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The Perfect Storm: Sandy, New Jersey Land Use, and the National Flood Insurance Program

“Natural disasters, of course, are not “natural.” They are catastrophic events that result from the interaction of natural hazards and human presence.”¹

I. INTRODUCTION

Residents of New Jersey understand that the shore is a large part of the state’s identity. The New Jersey shore was the first heavily developed beach in the country, paving the way for the future shore culture that would develop.² Many New Jerseyans have fond memories of spending their summers in the surf and sand, vacationing in any of the hundreds of coastal communities. Development of the coastal land in a highly densely populated state has exploded since the 1800s.³

The population of New Jersey is also painfully aware of the destructive forces that lurk just off the coast. Hurricane Sandy swept homes off of their foundations, the ocean crossed entire barrier islands, and boardwalks fell into the sea.⁴ Seawalls have been constructed and beaches constantly replenished in order to protect coastal structures from storm surges⁵, but these protective actions can only do so much. While Sandy made landfall at what could arguably have been the worst moment in the tidal schedule, during both high and spring tide⁶, it was actions taken by both New Jersey and the federal government that caused the most destruction.

¹ Rutherford H. Platt, *Learning from Disasters: The Synergy of Law and Geography* 38 ENVTL. L. REP. NEWS & ANALYSIS, 10150, 10152 (2008).

² See *infra* notes 53-54 and accompanying text.

³ ORRIN H. PILKEY & KATHARINE L. DIXON, *THE CORPS AND THE SHORE* 1 (1996).

⁴ Chris Kirkham & John Rudolf, *Jersey Shore Development Failures Exposed by Hurricane Sandy*, HUFFINGTON POST (Dec. 12, 2012), http://www.huffingtonpost.com/2012/12/11/jersey-shore-development_n_2267557.html.

⁵ See *infra* notes 33-45 and accompanying text.

⁶ See *infra* note 90.

With the explosion in land development and the subsequent destruction of the beaches, New Jersey took action with a land management plan called the Coastal Area Facility Review Act (CAFRA).⁷ First enacted to regulate industrial development, over time CAFRA was increasingly used to protect the shore from residential expansion.⁸ The problem, however, were the loopholes contained within the Act that were exploited by municipalities seeking to increase tax revenue through increased construction.⁹ Local politics combined with a past lack of appreciation for the dangers of coastal living present obstacles to changing the problems associated with the poor land use decisions propagated by CAFRA.

Further exacerbating the problem of over-development in dangerous coastal flood areas is the Federal Emergency Management Agency (FEMA) operated flood insurance program, known as the National Flood Insurance Program (NFIP).¹⁰ This insurance program foresaw that flood insurance premium rates would be subsidized in order to make premiums more affordable so that a greater percentage of the population would participate in the program.¹¹ This in turn led to a decrease in the price of beach property due to taxpayers picking up some of the risk associated with coastal living.¹² The structure of the NFIP prevents these issues from being addressed and only a major overhaul of the program can cure these ills.

⁷ Construction of Facility in Coastal Area; Permit; Exceptions, N.J. STAT. ANN. §13:19-5 (1993).

⁸ See *infra* notes 63-65 and accompanying text.

⁹ See *infra* notes 66-69 and accompanying text.

¹⁰ National Flood Insurance Act, 42 U.S.C.A. §§4011-4032 (2012).

¹¹ National Flood Insurance Act, 42 U.S.C.A. §4014(a)(1) (2012).

¹² See *infra* notes 122-124 and accompanying text.

II. NEW JERSEY'S CURRENT LAND USE STRUCTURE COMBINED WITH THE NATIONAL FLOOD INSURANCE PROGRAM HAS CONTRIBUTED TO RISKY COASTAL LAND DEVELOPMENT.

On October 29, 2012, Hurricane Sandy brought heavy rains, strong winds, and powerful storm surges to the New Jersey shore.¹³ New Jersey land use laws as well as the National Flood Insurance Program produced risky coastal development which placed property and lives in the way of coastal storms. After these structures were built, coastal residents and businesses tried to protect their investments by building hard edifices and replenishing the eroding beaches. The result of these actions often led to both their money and sand on their beaches washing away. This was due solely to nature and how beach stabilization affects the shore.

A. THE BEACH IS A MOVING BODY OF UNCONSOLIDATED LAND WHICH SHIFTS DUE TO THE FORCES OF NATURE, REGARDLESS OF MAN MADE STRUCTURES.

Before investigating the issues created by the policies that encourage risky development in coastal flood areas, one must have an understanding of exactly what a beach is and its role in relation to the continental mainland. Beaches are extraordinary bodies of land that are constantly moving, shifting and changing. They form at the meetings of sea and land and consist of unconsolidated material.¹⁴ Given that these strips of land are situated adjacent to one of the most powerful forces on the planet, the shore is subjected to fierce winds, pounding waves, and strong

¹³ Christina Ng, *Superstorm Sandy Crashes Ashore in New Jersey*, ABC NEWS (Oct. 29, 2012), <http://abcnews.go.com/US/hurricane-sandy-makes-landfall-jersey/story?id=17592795#UXmKrrUsmf4>

¹⁴ This material is separated into three distinct categories based on grain size of the material that comprise the beach. Beaches can either be made up of sand, gravel, or boulders. These materials can be further broken down. For example sand can either be made from volcanic material such as in Hawaii, coral as in Bermuda, or quartz such as in the beaches of Cape Cod. Beaches can further be distinguished by the size and force of their waves such as beaches that are high energy, moderate energy, or low energy. PILKEY & DIXON, *supra* note 3, at 20,22.

tides.¹⁵ It is the meeting of these great forces combined with the makeup of a beach that makes its function so critical. One of the most important functions of a beach is that it acts as a buffer between a coastal state and the forces of the sea, bending and twisting to absorb the strength of waves and wind.¹⁶ The importance of this role is amplified by the presence of a coastal storm which threatens the interior of a state.¹⁷ The combination of wave energy, sand, beach shape, and sea level allow beaches to move and carry out the important function of a shock absorber.¹⁸ Each beach is unique in size, shape, location, and composition. This distinctiveness means that each beach protects inland regions differently.

The New Jersey shore owes its form to one of the most distinct types of beach: the barrier islands. As their name indicates, barrier islands protect continental lands from the sea and its accompanying forces.¹⁹ A barrier island is a thin ribbon of sand that runs parallel to the coast.²⁰ In order for these types of beaches to form, four conditions must be present.²¹ The first condition is that sea levels must be rising.²² Secondly, the beach must be a part of a coastal plain, defined

¹⁵ *See id.* at 20.

¹⁶ “It retreats when things get tough during a storm and returns when the weather is calm. It shapes itself to best absorb the pounding storm waves and forms a different shape when the waves are small.” *Id.*

¹⁷ The beach flattens during a storm by moving sand from the upper beach to the lower beach. Flattening allows the wave energy of the breaking storm waves to be dissipated over a broadened surface relative to the beach before the storm. After the storm passes, much of the sand will return over ensuing months and years.

Id. at 22.

¹⁸ When any of these four factors changes, the others adjust. For example, when wave energy increases due to a storm, there is a temporary increase in sea level. The wave energy shifts sand according to its composition and quantity. The moving sand changes the shape, size, and location of the beach. The rise in sea level allows the sea to reach further inland, changing dunes and bluffs. The interaction between these four factors is called a beaches “dynamic equilibrium”. *Id.* at 23.

¹⁹ WALLACE KAUFMAN & ORRIN H. PILKEY, JR., *THE BEACHES ARE MOVING* 113 (1998).

²⁰ PRINCETON WORDNET, <http://wordnetweb.princeton.edu/perl/webwn?s=barrier%20island> (last visited Mar. 20, 2013).

²¹ PILKEY & DIXON, *supra* note 3, at 15.

