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Governor Chris Christie
State of New Jersey
Office of the Governor
PO Box 001
Trenton, NJ 08625

Dear Governor Christie:

I want to thank you for your strong leadership during and in response to Hurricane Sandy and congratulate you for swift action in seeing that mandatory evacuation of coastal storm hazard areas was carried out in a timely way and the region's transportation network was shut down in advance of the storm, thereby saving lives and limiting damage. I also congratulate you for the bi-partisan approach you took to secure a swift and comprehensive state and federal response in the aftermath of the storm.

However, I am disappointed that you have not taken this opportunity to make the connection between the intense storms that have struck New Jersey in recent years and the issue of climate change, and I encourage you to re-engage with the other north eastern governors in the Regional Green House Gas Initiative (RGGI) to put this storm and the "new normal" climate events we are likely to experience in the future into the appropriate context.

I am very interested in offering my expertise to a Coastal Commission or any other public commissions you will be forming to oversee the rebuilding effort, to design, and to implement comprehensive responses to challenges the State faces in the wake of Hurricane Sandy.

As the NY/NJ Baykeeper, I learned to see the *New Jersey/New York Bioregion* not as a collection of states or towns, competing industries or interests, but as a unified place. When seen from space, our Bioregion is without seams. The inland mountains and low hills feed thousands of tributaries, which feed our magnificent estuary and the sea.

We live in dangerous times, when "Business as usual" will no longer suffice, because that way leads to certain pain, peril and impoverishment. The more visionary path, to *A Bright Green Future*, will be far more challenging. It is a road we must build as we walk it.

The unprecedented destruction from Hurricane Sandy and the numerous public policy issues that have been raised in its aftermath make this a potentially transformative period in New Jersey history and a singular moment to demonstrate leadership. I urge you to seize the opportunity to initiate bold actions resulting lasting protections for New Jersey's economy, environment, energy, and equity.

The most recent storms to impact New Jersey have harshly pointed out flaws in our current

development patterns. Hurricane Sandy, for all its devastation, was just a Category 1 storm. Unfortunately, the likelihood of future storms with even greater power hitting New Jersey is not only possible, but probable.

For this and other reasons, I believe that New Jersey's, near-term, mid-term, and long-term response to Hurricane Sandy should be based upon four pillars:

1. The best scientific and technical expertise should be relied upon to inform government decision-making and the engaged and informed public must be engaged in the planning and implementation process.
2. Where rebuilding takes place, it must be done "smarter," rather than simply to restore the status quo;
3. Rebuilding and future development efforts must respect power of the "new normal," and taxpayer funds should be allocated in accordance with such realities;
4. The root cause of the intensified and more frequent storms – our planet's changing climate – must be expeditiously addressed

Immediate Challenges:

1. Set up a Coastal Commission tasked with, among other things, investigating, reviewing and recommending climate change adaptation strategies. Include experts in public health, marine ecology, natural resources protection, hazard mitigation, emergency preparedness and community outreach in the deliberations of that Commission.
2. Direct the Commission, as a first order of business, to recommend planning criteria that should be used to identify areas that are vulnerable to future storms and flooding. These criteria should take into account future sea level rise projections, storm surge projections, and floodplain projections that utilize the best currently available science. Once these criteria are established, relevant agency staff should assist the Commission in identifying and classifying areas across the state that are, or will be, at significant risk of flooding.
3. Update statewide maps, based upon such uniform planning criteria, should be prepared to help launch coordinated statewide planning efforts, and to guide the implementation of risk-reduction measures and responsive adaptation actions.
4. Take necessary steps to purchase (presumably with federal funds) homes and businesses that have been destroyed by storm surges (and are likely to be destroyed again if rebuilt in place), and develop plans for converting those properties into natural storm surge buffer lands.
5. Work with other governors, local elected officials and the region's Congressional delegation to secure appropriate additional funds from Congress to undertake the daunting task of sustainable rebuilding and redevelopment.

Readiness:

Hurricane Sandy reminded all of us in New Jersey and the region of the widespread devastation that can result when I are not fully prepared in advance of natural disasters:

1. Strengthen the New Jersey Building Codes to provide greater resilience during and after extreme weather events. The State should ensure that buildings remain habitable during and in the aftermath of extreme weather events.

