

**“New Jersey’s Lower Hudson River Waterfront—  
25 Years of Construction: Challenges for the Next 25 Post-Sandy Era”**

**Oct. 8, 2013**

Sponsored by  
Hudson River Waterfront Conservancy of New Jersey and  
Stevens Institute of Technology

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**EXECUTIVE SUMMARY:**

Co-sponsored by the Hudson River Waterfront Conservancy of NJ, Inc., and Stevens Institute of Technology’s Davidson Laboratory/Center for Maritime Systems, the Waterfront Conference was held on October 8, 2013, at the Stevens Institute of Technology to focus attention on the need for a comprehensive approach to repairing and sustaining the foundations of the Hudson River Waterfront Walkway (the Walkway).

Over the last decade, the Conservancy has observed and documented the deterioration of many sections of the riverfront and its Walkway. In some areas due to age and the powerful force of the river itself, and in other locations due to faulty or inappropriate construction. Part of the problem continues to be ineffective accountability for funding renovations to stabilize the underlying shorefront and foundations. Further damage caused by Hurricane Sandy, which struck on October 29, 2012, raised public awareness of the need for action.

Panelists and keynote speakers included notable climate scientists, civil engineers, urban planners, experts in environmental science and landscape design, and public officials. They discussed the threats to the Walkway, new technology and methods for mitigating the threats, financing options, and adapting to the future. They aired many ideas about new approaches to ensuring the sustainability of the Waterfront Walkway and long and short term solutions to the persistent flooding problem.

Helen Manogue, president of the Hudson River Waterfront Conservancy of NJ, called for a renewed dedication to the Public Trust Doctrine, an ancient legal principle that provides for the general populace to have unobstructed access and use of the waterfront. Without the Walkway the Public Trust Doctrine would not permit residential or commercial development on the Hudson River waterfront.

Ms. Manogue and other speakers pointed out the need for a regional plan for the western edge of the lower Hudson River involving collaboration among the nine municipalities, the two counties (Bergen and Hudson) and the waterfront property owners that would

assure the long-term maintenance and sustainability of the Hudson River waterfront and its Walkway.

## **CONFERENCE AGENDA AND HIGHLIGHTS:**

**Welcome remarks by Michael Bruno PhD**, Dean of the School of Engineering and Science, Professor of Ocean Engineering, Stevens Institute of Technology, who gave a brief introduction to the History of Stevens Institute and Hoboken's founding family.

**Welcome remarks by Helen Manogue**, President, Hudson River Waterfront Conservancy of New Jersey, who shared a brief history of the Walkway and the Conservancy, plus images documenting the impact of Sandy on the Walkway. She called for a regional approach to planning for the Walkway's future.

**Opening Keynote address by Christopher Daggett**, President and CEO of the Geraldine R. Dodge Foundation, former New Jersey Department of Environmental Protection (DEP) commissioner and regional administrator for the U.S. Environmental Protection Agency (EPA); introduced by John Weingart, Associate Director, Eagleton Institute, Rutgers University, and former chairman of the Hudson River Waterfront Conservancy.

*Key message:* The Hudson River waterfront is a tremendous resource, driving economic benefits to the whole region. Gathering consensus to complete the walkway and reinforce its foundations will not be easy; it's going to take a lot of discussion, cooperation, an understanding of need and a regional approach.

### **Session 1: Understanding the Threat**

- **A Changing Climate: Radley Horton**, PhD, climate scientist at Columbia University, explained climate change in layman's terms, and shared the findings of the NYC Panel on Climate Change.

*Key message:* Since 1900, global mean temperatures have increased by 4.4 degrees F, and sea level has risen by 13 inches. Scientific consensus points to a continued acceleration of these trends by 2050, with a conservative forecast of an increase of 3 degrees Fahrenheit in global mean temperature and a 7-inch rise in sea level (outer range forecasts as high as 6 degrees Fahrenheit and over 2 feet). With the rise in sea level and increased frequency of severe weather events, coastal flooding is very likely to increase in frequency, extent, and height, exposing a greater area of NYC region to risk from severe flooding from major storms.

- **How Does a Municipality Plan for a Changing Climate? Stephen Marks**, Assistant Business Administrator for the City of Hoboken, discussed lessons learned by the city from Superstorm Sandy, and steps the city is taking to plan for a more resilient future.

*Key message:* The city is taking a multifaceted approach to making the city more resilient, exploring many ideas and funding sources for storm surge protection, flood-mitigation pumps, storm-water runoff management, back-up energy systems and green infrastructure. Also encouraging citizens to develop their own preparedness plans, and mobilizing a Community Emergency Response Team.

**Luncheon Speaker: Hendrick Ovink**, Senior Advisor to U. S. Housing and Urban Development (HUD) Secretary and Chair of Hurricane Sandy Rebuilding Task Force and the Rebuild by Design competition.

*Key message:* Learn from the experience of the Dutch, where much of the population lives at or below sea level. With proper planning and smart engineering, communities can reduce the risk of severe flooding. Shared an overview of the federal “Rebuild by Design” competition, for which a Hoboken project is in the running. In the long-term, it makes more sense to invest now, rather than waiting until after a disaster. Every dollar spent on repair (duplicating former building) is a lost dollar. It will be washed out again. And current dollars are cheaper than future dollars. Plus, investment in flood prevention saves money on response spending, also builds a safer region, and attracts more investment from homeowners to global businesses.