²² Sea levels began to rise at the end of the last ice age, approximately 18,000 years ago. As the sea level began to rise, coastal plains were flooded and the sea extended miles into continents. The ocean began to fill in ridge flanked valleys. Over time, these ridges eroded and turned to sand. Storms most likely cut through this sand and separated what was once one ridge into separate independent islands. *Id.* at 15-16.

as a low flat surface that extends to the sea.²³ The third condition that must be present for the formation of barrier islands is the existence of a large supply of sand.²⁴ Without a large supply, sand could not accumulate into island formations.²⁵ The final condition that must exist is the presence of waves which are large and powerful enough to shift large quantities of sand around.²⁶ If these four conditions were not present, the barrier islands that make up the New Jersey shore would not exist.²⁷

While every type of beach is dynamic in nature, bending and moving to the forces of wind and sea, barrier islands are beaches that are mobile to an extreme. Due to rising sea levels, barrier islands are subject to a process called “island migration”.²⁸ Island migration occurs when sand on the ocean side of the island washes over it and moves towards the mainland.²⁹ In a sense, the island rolls over itself and moves closer to the continental land mass.³⁰ Island migration is a natural process that aids in protecting continental lands; the barrier island moves landward as the mainland retreats in the face of rising ocean levels, allowing the island to absorb energy produced by the sea that would normally reach the interior.³¹ Natural processes, such as island migration, are not inherently damaging. It’s only when humans interact with these processes that

²³ *Id.* at 15.

²⁴ *Id.*

²⁵ *Id.*

²⁶ *Id.*

²⁷ For example, Florida has large quantities of sand, is located on a coastal plain, and is subject to rising sea levels. However, the coast of Florida is missing the requisite large waves for the creation of barrier islands. The result is that the large supply of sand off the coast does not move inland and form islands. *Id.* at 15-16.

²⁸ *Id.* at 16.

²⁹ KAUFMAN & PILKEY JR., *supra* note 19, at 96.

³⁰ The ocean side of the island retreats as storms push sand across the island to form overwash fans. Overwash fans, which often extend into the lagoon behind the island, may cause the island to widen in a landward direction. Simultaneous shoreline retreat of the open-ocean side of the island results in island migration.”

PILKEY & DIXON, *supra* note 3, at 16.

³¹ While island migration is a naturally occurring process, human forces may interrupt and negatively affect this procedure. As sea levels continue to rise, as they have within the past century, both sides of barrier islands appear to be disappearing due to the process of erosion. It is believed that this dual side erosion is being caused by rising sea levels which is thought by some to be a result of human actions. *Id.* at 20.

disasters result. When a coastal storm hits New Jersey and the beach attempts to retreat and roll over itself, it is met with homes, businesses, seawalls, and highways.³²

While the sea threatens to take New Jersey's beaches and barrier islands roll over themselves through the process of island migration, buildings continue to rise from the sand and people are forced to protect their investments and lives from natural processes. While this paper focuses primarily on land use management and the subsidies created by flood insurance, there are coastal protection systems available to shore communities and they are often implemented in an attempt to keep the sea at bay, sand on the beaches, and buildings standing. This paper briefly discusses these coastal protection devices in order to gain a clearer vision of the beach and its coastal communities.

The most visible of the coastal protection devices are hard stabilization structures which include man-made structures such as seawalls and groins.³³ Hard stabilization involves erecting structures to shield the shoreline and hold it in place.³⁴ The most widely used form of hard stabilization is the seawall, a structure built to run parallel to the coast.³⁵ While seawalls are highly effective tools to combat the destruction of coastal structures, they often destroy the very thing that draws people to the shore, the beach.³⁶ Whereas a beach absorbs the energy created by waves by way of moving, seawalls are stationary objects that do not yield until broken or breached. This causes the sand in front of the wall to move further out to sea and accelerates

³² *See id.* at 34.

³³ PILKEY & DIXON, *supra* note 3, at 38.

³⁴ *Id.*

³⁵ The size and make up of seawalls varies almost as much as the types of beaches. They can be constructed of wood, concrete, rock, tires, or various other types of materials. They are tall and short, large and small. *See id.*

³⁶ Besides destroying the beach, seawalls also impose other negatives on coastal living. Due to their very nature, seawalls are permanent structures. They cannot be torn down without great expense. Therefore, seawalls cannot change with the engineering landscape when it comes to coastal protection. On the aesthetic front, seawalls are not very pleasant to view. They ruin the uninterrupted view of nature and are often made from unattractive material.

erosion of the beaches on both ends of the wall.³⁷ Groins are another example of a hard stabilizer used to protect structures by preventing erosion from taking sections of beach. Unlike seawalls which are built parallel to the shore line, groins are built perpendicular, jutting out into the ocean.³⁸ The purpose of a groin is to trap sand in a certain area and stop erosion of a particular portion of the beach.³⁹ This occurs because of the long shore flow of sand which allows the beach to function as if it were a river of sand.⁴⁰ While a groin does its job as prescribed, it does so at the detriment to neighboring areas of beach.⁴¹ Although seawall and groin type structures do provide a function, the consequence of their use is further destruction of the beach, the one thing standing between the mainland and the power of the ocean.

Soft stabilization of the beach consists of beach replenishment which involves nourishing the beach with sand exported from other areas.⁴² The purpose of this process is to replace the sand that had been removed from the beach due to erosion.⁴³ Often, this erosion is a consequence of rising sea levels or the construction of manmade objects.⁴⁴ This method of coastal protection has been successful and many beaches continue to exist through replenishment, but the cost is

³⁷ Wave energy is intensified rather than dissipated, so even more sand is swept offshore to the continental shelf. This direct participation of a seawall in the degradation of a beach is called active loss. As the beach narrows in front of the wall, reducing the available beach area, the amount of sand transported past the wall in both directions is reduced because the smaller surface area of the surf zone. The reduction leads to erosion on adjacent shoreline reaches.

PILKEY & DIXON, *supra* note 3, at 40.

³⁸ KARL F. NORDSTROM ET AL., *LIVING WITH THE NEW JERSEY SHORE* 35 (1986).

³⁹ *Id.*

⁴⁰ The various forces at work where the land meets the sea, particularly wind and waves, keep the sand in motion. Longshore currents then take this suspended sand and move it in the direction that the water travelling. These currents are often formed when waves strike the beach at an angle less than 90 degrees. As the sand moves along this "river", it gets deposited to the beaches down the current. *See generally* PILKEY & DIXON, *supra* note 3, at 29-30.

⁴¹ NEW JERSEY DEP'T OF ENVTL., *I NEW JERSEY SHORE PROTECTION MASTER PLAN PROT.*, 224.N5N47, ch. 2 at 2 (1981).

⁴² This sand often comes from offshore sand deposits, inlet tidal deltas, or another beach located further upland. PILKEY & DIXON, *supra* note 3, at 49.

⁴³ *Id.*

⁴⁴ *See e.g. id.* at 13, 43.

extraordinarily high.⁴⁵ These projects must continue indefinitely as sea levels continue to rise.⁴⁶ Furthermore, there can be no definite schedule to when a beach needs to be replenished due to sand loss.⁴⁷ Replacing sand that has been lost on a beach is a time consuming and expensive enterprise requiring time for planning.⁴⁸ However, science will never advance to a point where large storms, that strip beaches of sand, can be predicted and incorporated into this planning schedule.⁴⁹ So while humans have engineered ways to prevent our beaches from eroding, money will need to be spent for an indefinite amount of time to keep these programs operating.

B. NEW JERSEY LAND USE REGULATION AND THE COAST

Both hard and soft stabilization act as band aids on a wound rather than trying to prevent the cut from occurring in the first place. Worse still, while protecting structures that have been constructed on the beach over decades, hard stabilization tends to destroy the very beach which attracted people to New Jersey over two hundred years ago. The only one-hundred percent effective way to protect the structures located in coastal flood plains is to manage the land and prevent or limit certain types of construction.

1. PRE CAFRA: “‘I KNOW EVERY INCH OF THIS PLACE, EVERY ROCK, TREE, WEED, AND FOLD OF THE EARTH.’ NO ONE CAN SAY THAT ABOUT THE SHORELINE OR THE BEACHES.”⁵⁰

Before there were the glitzy art deco buildings of Miami, long before the Gulf Coast was transformed into a tourist’s paradise, there was the New Jersey shore. The wealthy from New

⁴⁵ NEW JERSEY DEP’T OF ENVTL. PROT., *supra* note 41, at 4.

⁴⁶ As sea levels continue to rise, the ocean will swallow up larger sections of the beach. As this occurs, coastal communities will be forced to constantly replace the lost sand. *Id.*

⁴⁷ *Id.*

⁴⁸ See generally PILKEY & DIXON, *supra* note 3, at 76.

