

August 17, 2016

TO: NJDEP/Hudson River RBD

FROM: Ron Hine

RE: Comments on the *Resist* Alternatives for Hudson River RBD

At this point, the Hudson River Rebuild by Design project is on a fast track after making some early assumptions without carefully weighing critical information on the likelihood of a surge similar to Sandy and the exorbitant costs of building the *Resist* infrastructure.

Before moving ahead, it is more important now than ever before to evaluate whether the direction of the project really is on the right course given the data now available. Decisions, of course, must be based on the best science available to us.

In January of 2016, a team of scientists completed a study entitled *A Validated Tropical-Extratropical Flood Hazard Assessment for New York Harbor*. Of the six-member team, four were from Stevens Institute of Technology, including Dr. Philip Orton and Dr. Alan Blumberg. The study sought to resolve disparate estimates on the likelihood of another tidal surge similar to Superstorm Sandy. The study states that the last surge of this magnitude occurred prior to the year 1700, more than 300 years ago. Completing a thorough analysis of past storms and calculating for rising sea levels, the study concluded that a comparable storm has a probability of occurring once in 260 years or in any given year, a 0.4% chance of occurring.

The Hudson River Rebuild by Design project has assumed that the first priority in developing a flood mitigation program for the Hoboken area is to construct a massive *Resist* infrastructure. As of July of this year, the cost estimates for the three alternative alignments are as follows:

Alternative 1	\$537 to \$602 million
Alternative 2	\$243 to \$282 million
Alternative 3	\$230 to \$274 million

For the *Resist* infrastructure to remain viable, Alternatives 2 & 3 require a \$1.5 to \$2.4 million annual maintenance investment.

Assuming that Alternative 3 -- the least expensive of the three -- is selected, the excessive price tag for building this infrastructure raises a number of serious questions:

- Can the investment of \$230 to \$274 million be justified given probability of another Sandy-magnitude storm event? And is the \$1.5 to \$2.4 million in annual maintenance

justified as well? If the actual number is closer to \$275 million where does the extra \$45 million come from? And what about the likelihood of cost overruns?

- What if the “resist” structures fail? Will alternative measures have been implemented to protect people and buildings? Will homeowners have adequate flood insurance coverage? (If the next Sandy-magnitude storm occurs in 100 years, the life of the floodwalls will likely be exceeded and the people responsible for installing the deployable gates, may no longer have the knowledge and training to do so.)
- Will the burden on the City of Hoboken to implement the other parts of Rebuild by Design -- the *Store Delay Discharge* -- that could total \$100 million plus the balance of funds required to complete the *Resist* and the annual maintenance become a financial albatross for the City? Does the cost of *Resist* result in other important flood mitigation strategies being under funded?
- Building the *Resist* infrastructure will be cost-prohibitive for most communities; thus, it cannot serve as a model for flood-resilience. This infrastructure is also of no use in providing protection against the more common type of flooding that occurs in the Hoboken area due to major rainfall events.

It is also important to note that the structural damage to buildings in Hoboken during Superstorm Sandy was minimal. Basements and ground-level areas were flooded causing damage to boilers, sheetrock, flooring, stored items, etc. There were millions of dollars in damage but unlike the shore communities in New Jersey and the Rockaways, for instance, Hoboken was not the scene of building structures decimated by the storm. Making buildings in Hoboken’s flood zone resilient to future storms is a viable alternative.

Once again, we believe it is critical that, before moving ahead, the current plan be re-evaluated to determine whether the direction of the project really is on the right course given the data now available.