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A Three-Legged Stool on Two Legs: Recent Federal Law Related to Local Climate Resilience Planning and Zoning

Sarah Adams-Schoen and Edward Thomas*

I. Introduction

NOTWITHSTANDING A CRITICAL GAP BETWEEN CLIMATE CHANGE related risks and preparedness in the United States, Congress has yet to pass any federal law expressly addressing climate change hazard mitigation (or any other aspect of climate change) and appears unlikely to do so anytime soon.¹ Despite this, the first half of 2015 has seen a number of actions in the other two branches of the federal government with significant implications for local hazard mitigation planning, zoning, and development.² Of particular note, and as discussed in more detail below, the President issued an Executive Order and the

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1. *But see* FEMA Disaster Assistance Reform Act of 2015, H.R. 1471, 114th Cong. § 1 (March 19, 2015) (proposed legislation that would amend the Stafford Act, 42 U.S.C. §§ 5121-5207), available at <http://transportation.house.gov/UploadedFiles/HR1471.pdf> (proposed legislation that would amend the Stafford Act, 42 U.S.C. §§ 5121-5207). For more information see <http://www.hlswatch.com/2015/03/23/leaning-towards-stafford-2-0-the-fema-disaster-assistance-reform-act-of-2015-h-r-1471-2/>.

2. The IPCC defines "adaptation" as "the adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities." IPCC defines "mitigation" as "anthropogenic intervention to reduce the sources or enhance the sinks of greenhouse gases." IPCC, CLIMATE CHANGE 2007: IMPACTS, ADAPTATION AND VULNERABILITY 6 (2007) [hereinafter AR4 WGII], available at http://www.ipcc.ch/publications_and_data/publications_ipcc_fourth_assessment_report_wg2_report_impacts_adaptation_and_vulnerability.htm.

Federal Emergency Management Agency (FEMA) issued draft guidelines that have the potential to affect many state and local actions by, among other things, expanding the federal floodplain boundary.³ In an apparent shot across the bow to states that are, at best, failing to acknowledge climate change related hazards, and, at worst, erecting obstacles to climate change hazard mitigation,⁴ FEMA also issued guidelines that could, in effect, force state governments to plan for climate change or risk losing federal disaster funding.⁵ The White House Council on Environmental Quality (CEQ) issued new draft guidance that advises federal agencies to consider the effects of federal actions on climate change and the effects of climate change on federal actions. The CEQ draft guidance appears to have been issued in response to, among other things, criticism that the federal government is providing insufficient support to local decision makers who are primarily responsible for the planning and development of the nation's infrastructure.⁶ The Department of Housing and Urban Development (HUD) continues to provide incentives for state and local climate resilience initiatives in the form of grant money and, more recently, a competition.⁷ And, on May 1, 2015, nearly ten years after the catastrophic flooding of New Orleans from Hurricane Katrina, the Court of Federal Claims issued an opinion that increases the specter of municipal liability for failure to mitigate climate change related hazards.⁸

II. The Role of State and Local Governments in Closing a Troubling Preparedness Gap

Global temperatures are increasing and the rate of increase is accelerating, with corresponding increases in sea levels, acidification of oceans, and losses of flood-mitigating wetlands. Storms and other extreme weather events are increasing in frequency and severity.⁹ Indeed, many

3. See *infra* Part III.A.

4. See, e.g., Tristram Korten, *In Florida, Officials Ban Term 'Climate Change,'* FL. CTR. FOR INVESTIGATIVE REPORTING, <http://fcir.org/2015/03/08/in-florida-officials-ban-term-climate-change/> (Mar. 8, 2015) (discussing unwritten Florida policy prohibiting state officials from using the term "climate change" or "global warming" in official communications, emails, or reports).

5. See *infra* Part III.B.

6. See *infra* Part III.C. CEQ, which was established by the National Environmental Policy Act of 1969 (NEPA), oversees implementation of NEPA.