⁴⁹ PILKEY & DIXON, *supra* note 3, at 91-92.

⁵⁰ KAUFMAN & PILKEY JR., *supra* note 19, at 12.

York and Pennsylvania flocked to the shore to cool off in the summer months.⁵¹ It was due to this influx of wealth that the New Jersey shore was the first comprehensively developed beach in America.⁵² On July 1, 1801, the first advertisement appeared for the New Jersey shore in the *Philadelphia Aurora*.⁵³ The advertisement proclaimed the beauty of the shore while also foreshadowing the numerous modern beach resorts that would come to exist.⁵⁴ However, the realization of heavy development was met with negative consequences.

The success of the New Jersey shore would lead to the beach's downfall. Just as the shore was becoming a popular vacation destination, owners of tourist establishments began to notice that their investments were vulnerable to great natural forces.⁵⁵ Owners began to construct seawalls and groins in order to protect coastal buildings from storm surges created by coastal storms.⁵⁶ As previously discussed, the thought behind constructing these hard stabilizers was to protect the buildings on the barrier islands from powerful waves and storm surges.⁵⁷ The consequence of the construction of seawalls and groins was the destruction of the beaches.⁵⁸ New Jersey turned into a model on how not to develop a beach, leading to the formation of the term "New Jerseyization" of coastlines.⁵⁹ Concerns stemming from the "New Jerseyization" of the shore paired with the exponential growth of communities all along the beach caused the U.S.

⁵¹ PILKEY & DIXON, *supra* note 3, at 1.

⁵² *Id.*

⁵³ R. CRAIG KOEDEL, *SOUTH JERSEY HERITAGE: A SOCIAL, ECONOMIC AND CULTURAL HISTORY* 105 (1979).

⁵⁴ *See id.*

⁵⁵ PILKEY & DIXON, *supra* note 3, at 1.

⁵⁶ *Id.*

⁵⁷ *See supra* notes 33-41 and accompanying text.

⁵⁸ Efforts to armor coastlines with seawalls often had the opposite effect, increasing erosion as waves crashed into hard structures and carried more sand away. Jetties and groins trapped sand in some place along the coast, yet they also robbed nearby beaches of incoming sand, causing even greater deterioration of shorelines.

Kirkham & Rudolf, *supra* note 4, at 3.

⁵⁹ "New Jerseyization eventually became the term used for the process of stemming erosion at the price of the beach." PILKEY & DIXON, *supra* note 3, at 1.

Army Corps of Engineers to classify 81 percent of New Jersey’s coastline as being in “critical” condition from beach erosion.⁶⁰ As with other disaster mitigation programs, coastal land management is largely reactive and driven by disaster.⁶¹ In 1973, the government of the State of New Jersey recognized that explosive growth mixed with eroding beaches was a disaster that needed to be dealt with through land management.

2. NEW JERSEY FAILED TO REGULATE COASTAL RESIDENTIAL DEVELOPMENT WITH THE COASTAL AREA FACILITY REVIEW ACT DUE TO THE GROWTH OF THE TWENTY FOUR UNIT DEVELOPMENTS.

When explosive growth occurs in a previously undeveloped area, government often does not see the immediate need to regulate land use due to unrecognized dangers. However, hindsight is 20/20 and emergencies and disasters often bring these threats to the public eye. This is often the time when government steps in and attempts to fix the problems retroactively that human development created. This occurred in the days following the Great Fire of London in 1666 to as recently as Hurricane Sandy.⁶² Fast forward to New Jersey in 1973; after decades of exponential growth, New Jersey legislators realized the need for coastal land management if the New Jersey shore was going to survive for future generations. However, regulation could not unduly burden these tax revenue generating towns. Enter the Coastal Area Facility Review Act

⁶⁰ Kirkham & Rudolf, *supra* note 4, at 3.

⁶¹ PILKEY & DIXON, *supra* note 3, at 2.

⁶² London was a financial success but a geographic disaster waiting to happen: Private structures clogged the narrow lanes and passageways, encroached on market spaces, and blocked access to the Thames River. With no regulation of building size, location, and construction materials, the fire was inevitable. And without access to water, it could not be halted. ...King Charles II issued an astounding proclamation a week after the disaster calling for restraint and foresight in the rebuilding process, pending a full investigation of the causes of the disaster. ...The king then appointed a Royal Commission...to study the causes of the disaster and to draft a Parliamentary law to codify rules for rebuilding. The resulting Act for Rebuilding London adopted on February 8, 1667, has been described as London’s first “Complete code of building regulations.

Platt, *supra* note 1, at 10150.

(CAFRA). Like all government regulations, CAFRA had to delicately balance the interests of protecting the coastal environment while also encouraging prosperous and responsible coastal development.⁶³ Interestingly enough, CAFRA's main objective was not to protect the beach from residential and commercial development, but in the decades that followed, amendments to the law would focus heavily on these issues.⁶⁴ Nevertheless, having recognized that coastal construction was affecting the beach, the legislature sought to regulate certain types of residential development.⁶⁵

In its 1973 iteration, CAFRA regulated commercial and industrial development as well as new housing developments with 25 or more dwelling units.⁶⁶ These regulations came in the form of requiring certain types of land development, as described in the statute, to apply and receive a permit from the State. CAFRA was fairly successful in regulating commercial and industrial development around the New Jersey shore, but the regulation of residential construction was not as successful. Municipalities were able to take advantage of CAFRA due to their power to zone

⁶³ [T]o encourage the development of compatible land uses in order to improve the overall economic position of the inhabitants of that area within the framework of a comprehensive environmental design strategy which preserves the most ecologically sensitive and fragile area from inappropriate development and provides adequate environmental safeguards for the construction of any facilities in the coastal area.

Conservation and Development-Parks and Reservations, N.J. STAT. ANN. § 13:19-2 (1993).

⁶⁴ "The impetus for the enactment of CAFRA in 1973 came from several proposals for industrial development along the New Jersey coastline to support proposed offshore oil and gas exploration. These proposed projects would have dramatically reduced the recreational benefits of the coastal area." Michael J. Gross & Jeffrey S. Beenstock, *Implications of the new CAFRA Legislation*, NEW JERSEY LAWYER, THE MAGAZINE, April 1995, at 13, 13.

⁶⁵ [T]hat certain portions of the coastal area are now suffering serious adverse environmental effects resulting from existing facility activity impacts that would preclude or tend to preclude those multiple uses which support diversity and are in the best long-term, social, economic, aesthetic and recreational interests of all people of the State.

Conservation and Development-Parks and Reservations, N.J. STAT. ANN. § 13:19-2 (1993).

⁶⁶ Gross & Beenstock, *supra* note 64, at 13.

under what is called “home rule”.⁶⁷ Therefore, while new residential developments with 25 or more dwellings were required to gain state approval before building was to commence, the municipalities could zone areas for fewer than 25 residential dwellings and allow construction to take place without fear of state intervention. The combination of the high growth rates of the shore plus the opportunity for increased tax revenue led to the creation of the “24 unit development”.⁶⁸ The result was that CAFRA had barely made a blip in the residential growth rate at the New Jersey shore. It was not for the lack of trying; it was made clear through the Department of Environmental Protection’s failed attempts at regulating construction by the shore that CAFRA would need to be amended.⁶⁹

3. NEW JERSEY GETS SERIOUS: CAFRA’S 1993 AMENDMENT

Due to the sudden increase of 24 unit developments and the apparent failure in ability to regulate coastal residential construction, CAFRA was in dire need of an amendment to close its loopholes. Understandably, municipalities and other coastal interests were against making changes to CAFRA and allowing the state to further regulate land use. It took a combination of damaging natural events to shift the tide in favor of fixing CAFRA.⁷⁰ The businesses and homeowners of the Jersey shore coalesced and forced a compromise; the 24 unit loophole would be closed in specified areas of CAFRA⁷¹ enforcement but the absolute right to rebuild following

⁶⁷ Home rule is defined as “Power granted either by the Constitution or Legislature or both to municipal governments to organize themselves to carry out a range of governmental activities under their own authority and to preserve health, safety, and general welfare”. Power to Zone, N.J. STAT. ANN. § 40:55D-62 (1983).