2. The State should also amend the Building Code to provide that building energy systems typically located in basements or lower floors, such as critical elements of back-up generators and boilers, are strategically positioned within the building to avoid potential flooding problems. Additionally, requirements for new buildings should be based on future, predicted conditions of sea level rise and extreme weather events, rather than historical experience.
3. Work with municipalities to evaluate the preparedness of publicly owned sewage treatment plants and drinking water facilities in at-risk areas and encourage local governments and authorities to harden such infrastructure, to reduce their vulnerability to future damage from storms and other natural disasters.
4. Utilize existing state authority, or press the federal Nuclear Regulatory Commission, to require that the State's nuclear power plants (to the extent that they are located in at-risk areas) develop and implement additional plant-hardening strategies and demonstrate that their facility is able to withstand storm surges that could be considerably greater than envisioned when the plants were originally licensed.
5. Revise state solid waste regulations to direct localities to separate their storm-related or disaster-related debris at waste staging-areas or at other local collection points, so as to maximize the opportunities for recycling of cars, white goods, construction and demolition wastes, and business and household hazardous wastes, and for composting (or shredding and pelletizing) of tree limbs, branches and other vegetative debris.
6. Work with federal and county officials to adopt (or revise) emergency pollution monitoring plans, so that pre-placed monitoring equipment and a pre-designed monitoring program to assess local air and drinking water quality can be deployed and/or implemented, where appropriate, within 24 hours following natural (or other) disasters.
7. Direct the State Office of Emergency Management to clarify for the public, and disseminate in writing to residents in at-risk communities, the overall division of responsibilities of the various local, county, state and federal agencies and departments with respect to emergency-response services during and following natural (or other) disasters. *(In my visits to communities devastated by Hurricane Sandy, I encountered several residents who simply did not know which agency to turn to for particular assistance, and there seemed to be some confusion even among agency personnel themselves as to which entity was responsible for which relief service or recovery assistance.)*
8. Launch a multi-media public education campaign targeted at homeowners in communities at risk from flooding and storm-surges, providing residents with information necessary to prepare for and respond to an emergency.
9. Initiate a voluntary program, using FEMA assistance where possible, to aid businesses located in at-risk communities and provide options for relocating electric equipment, fuel tanks, hazardous materials, etc. to better protect the local environment and to minimize costs to such business establishments from future flooding and storm surges.
10. Inform commercial and industrial property owners located in A and V zones about the options for coming into compliance with the new FEMA maps by "wet or dry floodproofing" their structures.
11. Require, through legislation or otherwise, that every transit system in an at-risk area of the state implement a "transit-hardening" strategy, that is based upon an assessment of risks to their system during or after major storms or other natural disasters and which includes measures to safeguard train and bus fleets, protect

- storage facilities and other equipment, and prevent or minimize flooding in tunnels and other below-ground infrastructure.
12. Develop a strategy that provides for people to remain in public housing and other buildings for an appropriate period of time following extreme weather events to ensure public safety by providing alternative electricity for key uses, such as emergency stairway lighting, water pumps and elevators.
 13. Work with the State Legislature to develop a funding mechanism that will supplement federal funds, so as to insure the implementation of these plans.

Protect Vulnerable Communities by Using Natural Barriers and Green Infrastructure:

To better protect people and communities from flooding, storm surge, sea level rise and other extreme weather, New Jersey will likely implement a range of different strategies. While some forms of “hard infrastructure,” such as rebuilt sea walls, will be needed in some areas, I believe that New Jersey should maximize the use of “soft” infrastructure techniques, such as expanded coastal Islands, oyster reefs and dunes that help mitigate storm surge. Similarly, “green infrastructure” strategies -- such as “greenbelts,” roadside plantings, porous pavements, expanded tree pits, rain barrels and roof gardens, etc. -- can help mitigate rain-induced flooding.

These “soft” strategies can also be implemented without undue delay and are far less costly than the most controversial hard infrastructure. They are also decentralized and can be implemented at multiple locations; they are flexible and adaptable, and they allow for planning to be incremental, continuous and easily modified. While natural barriers and green infrastructure projects are only part of the solution, they have proven effective in reducing storm water and coastal flooding impacts and are relatively easy to implement and enjoy strong public support:

1. Proceed with caution before advancing any major storm-surge barrier project due to the adverse environmental and economic impacts that such a project would likely yield. For example, such storm surge barriers would likely: exacerbate flooding in areas located beyond the barrier; disrupt commercial and recreational fisheries and other marine resources; impede the flushing of polluted storm water runoff and sewage overflows; contribute to coastal erosion; and take many years and billions of dollars to plan and construct. Thus, any proposed storm barrier project should be subject to a full Environmental Impact Statement so that decision-makers and the public can fully explore and analyze the environmental and economic costs and benefits before a decision is made on whether to proceed.
2. Prioritize funding -- both from state and expected federal sources -- for the identification and implementation of coastal ecosystem protection and restoration projects (e.g., building and vegetating dunes, restored and expanded coastal and fresh water wetlands, revitalized oyster reefs, etc.) that can absorb storm surge and flood waters, dissipate wave energy, maintain natural shoreline dynamics, enhance fisheries and preserve public access to the coast. Many such specific projects have already been catalogued in regional plans such as the Comprehensive Restoration Plan for the New Jersey-New Jersey Harbor Estuary and by organizations like NYNJ Baykeeper, Clean Ocean Action, the American Littoral Society, and NRDC.
3. Propose legislation to give NJDEP jurisdiction over smaller wetlands that serve as natural retention basins and reduce severity of localized flooding.