7. See *infra* Part III.D.

8. See *infra* Part III.E.

9. See INTERNATIONAL PANEL ON CLIMATE CHANGE (IPCC), CLIMATE CHANGE 2014: IMPACTS, ADAPTATION, AND VULNERABILITY: SUMMARY FOR POLICYMAKERS 6 (2014), available at http://ipcc-wg2.gov/AR5/images/uploads/WG2AR5_SPM_FINAL.pdf [hereinafter AR5 WGII SPM] (identifying a laundry list of "impacts" consistent with the current gap between vulnerability and local preparedness including "heat

communities are already experiencing climate change related threats, including eroding shores, more massive storm surges, more severe storms, salt water intrusion, loss of land, heat waves, droughts, and other extreme weather conditions.¹⁰ As Strauss et al. of Climate Central observe with respect to the New York City metropolitan area:

[E]very coastal flood today is already wider, deeper and more damaging because of the roughly 8 inches (IPCC 2013) of warming-driven global sea level rise that has taken place since 1900. [Climate Central's 2014] analysis finds that this rise has already increased the annual chance of extreme coastal floods in New York City by 50%. Looking forward under a fast sea level rise scenario, [Climate Central] compute[s] a 3-in-4 chance of historically unprecedented coastal flooding in New York City by 2100—or a 1-in-10 chance under a slow rise scenario.¹¹

Moreover, although mitigation measures can decrease the rate and severity of climate change by limiting the amount of greenhouse gas emissions and increasing carbon sinks,¹² such measures are only part of the solution.¹³ “Much of the change in climate over the next 30 to 40 years is already determined by past and present emissions.”¹⁴ Additionally, current and near-future risks from climate change already pose significant enough threats that communities must undertake robust adaptation initiatives to protect public health, property, and infrastructure.¹⁵ Moreover, even if every country that has made commitments to reduce its

waves, droughts, floods, cyclones, and wildfires, . . . disruption of food production and water supply, damage to infrastructure and settlements, morbidity and mortality, and consequences for mental health and human well-being” and noting that “[f]or countries at all levels of development, these impacts are consistent with a significant lack of preparedness for current climate variability in some sectors”).

10. See, e.g., BEN STRAUSS ET AL., NEW YORK AND THE SURGING SEA: A VULNERABILITY ASSESSMENT WITH PROJECTIONS FOR SEA LEVEL RISE AND COASTAL FLOOD RISK, CLIMATE CENTRAL RESEARCH REPORT 11 (2014), available at <http://sealevel.climatecentral.org/uploads/ssrf/NY-Report.pdf>. See also Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 74 F.R. 66496, 66497–98 (Dec. 15, 2009) (finding that the changes in climate caused by increased concentrations of atmospheric greenhouse gas emissions endanger public health and welfare and specifically that “public health is expected to be adversely affected by an increase in the severity of coastal storm events due to rising sea levels”).

11. Strauss, *supra* note 10, at 11.

12. See Robert J. Carpenter, *Implementation of Biological Sequestration Offsets in A Carbon Reduction Policy: Answers to Key Questions for A Successful Domestic Offset Program*, 31 ENERGY L.J. 157, 159 (2010) (defining “carbon sinks” as “an ecosystem’s natural absorption and storage of atmospheric carbon, primarily through photosynthesis”).

13. IPCC defines “mitigation” as “anthropogenic intervention to reduce the sources or enhance the sinks of greenhouse gases.” See AR4 WGII, *supra* note 2, at 750.

14. SCOTTISH EXECUTIVE, CHANGING OUR WAYS: SCOTLAND’S CLIMATE CHANGE PROGRAMME 75 (2006), <http://www.gov.scot/Resource/Doc/100896/0024396.pdf>.

15. See generally Strauss et al., *supra* note 10, at 12 (describing the timeline of growing risks in the context of rising sea levels).

carbon emissions achieved its targets, an assumption that does not reflect historic performance, global temperatures are projected to nevertheless increase more than two degrees Celsius over preindustrial levels, the threshold commonly accepted as necessary to prevent the catastrophic effects of climate change.¹⁶ Accordingly, any notion that mitigation alone will protect communities from the threats of climate change is unfortunately nothing more than wishful thinking. Robust adaptation is clearly needed in addition to vigorous mitigation.¹⁷

In the United States, municipal governments have made significant contributions to adaptation planning and implementation, at least as compared to the federal and state governments, and many sources laud the extensive work of local governments with respect to adaptation.¹⁸ Indeed, municipal regulation of the form and placement of building stock in particular offers an opportunity to create more resilient infrastructure and patterns of development.¹⁹ Because we can anticipate the addition of substantial new building stock and infrastructure over the next few decades, local governments that regulate the