⁶⁸ Kirkham & Rudolf, *supra* note 4, at 3.

⁶⁹ See Gross & Beenstock, *supra* note 64, at 13-14. See generally Dept. of Env’tl. Prot. v. Stavola, 103 N.J. 425 (1986)

⁷⁰ The early 1990’s saw large algae blooms sustained by polluted waters off the New Jersey coast, prompting many beaches in the state to close. The combination of algae blooms and powerful nor’easters forced New Jersey to take action. See Kirkham & Rudolf, *supra* note 4, at 5.

⁷¹ The new CAFRA legislation separated the regulated coastal area into four geographic locations: (1) beaches and dunes; (2) 150 feet landward from the mean high water line; (3) the landward area between 150 feet and 500 feet from the mean high water line; and (4) any area of CAFRA jurisdiction beyond 500 feet of the mean high water line.

storms came into being.⁷² This absolute right to rebuild was included in the 1993 CAFRA compromise even though the DEP knew the destruction that storms could cause to coastal communities as early as 1981.⁷³ While shorefront regulation is primarily in the hands of municipalities given their power to zone, the 1993 CAFRA amendment shifted some of this responsibility to the state. However, with the right to rebuild, this responsibility would be arduous to exercise. Furthermore, insurance was needed to protect the large amount of homes that now had the unfettered right to rebuild following a natural disaster.

C. THE NFIP: NATIONALIZING FLOOD INSURANCE

Flood insurance as we currently know it did not exist until 1968 with the passage of the National Flood Insurance Act.⁷⁴ After large floods of the Missouri River destroyed lands spreading from St. Joseph, Missouri and Sioux Falls, Iowa in 1956, President Eisenhower attempted to initiate a nationalized flood insurance program.⁷⁵ However, Congress never funded the proposal for fear that subsidized insurance would draw people into these flood plains instead

A permit is required for all development on beaches and dunes. For the area between the mean high water line and 150 feet landward, a CAFRA permit is required for a residential development with 3 or more dwellings, a commercial development with 5 or more parking spaces, and any public or industrial development. Development in the geographic area between 150 feet and 500 feet from the mean high water line requires a CAFRA permit for a residential development with at least 25 dwellings, a commercial development with 50 or more parking spaces, and any public or industrial development. For the remaining areas under CAFRA jurisdiction beyond 500 feet of the mean high water line, a CAFRA permit is required for any residential development with at least 75 dwelling units, a commercial development with 150 or more parking spaces, and any public or industrial development. Construction of Facility in Coastal Area; Permit; Exceptions, N.J. STAT. ANN. § 13:19-5 (1993).

⁷² Construction of Facility in Coastal Area; Permit; Exceptions, N.J. STAT. ANN. §13:19-5.2(b) (1993).

⁷³ Hurricanes and northeasters traveling along the New Jersey coast have damaged beaches and shore development throughout recorded history. Since 1900, the Atlantic and Gulf coast barrier islands have been affected by more than 100 hurricanes. Although hurricanes account for most of the damages along the New Jersey coast, 35 to 40 winter storms (northeasters) each year have enough force to erode beaches.

NEW JERSEY DEPT. OF ENVTL. PROT., 224.N5N47, NEW JERSEY SHORE PROTECTION MASTER PLAN Vol. I Ch. I at 39 (1981).

⁷⁴ National Flood Insurance Act, 42 U.S.C.A. §§ 4001-4130 (1968).

⁷⁵ Christine A. Klein & Sandra B. Zellmer, *Mississippi River Stories: Lessons from a Century of Unnatural Disasters*, 60 SMU L. REV. 1471, 1488-89 (2007).

of keeping them away.⁷⁶ With the apparent ability to look forward in time, that Congress foresaw what would occur with the current National Flood Insurance Program and land development in the coastal flood plains of the New Jersey shore.

As far as government involvement goes, second to land use regulations, flood insurance is the strongest driver of coastal development. The skepticism following the previous statement is understandable.⁷⁷ However, flood insurance does not operate as other types of insurance does. Unlike different categories of insurance, private insurance companies are not able to profitably issue flood insurance.⁷⁸ Given flood insurance's impracticability in the private sector, the federal government enacted The National Flood Insurance Act of 1968 which provided federal-subsidized flood insurance.⁷⁹ This act created the National Flood Insurance Program (NFIP) which falls under the Federal Emergency Management Agency's (FEMA) authority.⁸⁰ In order to combat the high prices which resulted in private flood insurance being unworkable, the NFIP would charge policy holders a lower than market rate premium.⁸¹ Given this subsidized rate, premiums paid by policy holders do not reflect the actual risk of flooding even though the rates are closer to the actuarial rate than they have been in the past.⁸² With an amendment to the Act

⁷⁶ *Id.* at 1489-90.

⁷⁷ One rarely thinks of insurance as being a driver towards purchasing something on the open market. For example, when shopping for a new vehicle, insurance does not drive a buyer to purchase a specific vehicle. The price of insurance premiums may discourage the purchase of a particular type of car, such as a sports car. However, as it will be made clear, the way private insurance functions would not motivate a buyer to purchase a specific good.

⁷⁸ Insurance works by spreading risk among a number of policy holders. However, the two attempts at private flood insurance led to strong adverse selection problems. That is, only those whose property was at high risk of flooding were willing to purchase flood insurance; because of this the risk associated with flooding could not be spread amongst policy holders and remain relatively affordable. Flood insurance premiums would be prohibitively high and insurance companies were not able to make a profit. Marc R. Poirier, *Takings and Natural Hazards Policy: Public Choice on the Beachfront*, 46 RUTGERS L.REV. 243, 298 (1993).

⁷⁹ National Flood Insurance Act, 42 U.S.C.A. §4014(a)(1) (2012).

⁸⁰ The National Flood Insurance Program, <http://www.fema.gov/national-flood-insurance-program> (last visited Apr. 26, 2013).

⁸¹ The premiums policy holders were to pay was a balance between "...the actuarially necessary amount and the (presumably lower) amount people are willing to pay for it." Poirier, *supra* note 78, at 300.

⁸² U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-10-1063T, NATIONAL FLOOD INSURANCE PROGRAM (2010).

being passed in 1973, all housing that was federally financed, regulated, insured or supervised was required to purchase flood insurance.⁸³

Besides being federally subsidized, there are several other components to the NFIP which prohibit it from managing risks. The NFIP cannot reject high-risk applicants from purchasing flood insurance.⁸⁴ The result of such a policy led to the NFIP insuring applicants who would otherwise be denied coverage if flood insurance was managed by private insurers. Furthermore, the NFIP cannot drop policy holders who file multiple and frequent claims.⁸⁵ This results in repetitive loss properties, further putting a strain on the program. Finally, the NFIP cannot increase premium rates to recoup losses or to reflect the true risks associated with flooding given that the program is subject to statutory limits on rate increases.⁸⁶ These aspects of the NFIP, combined with federally-subsidized premium rates, were put into effect to protect those who own property in flood prone areas, such as the Jersey shore. In its current form, the NFIP further exacerbates the problems caused by strong coastal storms such as hurricanes.

III. COASTAL DEVELOPMENT MEETS MOTHER NATURE IN BRIGANTINE AND BEYOND.

It is often said that storms are only disasters due to human action.⁸⁷ While man did not create Hurricane Sandy on October 22, 2012⁸⁸, it was the construction of buildings, roads, and other structures that led to the tremendous damage that ensued. This super-storm aimed its

⁸³ Poirier, *supra* note 78, at 300.

⁸⁴ U.S. GOV'T ACCOUNTABILITY OFFICE, *supra* note 82.

⁸⁵ *Id.*

⁸⁶ *Id.*

⁸⁷ "Natural disasters, of course, are not 'natural'. They are catastrophic events that result from the interaction of natural hazards and human presence." Platt, *supra* note 1, at 10152.

