to \$274 million. If the actual costs exceeds \$230 million, where will the additional funding come from? Clearly the *resist* Alternative 3 is the most affordable option and Alternative 1 ranging from \$537 to \$602 million is simply cost prohibitive because it significantly exceeds current funding limits proposed by HUD.

Furthermore, the current budget proposed for the federal government will put an end to HUD's Community Development Block Grant program which is the source of funding for all of the Rebuild by Design projects. Other federal programs that support flood mitigation will likely be radically curtailed as well. The likely result is that there will be no phase 2 for this Rebuild by Design project.

Also, where will Hoboken find the required \$2 million in annual maintenance for the *resist* infrastructure? This would be a huge burden for our local government. Over the long-term, if no storms comparable to Sandy occur, the political will to sustain this financial cost using local tax levy funds will likely wane.

## What the Floodwalls Won't Protect

### *Hurricane Irene & Other More Frequent Non-surge Storms*

In August 2011, Hurricane Irene hit the Caribbean and East Coast of the United States. Irene became a tropical storm as it made landfall in Little Egg Inlet in southeastern New Jersey. The resulting unprecedented flooding in Hoboken was not the result of a tidal storm surge. Rather, it came as a result of extreme amounts of precipitation combined with high tides and saturated soils, a lethal and very common mix in Hoboken. The *resist* infrastructure proposed in this Rebuild by Design would provide no protection if another major storm like Irene were to hit the Hoboken area: not an unlikely scenario.

### *Sea Level Rise*

In December of last year, the Regional Plan Association (RPA) published *Under Water: How Sea Level Rise Threatens the Tri-State Region*. People typically cite sea level rise as the rationale for the floodwalls proposed for the Hudson River Rebuild by Design project. This report, however, contradicts that rationale, making clear that the floodwalls will not prevent the gradual and inexorable encroachment of water into coastal areas caused by climate change.

According to the report, “Permanent flooding from sea level rise is different than the intermittent flooding from storm surge or precipitation. Intermittent flooding recedes once a storm passes, while flooding due to rising sea levels is permanent and can be expected to encroach further inland over time.”

The RPA report states that early in the next century, more than half of Hoboken will be under water. By then, sea levels in the New York-New Jersey-Connecticut region will have risen six feet, permanently flooding over 600,000 residents in coastal communities. As early as 2080, sea levels could be three feet higher filling many towns in the New Jersey Meadowlands with water.

### *Flood Insurance Maps*

Building the *resist* floodwalls won't remove Hoboken homeowners from FEMA's flood hazard maps and the obligation to purchase flood insurance for mortgaged properties. Roughly 75% of Hoboken will remain at elevations that will still be at serious risk to flooding due to non-surge, major rainfall events once the *resist* structures have been built. The floodwalls proposed by this project will not protect against another Hurricane Irene, for instance, as cited above. Statements that have been made by both engineers and public officials participating in this project to this effect are ill-informed and inaccurate.

## Is this Truly a Model?

The purpose of the Rebuild by Design competition was to come up with innovative model programs that could be replicated to protect against future flooding in the northeast U.S. coastal region. The cost of building the *resist* infrastructure, however, makes it unlikely that the Hudson River Rebuild by Design project would serve as a model. This \$224 to \$269 million *resist* component would only protect perhaps 40,000 people in a region where 650,000 housing units were damaged or destroyed by Superstorm Sandy. Clearly a regional, not a local approach, is required to address the problem of future tidal surge events.

I hope you find this useful in evaluating the Draft EIS. I look forward to hearing your response.

Sincerely yours,



Ron Hine  
Executive Director