16. At the 2013 Conference of Parties (COP19) in Warsaw, recognizing this “ambition gap,” the parties agreed that global GHG emissions need to peak this decade, and get to zero net emissions by the second half of this century. Similarly, both the UNEP and IEA have been urging since 2010 that to have a reasonable chance of staying within the 2°C pathway, countries must make vigorous efforts to cut their GHG emissions by the year 2020, with even stronger action thereafter. *See* INTERNATIONAL ENERGY AGENCY, WORLD ENERGY OUTLOOK 2010 EXECUTIVE SUMMARY 3 (2010); UNITED NATIONS ENVIRONMENT PROGRAMME, THE EMISSIONS GAP REPORT: ARE THE COPENHAGEN ACCORD PLEDGES SUFFICIENT TO LIMIT GLOBAL WARMING TO 2°C OR 1.5°C? A PRELIMINARY ASSESSMENT 2 (November 2010).

17. Indeed, the latest IPCC assessment report projections indicate neither mitigation nor adaptation alone will be enough to maintain resilient communities. *See* AR5 WGII SPM, *supra* note 9, at 23 (table depicting projection that even highly adapted North American communities will face medium to high risks under scenarios of global mean temperature increases at 2°C and 4°C above preindustrial levels). *See also* Sarah J. Adams-Schoen, *Sink or Swim: In Search of a Model for Coastal City Climate Resilience*, 40 COLUMBIA J. ENVTL. L.—(forthcoming 2015) (concluding that “failure to promptly and aggressively mitigate climate change will likely significantly diminish the ability of coastal communities to moderate harms like flooding and foreclose opportunities to do so in the future” and citing sources (footnotes omitted)).

18. *See, e.g.*, IPCC, CLIMATE CHANGE 2014 SYNTHESIS REPORT 107 (2015) (“There is a significant increase in the number of planned adaptation responses at the local level in rural and urban communities of developed and developing countries since the AR4.”), available at <http://www.ipcc.ch/report/ar5/syr/>.

19. Patricia Salkin, *Sustainability at the Edge: The Opportunity and Responsibility of Local Governments to Most Effectively Plan for Natural Disaster Mitigation*, 38 ENVTL. L.R. 10158, 10162-69 (July 8, 2008), available at SSRN: <http://ssrn.com/abstract=1157153> (discussing sustainability tools in local government toolbox). *See also* John R. Nolon, *Disaster Mitigation Through Land Use Strategies*, 23 PACE ENVTL. L. REV. 959, 976-77 (2006) (“Local land use authority is the foundation of the planning that determines how communities and natural resources are developed and preserved, and how disaster resilient communities are created”).

placement and, in some respects, design aspects of building stock certainly have an opportunity to avoid locking in infrastructure that increases flood and other climate-related risks.²⁰

However, a troubling gap still exists between climate-related vulnerabilities and local preparedness. With respect to climate adaptation planning, U.S. municipalities lag behind their counterparts throughout the world.²¹ According to a survey administered by ICLEI in 2011, the United States has the lowest percentage of cities pursuing adaptation planning out of all regions surveyed (59%), while Latin American and Canadian cities have the highest (95% and 92% respectively),²² and only 13% of the U.S. cities surveyed had even completed an assessment of their vulnerabilities and risks, the lowest percentage of all regions surveyed.²³ Similarly, in November 2014, the President's State, Local, and Tribal Leaders Task Force concluded that

Many communities [in the United States] have not yet calculated and evaluated risks associated with climate change for infrastructure, public health and safety, or built and natural environments. Insufficient or inaccurate data stymie hazard evaluation and sound mitigation plan development. In particular, out-of-date or inaccurate flood hazard maps impede the efforts of communities to understand and assess vulnerability to sea level rise, coastal storm surge, and riverine flooding and to develop policies and projects to reduce risk. Erosion hazards, which are likely to worsen in many parts of the country due to predicted increases in extreme precipitation events, remain largely unmapped. Communities also lack information about changing wildfire risk, drought and other climate-influenced hazards.²⁴

20. John R. Nolon, *The Land Use Stabilization Wedge Strategy: Shifting Ground to Mitigate Climate Change*, 34 WM. & MARY ENVTL. L. & POL'Y REV. 1, 6 (2009) (reporting that sixty-six percent of the buildings in existence in the United States by the year 2050 are projected to be built between now and then). Of course, failure to proactively plan for climate change will result in further investment in infrastructure and patterns of development that, at best, fail to adapt to hazards, and, at worst, exacerbate hazards.