⁸⁸ Christina Ng, *Superstorm Sandy Crashes Ashore in New Jersey*, ABC NEWS (Oct. 29, 2012), <http://abcnews.go.com/US/hurricane-sandy-makes-landfall-jersey/story?id=17592795#.UXmKrrUsmf4>

deadly winds and storm surge right for the beaches of New Jersey, making landfall on October 29th near Brigantine⁸⁹ during one of the most dangerous times in the regions tidal schedule, during both high tide and spring tide.⁹⁰ This storm surge brought large quantities of ocean water towards the main land.⁹¹ While the beach works as a natural buffer against a storm surge, when objects are built upon this buffer, damage is sustained.⁹² It has been estimated that Sandy inflicted \$36.9 billion in damages directly on the state of New Jersey, with most of that damage being concentrated in the coastal regions.⁹³ Housing damaged by the storm in New Jersey will cost \$4.9 billion to repair, while damaged businesses will cost an additional \$8.3 billion.⁹⁴ These costs do not take into account the damage caused indirectly by Sandy which weakened coastal defenses against other storms.⁹⁵

In the months following Hurricane Sandy, the battle cry “Rebuild!” could be heard throughout New Jersey, especially in areas whose economic base was ravaged by the storm.⁹⁶

Besides pressure from homeowners and businesses, politicians were feeling the pressure from

⁸⁹ Sandy made landfall labeled as a post tropical cyclone with hurricane-force winds. *Id.*

⁹⁰ There exists a daily cycle of tides at a beach where there are often two high tides and two low tides. These tides are created by the moons gravitational force and its impact on the ocean. There is also a monthly tide cycle. When the moon is either full or new, its gravitational pull on the ocean is at its strongest. Hurricane Sandy made landfall during a full moon and the resulting spring tide. Due to this combination of high tide and spring tide, the ocean water was about twenty percent higher than average due to the moons gravity. Paul Adams, *The Dictionary of Hurricane Sandy: Spring Tide*, POPULAR SCIENCE (Oct. 29, 2012, 1:30pm).

⁹¹ *Id.*

⁹² When a storm surge threatens to come into contact with the mainland, the beach will act as a “shock absorber”. The beach will actually retreat and move inward as a storm moves in and it reappears when the sea is becomes calm. As the beach retreats it also flattens. This flattening causes the wave energy to dissipate over a greater surface area, thus protecting the inland areas. PILKEY & DIXON, *supra* note 3, at 20,22,27.

⁹³ Of that total, \$29.4 billion will be used for repairs while the remaining \$7.4 billion will be used to mitigate and prevent future damage. OFFICE OF THE GOVERNOR, CHRISTIE ADMINISTRATION RELEASES TOTAL HURRICANE SANDY DAMAGE ASSESSMENT OF \$36.9 BILLION (Nov. 28, 2012) <http://www.state.nj.us/governor/news/news/552012/approved/20121128e.html>.

⁹⁴ “[O]ver 30,000 businesses and homes were destroyed or experienced structural damage, while 42,000 homes were impacted in some other way.” *Id.*

⁹⁵ Several winter storms impacted the coastal regions of New Jersey the winter following Hurricane Sandy. The damage caused was increased due to the lack of protective dunes along the beaches. These dunes were wiped out by the storm surge created by Hurricane Sandy. *See Winter Storm Could Cause “Pockets of Major Flooding” along the Jersey Shore*, NJ.COM, http://www.nj.com/news/index.ssf/2013/03/storm_to_skirt_new_jersey_thou.html (Mar. 5, 2013).

⁹⁶ Kirkham & Rudolf, *supra* note 4, at 7.

the thought of decreased tax revenue. Soon after landfall, Governor Chris Christie used emotional references to spur the rebuilding effort, stating that the Jersey shore is “...a part of the cultural heartbeat of our state”.⁹⁷ While recognizing that decisions regarding rebuilding needed to be well thought out, certain stop-gap construction commenced soon after the storm passed in order to mitigate damages and allow emergency and aid vehicles into affected areas.⁹⁸

The first thoughtful steps regarding rebuilding New Jersey’s coastal areas have been taken by FEMA. Before Hurricane Sandy, the flood maps in place across the coastal region of New Jersey dated from the 1980s.⁹⁹ In order to augment these outdated Flood Insurance Rate Maps (FIRMS), FEMA released Advisory Base Flood Elevation (ABEFs)¹⁰⁰ maps to aid in the reconstruction effort.¹⁰¹ These new ABEF maps cover 194 coastal municipalities in New Jersey.¹⁰² Zoning and building codes have been exposed by the ABEF as being grossly outdated by not reflecting the increased risk of flooding in coastal areas since the 1980s.¹⁰³ While these maps are advisory, with the official flood maps being unveiled at a later date, the state of New Jersey has already adopted the ABEF maps, incorporating them into rebuilding efforts.¹⁰⁴ By accepting these new advisory flood maps, homes that have been substantially damaged by

⁹⁷ *Id.*

⁹⁸ Route 35, a major thoroughfare in many shore towns, needed to be repaired quickly so emergency vehicles to affected areas. Therefore, long term viability of this structure was not a first priority. FEMA has provided funds to close an inlet breach in Mantaloking soon after the storm. Many are worried that permanent structures may be developed before serious decisions are made about rebuilding the coastal area. *See* Kirkham & Rudolf, *supra* note 4, at 1.

⁹⁹ *See* FEMA, HURRICANE SANDY ADVISORY BASE FLOOD ELEVATIONS (ABFEs) (Nov. 2012), http://184.72.33.183/Public/Public_Documents/Sandy_ABFE_Fact_Sheet.pdf.

¹⁰⁰ *See* ADVISORY BASE FLOOD ELEVATIONS MAP, <http://fema.maps.arcgis.com/home/webmap/viewer.html?webmap=2f0a884bfb434d76af8c15c26541a545> (last visited Apr. 25, 2013).

¹⁰¹ *Q & A: What FEMA’s Advisory Flood Maps Mean to New Jersey*, NJ.COM, http://www.nj.com/news/index.ssf/2013/01/what_femas_advisory_flood_maps.html (Jan. 13, 2013, 2:48pm).

¹⁰² *Id.*

¹⁰³ *Id.*

¹⁰⁴ *Christie: NJ Adopting Feds’ Advisory Flood Maps*, YAHOO.COM, <http://finance.yahoo.com/video/christie-nj-adopting-feds-advisory-212053216.html> (Jan. 24, 2013).

Hurricane Sandy must be elevated in accordance with the flood maps.¹⁰⁵ To encourage residents in coastal regions to raise their damaged structures to meet compliance levels, both a carrot and a stick have been offered. FEMA has offered up to \$30,000 to help offset the costs of raising a building to meet its current ABFE map levels.¹⁰⁶ Those who do not comply with the new advisory maps may see an increase in their flood insurance premium.¹⁰⁷

Raising a home to be in compliance with flood maps does not solve the problem of over development in dangerous flood prone areas. However, such a program exists within the state of New Jersey to solve this problem and Governor Chris Christie has offered it as a way for homeowners to eliminate almost all possibility of coastal storm damage. Run by the New Jersey Department of Environmental Protection, the Blue Acres Program was established in 1995 to distribute “grants and loans to municipalities and counties who acquire lands in coastal areas that have been damaged by storms, that may be prone to storm damage, or that buffer or protect other lands from storm damage”.¹⁰⁸ When the Act was passed in 1995, the program was funded with \$9 million for post-storm purchases.¹⁰⁹ By purchasing property in the area in which the Coastal Blue Acre Program operates¹¹⁰, the state can help reduce damage caused by storms by both

¹⁰⁵ A local floodplain administrator will define a home as being substantially damaged by Hurricane Sandy if it has sustained damage equal to or exceeding “50 percent of the market value of the structure before the damage occurred”. *Flood Elevation FAQs: New Jersey’s Emergency Flood Elevation Rule*, NJ.GOV, <http://www.nj.gov/dep/special/hurricane-sandy/docs/abfes-faq-20130212.pdf> (last visited April 25, 2013).

¹⁰⁶ The money a homeowner may receive from FEMA is tied to the cost the homeowner would incur in raising their home. *Id.*

¹⁰⁷ Due to these most recent maps being advisory flood maps, there will be no immediate effect on anyone’s flood insurance premium. However, once these maps are finalized, rates may be increased for not meeting the final maps elevation standards. These final flood maps will likely be close to the current advisory flood maps. The NFIP determines rates based on a home’s elevation above the flood-plane. Therefore, the closer a home is to the flood level, the higher insurance premiums will be. *Id.*

¹⁰⁸ *Green Acres Program*, NJ.GOV, <http://www.nj.gov/dep/greenacres/blue.html> (last visited Apr. 25, 2013).