4. Prioritize funding for green infrastructure projects that relieve pressure from aging sewage treatment plants and storm surge systems that incorporate LID or green infrastructure to manage storm water and combined sewage overflows (CSO).
5. Use NJDEP enforcement authority to insure that municipalities adopt Long Term Control Plans (for combined sewer overflow) and Watershed Improvement Strategies (for separate sewer systems) that make broad use of green infrastructure to meet Clean Water Act goals and reduce flooding risks.
6. Propose and advocate for legislation to create regional storm water utilities that can raise revenues for implementation of green infrastructure projects and set storm water utility charges in ways that incentivize green infrastructure use on private property.
7. Maximize the use of green infrastructure designs in all state-funded capital projects.
8. Revise state building, plumbing, and other codes to remove barriers to the use of green infrastructure, while also facilitating similar revisions of local codes by municipal governments.

Planning Future Development:

One of the most difficult challenges that New Jersey officials will confront in the aftermath of Hurricane Sandy is how to plan for new development in at-risk communities, and when climate will be undergoing unprecedented upheaval.

Clearly, the impacts of climate change must be factored in to decisions about where and how to build. We need the best and most up-to-date maps indicating at-risk areas, to assist in thoughtful planning. We need new design standards to reduce the vulnerability of infrastructure in storm and flood hazard areas. I suggest that a newfound respect of the power of the “new normal” (and protecting taxpayer dollars) should become a key element of official state policy.

1. Consider creating a “Disaster Compensation Fund” (hopefully utilizing federal funds) to facilitate the buy-out of destroyed homes and businesses located in areas considered too hazardous to rebuild, and use some Sandy recovery funds as an incentive for those whose homes and businesses have been destroyed by storm surges or flooding to find new, safer locations on which to rebuild. In addition, the state should now begin to analyze the costs and benefits of directing new development away from locations deemed most vulnerable.
2. Direct the appropriate State agencies to amend the state’s Coastal Management Program to incorporate a coastal resiliency strategy and encourage alignment of local land use decisions with that resiliency strategy.
3. Direct NJDEP to revise regulations so as to require that climate-related risks from sea level rise, flooding, storm damage are reviewed and accounted for in all CAFRA and other development proposals or applications.
4. Require detailed analyses for publicly financed infrastructure projects; and require that the findings certify climate resiliency, and are subject to public comment.
5. Update natural resource-related maps to show post-storm locations of naturally protective features (e.g., tidal and freshwater wetlands) and, based upon this information, revise coastal hazard maps, so that this new information can be used in future decision-making.

6. Adopt new state standards for the design of state-funded and public infrastructure, which take into account sea level rise and flooding predictions, and aim at reducing vulnerability and promoting ecosystem health. Such standards would help insure that when electric, water, wastewater or other utilities or other buildings with significant public investments are built they are better able to withstand increasingly intense and frequent storms.
7. Modify the Floodplain Protection Standard (FEMA delegates administration of this program to the states which may adopt more stringent standards), to more adequately protect floodplains in New Jersey by reducing allowable Base Flood Elevation from 1 feet to 0 feet.

Safeguarding Public Health

The aftermath of Hurricane Sandy has taught us valuable lessons about the need for greater safeguards to protect the public health, especially those New Jerseyans who are most vulnerable and least able to rapidly move themselves out of harm's way. Looking beyond the immediate horizon, it will be important for the state to systematically work with some of the most important facilities –including hospitals, nursing homes, schools, public housing developments -- to insure that officials in charge of these institutions are taking steps to better prepare their organizations to respond to future storms and other disasters. To help accomplish this task, I recommend the following:

1. Evaluate the state of flood- and storm-preparedness and evacuation planning by hospital facilities in at-risk areas, and take steps to insure responsive planning by such medical facilities so as to forestall extremely costly and life-threatening damage from future storms.
2. Direct the appropriate State agencies to examine the evacuation plans for nursing homes and other elder care facilities located in flood-prone areas and to recommend remedial legislation or regulatory reform, if needed, to insure full protection for residents of these facilities.
3. Direct the NJ Department of Education to review the vulnerability of schools in flood-prone locations to water and moisture damage and to adopt guidance for retrofit or remediation policies to reduce risks of flooding, moisture incursion and mold growth and exposures among school children and staff in schools throughout the state.
4. Work with local governments to evaluate the state of flood- and storm-preparedness and evacuation planning for public housing and in at-risk areas, and recommend steps to reduce risks identified through such reviews.
5. Assess the effectiveness of existing community evacuation plans in at-risk areas, (with input from affected community groups and individuals) to identify what elements of such plans are working ill and what elements require improvements; one goal of these assessments should be to determine whether legislation, regulatory reform or other actions are necessary to enhance public evacuation protections in advance of future floods and other natural disasters.