21. See JOANN CARMIN ET AL., PROGRESS AND CHALLENGES IN URBAN CLIMATE ADAPTATION PLANNING: RESULTS OF A GLOBAL SURVEY (2012) (hereinafter ICLEI 2011 SURVEY), available at <http://www.icleiusa.org/action-center/learn-from-others/progress-and-challenges-in-urban-climate-adaptation-planning-results-of-a-global-survey>; U.S. GOV'T ACCOUNTABILITY OFFICE (GAO), GAO 13-242, CLIMATE CHANGE: FUTURE FEDERAL ADAPTATION EFFORTS COULD BETTER SUPPORT LOCAL INFRASTRUCTURE DECISION MAKERS 37 (Apr. 12, 2012) (hereinafter GAO REPORT), available at <http://www.gao.gov/assets/660/653741.pdf> at 37 ("[d]ecision makers have not systematically incorporated potential climate change impacts in infrastructure planning for roads, bridges, and wastewater management systems").

22. ICLEI 2011 SURVEY, *supra* note 21, at 14.

23. *Id.* at 10.

24. THE WHITE HOUSE, PRESIDENT'S STATE, LOCAL, AND TRIBAL LEADERS TASK FORCE ON CLIMATE PREPAREDNESS AND RESILIENCE: RECOMMENDATIONS TO THE PRESIDENT 35 (Nov. 2014), available at https://www.whitehouse.gov/sites/default/files/docs/task_force_report_0.pdf.

In response to this vulnerability-preparedness gap, the International Panel on Climate Change in its most recent assessment report highlights “the importance of city and municipal governments acting now to incorporate climate change adaptation into their development plans and policies and infrastructure investments,”²⁵ characterizing “[a]ction in urban centres [as] essential to successful global climate change adaptation.”²⁶

Despite the essential nature of local climate change adaptation and the troubling preparedness gap that exists in the United States, municipalities in the United States report that one of the key obstacles they face is a lack of adequate support from the federal government.²⁷ A 2014 Georgetown Climate Center report on how to improve federal programs to support local climate change preparedness found that many local governments “have been looking to the federal government for help and guidance, only to run into challenges tapping into federal programs and resources.”²⁸ To be sure, Congress continues to remain gridlocked on the issue, but the executive branch has taken a number of actions over the last year to incentivize climate change adaptation at the state and local levels.²⁹ A recent U.S. Court of Federal Claim order may also have the effect of incentivizing local adaptation efforts as well by increasing the likelihood of litigation or liability for failure to act.³⁰

25. IPCC, CLIMATE CHANGE 2014: IMPACTS, ADAPTATION, AND VULNERABILITY. CONTRIBUTION OF WORKING GROUP II TO THE FIFTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE 541 (2014) [hereinafter AR5 WGII], available at <https://ipcc-wg2.gov/AR5/report/full-report/>.

26. *Id.* at 538. See also Conference of Mayors, U.S. Mayors’ Climate Protection Agreement (June 2014) (adding new focus on urban resiliency).

27. See ICLEI 2011 SURVEY, *supra* note 22, at 24 (95% of U.S. cities surveyed reported that securing funding for adaptation is a challenge and 6% reported that the federal government fully understood the realities they face with respect to adaptation); John R. Nolon, *Climate Change and Sustainable Development: The Quest for Green Communities—Part II*, 61 PLANNING & ENVTL. L. No. 11, 2009 at 3 (discussing failure of state and federal policy to support local governments through adequate funding, technical support, and complimentary laws and policies even though federal and state law delegate much of the authority relevant to climate change adaptation to municipalities).

28. GEORGETOWN CLIMATE CTR., PREPARING OUR COMMUNITIES FOR CLIMATE IMPACTS: RECOMMENDATIONS FOR FEDERAL ACTION 5 (Sept. 2014), available at <http://www.georgetownclimate.org/sites/www.georgetownclimate.org/files/GCC%20-%20Recommendations%20for%20Federal%20Action%20-%20September%202014.pdf>.