¹⁰⁹ Post storm purchases must have been reduced in value by at least 50% as a consequence of storm damage. *Id.*

¹¹⁰ One hundred twenty two municipalities and eight counties are eligible to apply for CBA funds. Coastal area lands eligible for purchase with CBA funds can be lands anywhere on a coastal barrier island, lands within 150 feet landward of the mean high water line of any tidal water, or lands within 150 feet of the landward limit of a beach or dune.

removing people from hazardous areas as well as increasing the beaches natural buffering abilities.¹¹¹ This program, however, can only be one tool in the states tool box in dealing with reckless coastal development.¹¹² The Blue Acre Program relies on state funding to carry out its mission. In a cash-strapped state that is still recovering from an economic recession, it is unlikely that New Jersey can afford to purchase the large amount of coastal land needed to be effective in thwarting coastal storm damage.

IV. OBSTACLES TO REAL CHANGE

A. THE LACK OF WILL IN NEW JERSEY POLITICS REPRESENTS A REAL THREAT TO PROTECTING THE COAST OF NEW JERSEY.

While real steps have previously been taken to protect the New Jersey shore, Hurricane Sandy offers an opportunity to move forward by leaps and bounds to truly protect the people of coastal New Jersey and to restore the beaches and their ability to protect the coast by implementing responsible land management plans. However, along with having the first heavily developed beach area comes the glue in the political gears which makes meaningful change slow and difficult. Nowhere is this as true in terms of coastal damage protection as with land use regulation. Political will to effectuate change is always shifting and fluid, due to the substantial tax revenue brought in by coastal tourism and placed into state and local municipal coffers.¹¹³ Furthermore, there is an entrenched “shore culture” in New Jersey which would push back against any perceived threat to the beach lifestyle.¹¹⁴

Id.

¹¹¹ See generally PILKEY &. DIXON, *supra* note 3, at 34.

¹¹² *Id.*

¹¹³ See generally Poirier, *supra* note 78, at 263.

¹¹⁴ See generally *id.* at 260-61.

The biggest obstacle to changing coastal land management and having it reflect coastal flood conditions is local politics. Where a social group of people share a common aim or goal, such as people involved in coastal areas, interest groups form to protect their member's objectives.¹¹⁵ Due to the desirability of living by the beach and the resulting high property values, the interests at the New Jersey shore tend to be financially well off.¹¹⁶ As a financially strong interest group, coastal residents can exert considerable influence on the legislature and local politicians to protect their interests.¹¹⁷ This is especially true when they believe that their common interests are threatened, especially when the status quo begins to shift.

When a tragedy on the scale of Hurricane Sandy hits, communities rally together. As stated previously, this is the precise time that the shore interests mobilize to secure their interests when their way of life seems threatened.¹¹⁸ These strong interests will often make it an almost impossible task for state and local government to effect change.¹¹⁹ If one was to accept this "strong interest group" logic then government would rarely act with proper diligence in changing coastal law following a coastal disaster. This problem is further exacerbated in New Jersey given the levels of government that control coastal land use. CAFRA requires that permits be obtained from the State for construction in certain defined coastal regions.¹²⁰ However, the remaining lands are all zoned by municipalities, including coastal lands not covered by CAFRA.¹²¹ As local government officials are elected by the constituents in their respective areas, the strong coastal

¹¹⁵ *See id.* at 256.

¹¹⁶ The convenience to beach access, ocean views, and the coastal micro climate has made shore property very desirable. This desirability combined with the naturally limited supply of coastal land leads this property to be relatively expensive. The result is those who own such property are "...disproportionately rich and powerful". *Id.* at 360.

¹¹⁷ *See id.*

¹¹⁸ *Id.* at 269.

¹¹⁹ *Id.*

¹²⁰ Construction of Facility in Coastal Area; Permit; Exceptions, N.J. STAT. ANN. §13:19-5 (1993).

¹²¹ *See Power to Zone*, N.J. STAT. ANN. § 40:55D-62 (1983).

development interest has effectively no group to counter its influence when it comes to elected representatives and the land management laws they lobby for.¹²²

While coastal residents and businesses have an interest in rebuilding and further developing the New Jersey shore, the largest obstacle to real change regarding coastal management is the interest of the entire state of New Jersey. The amount of damage caused by Hurricane Sandy in terms of dollars is staggering, yet so is the tax revenue that beach tourism brings into the state. As of 2011, the tourism industry in New Jersey supported 486,000 jobs and contributed \$4.4 billion in state and local taxes.¹²³ While New Jersey has various tourist attractions, the shore is by far the strongest contributor to tourism dollars in the state. Of all the tourism dollars generated, more than 72 percent came directly from Atlantic County, Cape May County, Ocean County, and Monmouth County.¹²⁴ It is no coincidence that these four counties make up the Shore region in New Jersey.¹²⁵ The importance of the New Jersey shore to the tourism industry is well known, as the beach attracts vacationers and the New Jersey shore “is less than one tank of gas from more than one-quarter of the U.S. population”.¹²⁶ Suggesting a change in the way that coastal construction and land management is implemented would be a tough pill to swallow due to the possibility of a reduction in tax revenue. Reducing beach

¹²² The population of the state could form a coalition to balance the coastal interests since the two parties interests are opposing. After a tragedy such as a natural disaster, the damage and destruction is fresh in people’s minds. Therefore, coastal residents may overestimate the destruction caused by such a rare event. People away from the coast have interests that may not align with those who live at the beach. A person who lives far from the shore in New Jersey cares not of the land use regulations in coastal communities, only that the beach is restored so that they may enjoy it in the summer months. However, this statewide group is large and non-contiguous. Dispersing information regarding the dangers of current land use laws as well as forming a coalition would be both time consuming and expensive. In this time, the coastal interests would have already taken action in the public sphere to assure that their interests are protected. *See generally* Poirier, *supra* note 78, at 265-266, 278.

¹²³ NEW JERSEY TRAVEL INDUSTRY ASSOCIATION, http://www.njtia.org/tourism_numbers.php (last visited Apr. 26, 2013).

¹²⁴ NEW JERSEY COMMERCE, ECONOMIC GROWTH AND TOURISM COMMISSION, <http://www.state.nj.us/njwindpanel/docs/travtour.pdf> (last visited Apr. 26, 2013).

¹²⁵ *Id.*

¹²⁶ *Id.*

construction may be the responsible action in terms of beach sustainability and building protection but forgoing tax revenue in a cash-strapped state during a slow economic recovery may not be a plan embraced by those in New Jersey who benefit from tourism dollars, namely the entire state.

It is always difficult to pass legislation that aims to prevent activities that people actively enjoy. As early as 1802, people have been visiting the New Jersey shore to take advantage of its recreational attributes.¹²⁷ The measures that have been taken to ensure the long term enjoyment of the shore have been extensive, from the creation of seawalls to the replenishment of eroding beaches.¹²⁸ Changing existing land use laws and eliminating incentives for construction at the beach eliminates some of the satisfaction and enjoyment that comes from visiting Point Pleasant, Long Beach Island, or any of the other coastal towns in New Jersey. This is not to say that we should abolish or even limit peoples use or access to the beach. However, by reducing the number of businesses and shore houses, people will inevitably enjoy the beach less. With a reduction in the number of restaurants to go to, the amount of time spent at the beach will, in turn, decline. Reducing the construction of boardwalks will also reduce the amusement and entertainment that is essential to the shore experience in New Jersey. By reducing home construction in coastal flood areas, the convenience of living at the beach will be diminished. People desire to live and operate businesses at the beach, despite the risks.¹²⁹ This desire is so strong that people will pay a premium on coastal land to take advantage of being near the beach. Given this long established yearning to live, visit, and work at the beach, inhibiting peoples abilities to do so poses a great barrier to effecting change in coastal development management.

¹²⁷ PILKEY & DIXON, *supra* note 3, at 1.

¹²⁸ *Id.* at 38.

¹²⁹ *See* Poirier, *supra* note 78, at 259-60.

B. SUBSIDIZED FLOOD INSURANCE ENCOURAGES COASTAL DEVELOPMENT AND DOES NOT COLLECT ENOUGH IN PREMIUMS TO REMAIN FINANCIALLY OPERATABLE.