Mitigating Climate Change and De-centralizing Electric Systems:

Hurricane Sandy and last year's Hurricane Irene have demonstrated the vulnerabilities that New Jersey faces from destructive storms and their direct consequences. Such storms will likely

become both increasingly frequent and increasingly severe due to our changing climate. The science is no longer in dispute and the time for action is now. In formulating its response to these events, We must take key steps to mitigate greenhouse gases through a bold and strategic clean energy framework -- developing the highest reliability and lowest carbon solutions. Implementing such measures will provide us with a more resilient and reliable electric system, upon which so much of our daily lives and critical systems depend, and help to curb the pollution responsible for causing climate change.

1. Re-engage in and strengthen the Regional Greenhouse Gas Initiative (RGGI). New Jersey must be the leader in lowering the RGGI emissions cap and then use the additional proceeds to assist communities impacted by the closure of coal (or other fossil fueled) generating plants. It should also ensure that other RGGI auction proceeds are invested as they are intended, for greater investment in clean energy programs and greenhouse gas reduction.
2. Scale up the state's total investment in energy efficiency five-fold over the next year. Energy efficiency is the cheapest, easiest and fastest way to address climate change, while also putting thousands of people to work and increasing grid reliability.
3. Implement a program to develop a robust wind and solar energy industry in New Jersey thereby helping to increase the reliability of our electric grid and reduce transmission and distribution costs, creating thousands of jobs, and generating billions in economic activity. Such an extension will provide the necessary policy clarity, certainty and longevity to instill confidence in investors and developers of solar and wind energy that New Jersey is open for their businesses.
4. Expand and extend the State's Renewable Portfolio Standard (RPS) and promote offshore and on-shore wind so that New Jersey continues to harness the many benefits associated with clean, renewable power. 50% of our electricity should come from renewable sources by 2025.
5. Many businesses and home owners will need to replace equipment and appliances that are damaged as a result of Hurricane Sandy. The State should insure that adequate incentives and assistance are in place, both from the appropriate state agencies and the utilities, to facilitate the replacement of these items with high-efficiency options, thus harnessing the tremendous energy and cost savings potential that the rebuilding process represents.
6. Provide continuing national leadership by pressing the U.S. Environmental Protection Agency to adopt and implement strong pollution control standards governing power plant emissions, the number one source of global warming pollution in the United States.

Improve the Resilience of Our Electric System through Expanded Clean, localized or distributed generation:

1. Increase deployment of distributed clean energy generation and storage with more opportunities for operational flexibility of these distributed systems during utility shutdowns. Localized energy production and non-combustion fuel cells can provide targeted reliability, as they can remain operational during a power outage and provide ongoing localized back-up power for distributed renewables, such as solar PV systems.

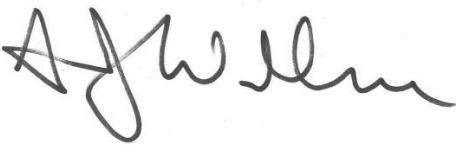
2. The State should also develop the technology that would enable solar installations to remain active when the power grid is down.
3. Preference for deploying smart, flexible and clean distributed energy generation and storage technologies should be given to mission-critical healthcare and treatment facilities, first responder facilities, and community shelters such as schools and other public buildings.

Require More Effective Utility Planning and Investigation of Preventive Measures:

1. Require that electric utilities develop plans that analyze how their infrastructure may be impacted by storms and other natural disasters and provide a blueprint for how such potential impacts can be avoided or reduced, so as to ensure continued, reliable electric service to their customers. Require that electric utilities investigate and take steps to implement “storm-hardening” and other preventive measures (e.g., more frequent tree-trimming, pole maintenance, etc.) and assess the costs, benefits and feasibility of undergrounding their “above-ground” electric lines.

Thank you for your attention and consideration of these suggestions.

Sincerely,

A handwritten signature in black ink, appearing to read 'Andrew J. Willner', written in a cursive style.

Andrew J. Willner

<http://www.andrewwillner.com/wordpress/wp-content/uploads/2012/11/Andrew-J-Willner-long-CV1.pdf>