29. See *infra* Part III.A.-D.

30. See *infra* Part III.E.

III. Recent Federal Actions that Have Significant Implications for Local Planning and Development

A. *New Floodplain Management Executive Order and Federal Flood Risk Management Standards*

On January 30, 2015, the President issued Executive Order (EO) 13690, regarding federal agencies' consideration of floodplains, to redefine the regulated floodplain and establish the Federal Flood Risk Management Standard (FFRMS).³¹ The new EO responds to the President's June 2013 Climate Action Plan, which directed federal agencies to

update their flood-risk reduction standards for federally funded projects to reflect a consistent approach that accounts for sea-level rise and other factors affecting flood risks. This effort will incorporate the most recent science on expected rates of sea-level rise (which vary by region) and build on work done by the Hurricane Sandy Rebuilding Task Force, which announced in April 2013 that all federally funded Sandy-related rebuilding projects must meet a consistent flood risk reduction standard that takes into account increased risk from extreme weather events, sea-level rise, and other impacts of climate change.³²

The EO expands and amends Executive Order 11988, issued by President Carter in 1977, which required federal agencies to avoid, to the extent possible, the adverse impacts inherent in occupying the floodplain.³³ Pursuant to the new EO, FEMA issued draft "Revised Guidelines for Implementing Executive Order 11988, Floodplain Management," which further explain how federal agencies are to consider floodplains under the Executive Order.³⁴ The new EO and guidelines apply to a wide range of federal investments ranging from local flood protection projects to funding for federal facilities to permit approvals, including, for example, federal approvals for wetland activities covered

31. Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input, Exec. Order No. 13690, 8-Fed. Reg. 6425 (Jan. 30, 2015); Federal Flood Risk Management Standard (FFRMS), *available at* http://www.fema.gov/media-library-data/1422649643416-c0ff9e51d11442790ab18bae8dc5df4b/Federal_Flood_Risk_Management_Standard.pdf.

32. The President's Climate Action Plan 15 (June 2013).

33. Floodplain Management, Exec. Order No. 11988, 42 Fed. Reg. 26961 (May 24, 1977).

34. REVISED GUIDELINES FOR IMPLEMENTING EXECUTIVE ORDER 11988, FLOODPLAIN MANAGEMENT (draft for public comment 1/28/2015) [hereinafter REVISED FFRMS GUIDELINES], *available at* <http://www.fema.gov/media-library-data/1422653213069-9af488f43e1cf4a0a76ae870b2dcde9/DRAFT-FFRMS-Implementating-Guidelines-1-29-2015r2.pdf>. The associated federal register notice is available at <https://www.federalregister.gov/articles/2015/02/05/2015-02284/guidelines-for-implementing-executive-order-11988-floodplain-management-as-revised>. Note that the revised guidelines are advisory only. *Id.* at 6.

by Section 404 of the Clean Water Act.³⁵ The comment period on the revised guidelines closed on April 6, 2015.³⁶

One aspect of the new EO and revised guidelines that should be of particular interest to state and local law practitioners is the expansion of the boundary of federal floodplains beyond the FEMA defined special and moderate flood hazard areas (often referred to as the 100-year and 500-year floodplains, respectively³⁷). These portions of the floodplain under EO 11988 have been based on calculations performed by FEMA for the purpose of determining a Base Flood Elevation (BFE) for flood insurance rating purposes. FEMA standards have required that flood levels are determined by the projection of flood risk based on historic data that fail to consider numerous flood risks, including, for example, projected sea level rise and increased frequency and intensity of storms, and risks related to stormwater drainage in areas with less than one square mile of drainage.³⁸ The new EO requires the use of projections that take into consideration future climate change related risks, as opposed to relying solely on historic data, and redefines floodplain to expand both the horizontal and vertical boundaries of the floodplain applicable to all federal actions.³⁹ Specifically, the new federal floodplain must be calculated by one of four methods: (a) “climate-informed science approach that uses the best-available, actionable hydrologic and hydraulic data and methods that integrate current and future changes in flooding based on climate science”; (b) depending on the criticality of the activity, adding two or three feet to the FEMA base flood elevation (BFE) calculation of the 1% flood; (c) using the .2% FEMA flood calculation, often called the 500-year flood; or (d) “any other method identifiable in an update to the FFRMS.”⁴⁰ The expanded floodplain boundary applies to all federal actions, which include many state and local actions that require a federal permit or federal funds.⁴¹

The revised guidelines also require a multi-step “practicable alternatives analysis” be performed for any federal action that is proposed

35. See, e.g., 24 C.F.R. Part 55.

36. See docket ID FEMA-2015-0006.

37. The portions of the floodplain referred to by EO 11988 are commonly referred to as the 100- and 500-year floodplain; a more accurate description is areas where a flood has a 1% or .2% annual chance of recurrence.