While private insurance normally reflects actual risk, flood insurance is a subsidy which is passed on along to the consumer of flood insurance, namely those who own structures in flood plains.¹³⁰ The program is neither actuarially sound in practice or in theory. A moral hazard problem is created by people over-investing in coastal properties that are subject to incredible damage because they are not shouldering the full burden of the risk associated with living in a coastal flood zone.¹³¹ The federal government and the taxpayers are financially responsible for the risks that homeowners in flood zones do not bear. However, this subsidy is required for the program to exist at all. Without the subsidy, flood insurance would be prohibitively expensive due to the adverse selection problem inherent in national flood insurance.¹³² In 1990, the U.S. House of Representatives attempted to remedy this problem slightly by passing a bill which would have deprived people who lived in flood prone coastal areas of flood insurance.¹³³ However, for reasons that this paper cannot cover in sufficient amount, the subsidy that is built into the National Flood Insurance Program cannot be eliminated. Needless to say, flood insurance would be too expensive to purchase if there was no built-in subsidy.

The internal structure of the National Flood Insurance Program also prevents substantive change in coastal management. As previously stated, the program's rate increases must follow statutorily prescribed limits.¹³⁴ This prevents the NFIP from recovering after years in which a

¹³⁰ *See id.* at 261.

¹³¹ *Id.* at 286.

¹³² Only those who truly need and would use flood insurance purchase it. This does not allow the insurance program to spread the cost of the program among less risky participants. *Id.* at 299-300.

¹³³ KIRKHAM & RUDOLF, *supra* note 4, at 5.

¹³⁴ U.S. GOV'T ACCOUNTABILITY OFFICE, *supra* note 82.

large number of claims were made.¹³⁵ With a borrowing capacity of only \$2.9 billion, the damage that the program will have to pay out due to Hurricane Sandy is likely to cause the NFIP to become financially stressed.¹³⁶ While the program collects about \$3.5 billion in premiums per year, Sandy is on pace to cost over \$7 billion¹³⁷ in payouts.¹³⁸ Besides operating in the red, the NFIP cannot drop those who file claims for repeated flooding.¹³⁹ These customers often live in highly risky areas and cost the program multiples of what their property is worth.¹⁴⁰ It is irresponsible for taxpayers to continue to accept the burden of rebuilding such properties. Without substantial changes to the way the NFIP is operated, the program will continue to act as a subsidy, drawing people in to risk prone properties.

V. RECOMMENDATIONS:

With rising sea levels, increased coastal construction, and the prediction of more frequent powerful storms, CAFRA is not ideal in its current iteration. In combating the issues present in New Jersey's coastal land use management, the state legislature will have to act rationally. A

¹³⁵ In 2005, the NFIP had to be bailed out by the United States Treasury Department after it sustained heavy losses due to payouts associated with Hurricane Katrina. As of late 2010, the NFIP owed the Treasury upwards of \$18 billion dollars. The government has stated that it does not believe that the program will ever be able to pay back this amount, especially if a catastrophic event takes place in the short term. *Id.*

¹³⁶ *Id.*

¹³⁷ As of April 17, 2013, the NFIP has paid out approximately \$3.3 billion to the coastal areas of New Jersey as a direct result of Hurricane Sandy. FED. EMERGENCY MGMT. AGENCY, 4086-144, NEW JERSEY RECOVERY FROM HURRICANE SANDY: BY THE NUMBERS (April 17, 2013), available at <http://www.fema.gov/news-release/2013/04/17/new-jersey-recovery-hurricane-sandy-numbers>.

¹³⁸ Even though the NFIP is far from being cash flow positive, the private insurance industry profits from the national program. In exchange for selling the national flood insurance, private companies receive an average of \$1 billion per year in premiums even though they take none of the risk associated with insurance. Eric Lipton & Felicity Barringer & Mary Williams Walsh, *Flood Insurance, Already Fragile, Faces New Stress*, N.Y. TIMES, Nov. 12, 2012, at A1, available at http://www.nytimes.com/2012/11/13/nyregion/federal-flood-insurance-program-faces-new-stress.html?pagewanted=all&_r=1&.

¹³⁹ U.S. GOV'T ACCOUNTABILITY OFFICE, *supra* note 82.

¹⁴⁰ One Biloxi, Miss., property valued at \$183,000 flooded 15 times over a decade, costing the program \$1.47 million, according to federal data provided by the agency to a member of Congress. Another in Humble, Tex., has resulted in over \$2 million in flood payouts even though it was worth just \$116,000.

Eric Lipton et al., *supra* note 138.

balanced approach needs to be implemented that would balance, on one side, a strong tourism sector anchored in the coastal regions, tax revenue growth, and keeping the New Jersey shore culture alive balanced with the need to protect the states beaches.¹⁴¹ While preventing rebuilding outright would appear to solve the problem of risky coastal development, this could be considered a taking by the state for which property owners would need to be compensated.¹⁴² As previously discussed, when disaster strikes, an elected body will be unable to make rational decisions and instead will often fall victim to interest groups.¹⁴³ Therefore, the best course of action would be to wait until the effects of a coastal natural disaster, such as Hurricane Sandy, are fully understood and appreciated before making changes to CAFRA. While this may sound like a request to “kick the ball downfield” and let another group of legislators deal with these contentious issues, this plan would weaken coastal interests and allow well thought out plans to take shape. A set time table must be put into place so as to allow enough time for damages to be assessed and weaknesses brought to light, but not too long to allow the people of New Jersey to forget the destruction that can occurs when the sea meets the state.¹⁴⁴

Any future plan that even appears to be infringing on shore residents and businesses enjoyment of the beach would inevitably lead to push back from coastal interests.¹⁴⁵ The key to convincing these interests, as well as the state as a whole, lies in educating the public about the

¹⁴¹ See Poirier, *supra* note 78, at 263.

¹⁴² The Supreme Court has held that it is unreasonable for a state to constrain a property owner from using his land as originally intended unless the general doctrines under property law prohibit such use. The Court held regulation of private land to preserve it is essentially a taking requiring compensation. *Lucas v. South Carolina Coastal Council*, 505 U.S. 1003, 1027-29 (1992).

¹⁴³ Poirier, *supra* note 78, at 260-61.

¹⁴⁴ See generally *id.* 278.

¹⁴⁵ When CAFRA was amended in 1994, coastal developers were charged with disseminating disinformation about the consequences of the new law. Opponents of the new law claimed that the state would have a “stranglehold over single-family property owners”, going so far as to claim that planting gardens in the backyards of coastal homes would be regulated. The law was made out to be a power grab by environmentalists and that they would soon force people out of their homes and off the barrier islands permanently. JON NORDHEIMER, *Smoothing Out the Shore’s Building Regulations*, N.Y. TIMES (May 23, 1994), <http://www.nytimes.com/1994/05/23/nyregion/smoothing-shore-s-building-regulations-new-jersey-officials-reassure-coastline.html?pagewanted=all&src=pm>

risks that exist if New Jersey stays the course. The first step towards educating the public is to obtain the information and statistics that are necessary to fully grasp the consequences of living near the New Jersey shore. This information can be used to show coastal homeowners that flood risks are not simply random or an “acts of God” and that planning for such storms is not futile.¹⁴⁶ In order to obtain this information, a study similar to the 1981 New Jersey Master Plan¹⁴⁷ should be conducted by the New Jersey Department of Environmental Protection. While previous studies have been conducted by the state regarding population areas adjacent to the coast, a modern study is warranted given the recent destruction seen at the Jersey shore. This study would focus on the science of coastal geomorphology¹⁴⁸, the history of natural disasters affecting the New Jersey coast, New Jersey’s response to such disasters, and the effects and consequences of these responses. This study would also explore the routes that other coastal states have taken to protect their beaches and citizens.¹⁴⁹ For while all beaches are distinct, similarities exist and the collective experiences of all coastal residents could lead to more effective practices within New Jersey. Furthermore, while such a study would fully inform those who read it, more practical action is needed. After such a study is completed, a reasonable timetable should be set for legislative action based on its findings.¹⁵⁰ This would ensure that such a broad study would

¹⁴⁶ See generally Poirier, *supra* note 78, at 279.