## **Session 2: Technology and Methods for Mitigating the Threat**

- **Architecture/Planning—New Approaches: Alexandros Washburn**, Chief Urban Designer of the City of New York Department of City Planning and author of The Nature of Urban Design: a New York Perspective on Resilience, gave an overview of new residential, commercial and urban design ideas, using his own plans for rebuilding in Red Hook, Brooklyn, as illustration.

*Key message:* Water is the new reality. Water is an urban challenge. His approach to design fuses together three styles: those of Robert Moses for accommodating a quantity of people, Jane Jacobs for preserving quality of life, and Frederick Law Olmstead for incorporating nature. The ultimate goal is to make neighborhoods resilient, while preserving the character of a community and the quality of common space, such as the streetscape. His own property in Red Hook, Brooklyn brings personal experience to his thinking on the individual and social impact of new designs. So while his own property is now four feet below the FEMA flood elevation, instead of vacating the ground floor, which has a distinctive Victorian design, he is converting it into a café that would be “wet flood-proof” – able to handle an inundation and bounce back.

- **Green Technology: Franco Montalto, PhD**, Associate Professor, civil engineer and Director of the Sustainable Water Resource Engineering Laboratory at Drexel University

*Key message:* When “green infrastructure” concepts are incorporated into design or redesign, two things result: useful services out of otherwise under-utilized spaces and reduced vulnerability to a range of climate risks. These projects can help make better use of underutilized coastlines – coastline and habitat enhancements, and aesthetic

improvements, resulting in protection from sea-level rise, and delivering enhanced livability

- **Review of Today’s Technology: Jon K. Miller, PhD**, Research Assistant Professor at the Center for Maritime Systems at Stevens Institute of Technology

*Key message:* New engineering design is offering alternatives to bulkheads and floodwalls, which inhibit public access to the shoreline and are bad for the environment and ecology. New approaches, many of which are being implemented in the Netherlands and even around the New York area, include “engineered storm surge barriers”; “working with nature” instead of resisting it; and “ecologically enhanced hybrid structures,” in which manmade structures imitate natural landscapes.

**Session 3: Financing the Future** (Due to shut down of the Federal Government, two of the programmed speakers were unable to attend and the session was cancelled.)  
Dr. Dircke was kind enough to continue the previous subject of discussion.

- **A Global Perspective on Resilient Design: Piet Dircke**, Global Program Director for water management at Arcadis and a leading global expert in flood protection who played a major role in planning projects for the NYC region and the New Orleans delta region, among others.

*Key Message:* As the world’s population and commercial activities become more concentrated in delta cities, which are vulnerable to sea level rise, flood mitigation becomes an urgent global economic issue, not just a local residential one. There are many new technologies to provide protection without separating people from enjoying their waterways. The key is multiple lines of defense—redundancy.

If we want to be innovative, we need to look at future requirements, understand that old laws and regulations were based on conditions that are no long relevant. Innovating with permitting and regulations is a big challenge.

#### **Session 4: Adapting to the Future Along the Hudson River Waterfront**

**Beth Ravit, PhD**, Department of Environmental Sciences; Founder and Co-Director of Center for Urban Environmental Sustainability, Rutgers University

*Key message:* Using Germany’s Ruhr River valley as a model, northern New Jersey’s coastal region can tackle significant challenges: dense population, contiguous coastline development; municipal-level land-use decisions, etc. Individual towns can’t absorb the costs entirely on their own; there is need of a regional approach to ensure that solutions in one area don’t create new problems in an adjacent one. Design for resilience has to integrate existing conditions and land-use regulations.

- **The Walkway: Its Role and Requirement: Hank White III**, Principal, HM White Site Architects (landscape architecture and urban design). Former President of the Hudson River Waterfront Conservancy of NJ

*Key message:* We are at the dawn of an era when the Walkway will be viewed as a valuable regional asset that not only provides recreation but also protection of existing development from hurricane surges. Within the original DEP design specs; there is a lot of room for variation along the Walkway, in design elements like materials, landscaping, lighting, site furnishings, architecture, 24-hour access and integration with upland development.

- **Disaster Mitigation and Repair: Chris Obropta, PhD**, Rutgers Cooperative Extension, Water Resources Program, associate professor, School of Environmental and Biological Studies, Rutgers University

*Key message:* At a lot of points along the Hudson, because of historical uses for industrial and shipping facilities, there are many hard structures, bulkheads, that weren't designed for storm surge protection. They also interfere with public use of the waterfront, as elevated walls block the view of the water, and turn the city into a bathtub, so drainage by pumping is needed. In more urban settings, municipalities can use green infrastructure to manage water - capture, hold, retain – to prevent or minimize flooding risk. Some examples are green roofs, rainwater harvesting, porous pavement, and rain gardens.

**The Future? Claire Weisz**, FAIA, Founding Partner WXY Architecture + Urban Design, based in NY, faculty member at NYU school of public service, frequent speaker on urban design

*Key message:* Shared examples of multipurpose, people-friendly designs, such as the High Line, which demonstrates that a well-designed walkway can increase real estate value and afford people a different view of the landscape. These facilities can be made to serve multiple purposes. Public right of way can be incorporated with cantilevered walkways on piers and natural shoreline. Elevate the piers above flood stage.