38. FEMA FLOOD INSURANCE STUDY GUIDELINES 2-15 (2013), available at http://www.fema.gov/media-library-data/20130726-1546-20490-8681/firm_scg.doc.

39. Exec. Order No. 13690, 80 F.R. 6425, §§1, 2(i).

40. *Id.* § 2(i).

41. See REVISED FFRMS GUIDELINES, *supra* note 34, § 1.

within or that may affect the expanded federal floodplain.⁴² Additionally, the revised guidelines increase the public notice and comment requirements for federal actions located within, or that may affect, the expanded floodplain.⁴³

B. New FEMA Guidance Requiring Consideration of Future Climate Risks in State Hazard Mitigation Plans

Although states are currently required to adopt hazard mitigation plans in order to qualify for certain disaster funds, under past FEMA guidelines state governments could assess their potential risks based on historic data and, in essence, ignore risks from the foreseeable effects of climate change, including rising sea levels, higher storm surges, and more frequent and intense storms, droughts, and heat waves.⁴⁴ In March 2015, FEMA issued a State Mitigation Plan Review Guide, following notice and comment.⁴⁵ As of March 6, 2016, the new Guide will be FEMA's official policy on the natural hazard mitigation planning requirements of Title 44 of the Code of Federal Regulations (CFR) Part 201, and FEMA's interpretation of federal regulations for state hazard mitigation plans.⁴⁶

Significantly, under the new guidance, state mitigation plans must consider the probability of future hazards taking into consideration changing future conditions, including changing climate and weather conditions.⁴⁷ The Guide explains that future climate change-related risks must be considered because "[p]ast occurrences are important to a factual basis of hazard risk; however, the challenges posed by climate change, such as more intense storms, frequent heavy precipitation, heat

42. Exec. Order No. 13690, 80 F.R. 6425 §§ 1, 2(c). *See also* REVISED FFRMS GUIDELINES, *supra* note 34, at 48 (describing practicable alternatives analysis).

43. REVISED FFRMS GUIDELINES, *supra* note 34, § 2(a).

44. State mitigation plans are one of the conditions of eligibility for certain FEMA assistance, such as Public Assistance Categories C-G and Hazard Mitigation Assistance mitigation project grants. *See, e.g.*, 44 C.F.R. § 201.4(a) (2014) (providing that Standard State Mitigation Plan meeting the requirements of 44 C.F.R. § 201 is a condition of receiving non-emergency Stafford Act assistance and FEMA mitigation grants).

45. FEMA, FP 302-094-2, State Mitigation Plan Review Guide (released Mar. 2015, effective Mar. 6, 2016), *available at* http://www.fema.gov/media-library-data/1425915308555-aba3a873bc5f1140f7320d1ebebdl8c6/State_Mitigation_Plan_Review_Guide_2015.pdf [hereinafter FEMA].

46. *See* State Mitigation Plan Review Guide, FEMA, *available at* http://www.fema.gov/media-library-data/1428593340963-04be109f542645c2837020c4d8d81c8e/State_Mitigation_Plan_Review_Guide_Factsheet.pdf (last visited May 8, 2015) [hereinafter FEMA Factsheet].

47. *See id.* at § 3.2.

waves, drought, extreme flooding, and higher sea levels, could significantly alter the types and magnitudes of hazards impacting states in the future.”⁴⁸

Recognizing the difficulty of quantifying climate change related risks at a state level, the Guide provides that “states are expected to look across the whole community of partners (for example, public, private, academic, non-governmental, etc.) to identify the most relevant data and select the most appropriate methodologies to assess risks and vulnerability.”⁴⁹ Nevertheless, with the exception of states like New York, which has already begun to develop statewide climate-related projections and to assess related risks,⁵⁰ states may be hard pressed to quantify future hazard probabilities by the time their next hazard mitigation plan update is due, given the complexity of scaling global climate data to a regional scale and identifying related risks within a relatively short time frame.⁵¹ Indeed, recognizing local governments’ unmet need for climate-related data and other support from the federal government, the Government Accountability Office (GAO) recommended in a 2013 report that a federal entity designated by the Executive Office of the President work with agencies to: (1) “identify for decision makers the ‘best available’ climate-related information for infrastructure planning,” and (2) “clarify sources of local assistance for incorporating climate-related information and analysis into infrastructure planning”⁵²

The new FEMA guidance also recognizes that, to reduce risk and increase resilience, the state mitigation planning process and program must be more than an emergency management plan; rather, state mitigation planning must include other effected sectors, including, where

48. Lydia Wheeler, *Feds to require climate change plans for states seeking disaster relief*, THE HILL, (May 5, 2015, 10:32 AM), <http://thehill.com/regulation/241050-gop-lawmakers-ask-fema-to-explain-new-disaster-grant-requirement>.