¹⁴⁷ See generally NEW JERSEY DEPT. OF ENVTL. PROT., I NEW JERSEY SHORE PROTECTION MASTER PLAN, 224.N5N47 (1981).

¹⁴⁸ Geomorphology is defined as “a science that deals with the relief features of the earth or of another celestial body (as the moon) and seeks a genetic interpretation of them”. Merriam-Webster, <http://www.merriam-webster.com/dictionary/geomorphology> (last visited Apr. 26, 2013).

¹⁴⁹ For example, the California Coastal Act requires that any person that develops in a coastal zone must obtain a permit from the California Coastal Commission while hearing input from local authorities. Under the Coastal Area Management Act, North Carolina has given authority to the Coastal Resources Commission which adopts standards for each county to follow in the development and implementation of development and zoning plans. See e.g. Tricia A. Sherick, *A Comparison of the Coastal Zone Management Policies of the Atlantic and Pacific Coastal Regions Versus Programs Implemented in Selected Great Lakes States*, 28 U. TOL. L. REV. 459, 473-74 (1997).

¹⁵⁰ At the very least, the state legislature should amend CAFRA so its coverage is extended. Given the important role of barrier islands and their natural movement, CAFRA needs to cover all barrier islands in New Jersey. Ideally, the state would set up a commission that would deal with all land use plans on the barrier islands, hearing suggestions

not be discarded and the legislature would be forced to recognize the current problems with the regulation of coastal areas.

A timeline of destructive natural events should be included in every deed of property located within coastal flood plains. While a legislative study is important and vital to understanding the current risks associated with living in coastal flood plains as well as formulating effective policies for such regions, these studies take time and people will rebuild and repopulate the New Jersey coast in the interim. A more immediate remedial action that can be put into effect quickly is a requirement that would educate the coastal public on past damage caused by natural disasters. The Department of Environmental Protection would prepare a simple document which would succinctly list natural disasters that have impacted a given area within a defined time period.¹⁵¹ This list of damaging events must require the property owner to acknowledge, by initialing, each event. This would ensure that at the very least, property owners would be informed of the dangers of owning a particular piece of property.¹⁵² Such a list would help prevent developers from downplaying the risks associated with living near the beach.¹⁵³ The scope of this document requirement would be fairly limited and would only apply to those properties located within CAFRA regulated areas. If CAFRA is amended to expand its reach, as I propose, the document requirement would reach these new properties. This document

from the local municipalities. This would give the state the flexibility it needs to tackle this important problem while being slightly more removed from the local politics compared to local municipal governments.

¹⁵¹ The area that each document would cover would need to be small enough to be relevant to property owners but not too small to place an undue burden on the Department of Environmental Protection in preparing and updating such documents. Furthermore, the period of events that the document would cover is very important. Too short of a time period would not cover enough events to educate people fully on the dangers of coastal living. However, too long of a time period would encourage peoples beliefs that storm damage won't happen to them or their home. *See generally Poirier, supra* note 78, at 278.

¹⁵² Some may argue that this requirement is not economically efficient and could be used as a scare tactic to draw people away from purchasing property in coastal areas, thus affecting local economies. However as previously discussed, given the strong desire to live by the beach, this document and signature requirement would realistically inform the public of the risks associated with their purchase. *But see id.* at 279-80.

¹⁵³ *Id.*

requirement would provide for immediate protective remedies while the Department of Environmental Protection study is under way.

In order to reduce risky development in coastal flood areas, the subsidy created by the NFIP also needs to be reduced. While a complete elimination of subsidized flood insurance is unworkable¹⁵⁴, a reduction in the subsidy is needed to both reduce risky development and keep the program financially sustained. In order to accomplish this, the NFIP needs to be given the tools to balance its risks in a fashion similar to how private insurance operates without subjecting the program fully to free market forces.

One of the problems related to the NFIP that is in dire need of fixing is the programs inability to drop policy holders, even if they submit multiple claims in a short period. These policy holders are among the most risky and cost the program millions of dollars.¹⁵⁵ Rebuilding these properties that are constantly destroyed represents a drain on the NFIP's finances. One solution to this problem that should be implemented in New Jersey is to only allow a property to rebuild a certain amount of times over a defined time period. After that number has been reached, the NFIP would give a final payout on the condition that the property be rebuilt outside of federally designated flood areas.¹⁵⁶ This would protect the NFIP's financials and also encourage property owners to move away from dangerous coastal flood lands.

Finally, the NFIP needs the flexibility that private insurers have in increasing insurance premiums. With the statutory limitation on premium increases combined with the limited amount of debt the program can take on, it is easy to see how the NFIP can become financially stressed

¹⁵⁴ A full reduction in the subsidy created by the NFIP would increase costs to prohibitively high levels for coastal land ownership. It was for this reason that private flood insurance could not survive and the government was forced to establish the NFIP. *See generally* Poirier, *supra* note 78, at 286.

¹⁵⁵ *See supra* note 130.

¹⁵⁶ For example, a property would be allowed to rebuild 2 times per decade. After the property is destroyed from a natural disaster a second time, there would be no payout unless the property owners agree to not rebuild in a flood area. If the homeowner chooses to rebuild in a flood area, they would not receive an insurance payout.

following a large disaster. This flexibility would increase the cost of flood insurance and make premium prices more volatile. Inevitably, this reduces the subsidy that coastal land owners enjoy. However, these changes are necessary if the NFIP is to continue to exist. With the stresses caused by Hurricane Katrina still impacting the program, things only appear to be getting worse for the program.¹⁵⁷ The NFIP needs flexibility in dealing with its policy holders, especially as the federal government continues to deal with budget constraints and as powerful storms become more frequent.

VI. CONCLUSION:

The coast makes up a large portion of New Jersey's state economy, from housing to tourism.¹⁵⁸ Yet this area took a destructive hit when Hurricane Sandy made land fall, wiping out businesses, homes, and large portions of the beach.¹⁵⁹ This destruction would have been severely mitigated if the state had a responsible land use management plan in effect in the coastal flood plain areas. The function of barrier islands has been known for quite some time, specifically their role in protecting the main land from storm surges created by coastal storms.¹⁶⁰ However, buildings constructed on these barrier islands often suffer severe damage when the islands are hit with strong storm surges.¹⁶¹

While New Jersey has had a coastal land management plan in place for some time, CAFRA contained gaping loopholes which allowed residential construction to continue with

¹⁵⁷ See Eric Lipton et al., *supra* note 138.

¹⁵⁸ See *supra* notes 123-25 and accompanying text.

¹⁵⁹ See *supra* notes 87-95 and accompanying text.

¹⁶⁰ See *supra* note 92.

¹⁶¹ See PILKEY & DIXON, *supra* note 3, at 27.

little state oversight.¹⁶² Furthermore, the NFIP had provided for subsidized flood insurance which further made coastal living more affordable, desirable, and less risky.¹⁶³ In order for New Jersey to move forward responsibly with rebuilding efforts, both programs need major overhauls in the way they are structured and the areas that they serve. Unfortunately various obstacles stand in the way for meaningful change. Further state regulation of coastal flood areas will be blocked by local politics, fear of losing tax revenue, and the lack of appreciation of the dangers associated with living near the beach.¹⁶⁴ Small changes, dealing mainly with educating property owners, are possible and would educate people about the dangers related with living in coastal flood areas.¹⁶⁵ If properly heeded, this education could stem the tide of coastal construction. The NFIP has its own structural problems that need to be overcome including their inability to drop policy holders, the need for subsidized insurance premiums, and the programs inability to raise premiums in the ways private insurance can.¹⁶⁶ Without these changes, the NFIP will suffer by in being in a financially unworkable situation that will perpetuate over time as more coastal storms inflict damage on the country.¹⁶⁷ If New Jersey simply rebuilds, without thoughtful consideration on the programs that have thus far driven people to risky areas, a disaster similar to Hurricane Sandy will inevitably happen again including the loss of property and life.

¹⁶² *See supra* note 68 and accompanying text.

¹⁶³ *See supra* notes 81-83 and accompanying text.

¹⁶⁴ *See supra* part IV. A.

¹⁶⁵ *See supra* part V.

¹⁶⁶ *See supra* part IV. B.

¹⁶⁷ *See supra* notes 134-39 and accompanying text.