

*Planning for  
Rising Waters:  
Final Report of  
the City of  
Kingston Tidal  
Waterfront  
Flooding Task  
Force*



September 18, 2013

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# A. Executive Summary

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## Introduction

The Kingston, NY waterfront along the Rondout Creek and Hudson River is home to the commercial, industrial, and recreational shipping and boating communities, energy and wastewater infrastructure, businesses, churches, City parks and one of the few public beaches on the Hudson. A natural draw for festivals and celebrations, it also serves as the jumping off point for cruises of the Hudson River.

Flooding in the Kingston waterfront is nothing new. Over the last 100 years, the waterfront has experienced flooding from at least 12 hurricanes and tropical storms. Today, some areas of the waterfront, such as low areas along East Strand, occasionally flood when high tides coincide with a few inches of rain.

In the fall of 2012, Mayor Shayne Gallo appointed the Kingston Waterfront Flooding Task Force. Mayor Gallo charged the Task Force with evaluating the present and future vulnerability to flooding, storm surge, and sea-level rise along the Rondout-Hudson waterfront. He asked the Task Force to recommend strategies for a resilient waterfront. The Task Force included waterfront and business property owners, representatives of cultural institutions, neighborhood residents, elected officials, and City and County staff. The Kingston Conservation Advisory Council (CAC), Office for Economic Development, and Planning Department convened the Task Force. A planning team consisting of staff from the City of Kingston, the New York State Department of Environmental Conservation Hudson River Estuary Program and Office of Climate Change, the New York State Department of State, and Scenic Hudson guided the efforts of the Task Force. The Consensus Building Institute and Catalysis

Adaptation Partners provided facilitation and modeling services for the effort.

## Task Force Process

The Task Force met seven times between December 2012 and July 2013. Participants at the large public kick-off meeting described their visions of a flood-resilient Kingston waterfront. The Task Force selected the following key themes from that vision to guide the process and ultimately the selection of final recommendations:

- ▶ Recognize waterfront history and preserve a sense of community and a “sense of place.”
- ▶ Promote a waterfront economy and economic revitalization.
- ▶ Prioritize health and safety.
- ▶ Use natural systems to reduce flood risk.
- ▶ Secure infrastructure.
- ▶ Promote the implementation of Kingston’s Climate Action Plan, including reduction of greenhouse gas emissions through green architecture.

## Task Force Sea-Level Rise Projections and Planning Horizons

The Task Force identified and mapped waterfront assets and assessed vulnerability of the assets under a variety of sea-level rise and storm scenarios. Next, the Task Force, with assistance from the Planning Team, learned about, and evaluated flood adaptation

strategies for the waterfront and for shoreline neighborhoods. In addition, three site-specific strategies for the Strand and Ponckhockie neighborhoods were evaluated with a cost-benefit analysis under future sea-level rise and flood scenarios.

	2060s	2100
<b>Sea-Level Rise</b>	20"	33"
<b>Sea-Level Rise with Rapid Ice Melt</b>	36"	68"

*Sea-level rise projections and planning timeframes selected by the Task Force. These projections are consistent with the most recent projections released by New York State in the Governor's 2100 Commission report (<http://goo.gl/K9ohoi>).*

### **Vulnerability of the Kingston Waterfront**

Flooding already costs the city millions of dollars. Sandy cost the city \$2.3 million (estimate from Arcadis via Swanzey). The Task Force's vulnerability assessment demonstrated that Kingston could see tens of millions of dollars in future property damage if flooding is not mitigated along the Rondout-Hudson waterfront. The wastewater treatment plant is the most valuable building complex at risk, and its outflow pipes could cease to function if sea level rises enough to block them. In the high sea-level rise scenario over 50 properties, including the wastewater treatment plant, could be inundated in the next 50 years if no action is taken.

### **Task Force Recommendations**

The Task Force developed 24 general recommendations for the City, listed below, and many site-specific recommendations for shoreline neighborhoods which can be found in the full report. The final recommendations of the Task Force were endorsed by 17 members of the Task Force. Some of the recommendations can be implemented immediately; others call for further study to investigate complex policy issues. Both the Planning Team and the Task Force hope that their work will inspire Kingston to consider flood resiliency in all of its decision making and to continue the dialogue on this important issue.

- 1. Adopt the sea-level rise and flood projections recommended by New York State and the Kingston Waterfront Flooding Task Force for planning purposes.**
- 2. Incorporate these 24 findings and recommendations from the Kingston Waterfront Flooding Task Force into other City and regional plans.**
- 3. Develop a Kingston Waterfront Long-term Resiliency Plan.**
- 4. Reduce Kingston's greenhouse gas emissions and contribution to sea level rise and other climate impacts through the implementation of Kingston's Climate Action Plan, green infrastructure and green architecture.**
- 5. Ensure that all relevant City staff and elected and appointed officials are fully trained in and expected to incorporate impacts of flooding and sea-level rise into their daily work.**

6. Ensure that zoning designations in the Kingston 2025 Comprehensive Plan consider increasing risk and vulnerability from flooding and sea-level rise.
7. Require that proposals for new development of any kind in the Flood Hazard Overlay District take flood risk into account.
8. Reduce stormwater, upland flooding and combined sewer overflows through green infrastructure and best stormwater management practices.
9. Research, evaluate and implement changes to City building and zoning codes that will increase resiliency and are cost-effective and socially equitable.
10. Study the feasibility of using policy, zoning and building codes to achieve creative, water-dependent and water-enhanced uses that are resilient, including elevated, amphibious, or floating structures, wharves, berms and elevated rights of way.
11. Evaluate the use of natural buffers and green shoreline infrastructure to reduce flood risk and erosion and conserve natural resource functions.
12. Ensure that local street networks, utilities and other infrastructure function and remain connected as the City implements adaptation strategies to sea-level rise.
13. Research and evaluate land-use tools and financing mechanisms or incentives to facilitate flood adaptation in the waterfront.
14. Ensure opportunities exist for open space and recreation over the long term.
15. Consider future flood hazards in economic development planning.
16. Develop a plan to mitigate both near- and long- term risk to the wastewater treatment facility.
17. Host an informational public meeting with FEMA.
18. Conduct public outreach to property owners, tenants and prospective buyers in the Flood Hazard Overlay District.
19. Encourage and assist community-based organizations in their efforts to communicate the risks of flooding and potential adaptation solutions to vulnerable or non-English speaking populations.
20. Collaborate with other waterfront communities and county and state government to plan for coastal hazards like sea-level rise and storm surge.
21. Revise emergency management planning documents.
22. Employ new tools to improve real time emergency management planning.
23. Ensure safe access and evacuation along the waterfront during regular flood events.
24. Develop a process to map and track repetitive storm damage.