49. FEMA, *supra* note 45 at § 3.2.

50. New York Community Risk and Resiliency Act, Ch. 355, 2014 N.Y. Laws (directing state agencies to prepare climate projections and model municipal laws taking into consideration sea-level rise and other climate-related events and “develop additional guidance on the use of resiliency measures that utilize natural resources and natural processes to reduce risk.”).

51. See RL WILBY ET AL., INTERGOVERNMENTAL PANEL ON CLIMATE CONTROL, GUIDELINES FOR USE OF CLIMATE SCENARIOS DEVELOPED FROM STATISTICAL DOWNSCALING MODELS 3 (Aug. 2004) (citing sources recognizing problems related to impact studies at a finer spatial scale than climate change data), *available at* http://www.ipcc-data.org/guidelines/dgm_no2_v1_09_2004.pdf.

52. See GAO REPORT, *supra* note 21, at 87. The GAO report also advised that revision of the CEQ guidelines on NEPA reviews of climate change impacts and risks could also provide much-needed support to state and local governments. See *infra* Part II.C.

applicable, economic development, land use, housing, health and social services, and infrastructure.⁵³ Additionally, interpreting 44 CFR §201.4(c)(6), which requires that a state mitigation plan “be formally adopted by the State,” the new guidance clarifies that state hazard mitigation plans must be adopted by the highest elected official in the state or his or her designee.⁵⁴ The guidance states that such adoption “demonstrates commitment to the mitigation strategy and may serve as a means to communicate priorities to entities within the state agencies regarding vulnerability and mitigation measures. Plan adoption by the state’s highest elected official or designee may increase awareness of and support from the state agencies with mitigation capabilities and responsibilities, not just the state agency responsible for the mitigation planning program.”⁵⁵

C. Updated Draft CEQ Guidance Advises Federal Agencies to Consider the Effect of Federal Actions on Climate and the Effect of Climate on the Federal Actions

On December 18, 2014, CEQ released an updated draft guidance that superseded the draft greenhouse gas and climate change guidance released by CEQ in February 2010.⁵⁶ The draft guidance suggests how federal agencies should consider the effects of greenhouse gas emissions and climate change in their National Environmental Policy Act (NEPA) evaluations of proposed Federal actions and identifies “opportunities for using information developed during the NEPA review process to take into account appropriate adaptation opportunities.”⁵⁷ The draft guidance counsels agencies to consider both the potential effects of a proposed action (and its reasonable alternatives) on climate change, as indicated by its estimated greenhouse gas emissions, and the implications of climate change for the environmental effects of a proposed action (and its reasonable alternatives).⁵⁸

53. FEMA, *supra* note 45 at §3.1.

54. *Id.* at § 3.7. See also FEMA Factsheet, *supra* note 46.

55. FEMA, *supra* note 45 at § 3.7.

56. Council on Environmental Quality, *Revised Draft Guidance for Greenhouse Gas Emissions and Climate Change Impacts*, WHITEHOUSE.ORG, <https://www.whitehouse.gov/administration/eop/ceq/initiatives/nepa/ghg-guidance>.

57. See COUNCIL ON ENVIRONMENTAL QUALITY, REVISED DRAFT GUIDANCE 30 (Dec. 2014) (summarizing draft guidance) [hereinafter CEQ], *available at* https://www.whitehouse.gov/sites/default/files/docs/nepa_revised_draft_ghg_guidance_searchable.pdf.

58. *Id.* at 3.

The revised draft guidance appears to respond to criticism that the federal government was advancing federal actions without a coordinated approach to the assessment of climate risks and was failing to provide adequate information about climate risks to local decision makers to support infrastructure planning and development. In its 2013 report, the GAO concluded that, although the federal government plays a critical role in producing the information needed to facilitate informed local infrastructure adaptation decisions, this information is not easily accessible to local decision makers.⁵⁹ The GAO noted that updating and finalizing the CEQ guidance is one of several federal efforts under way to facilitate more informed local adaptation decisions.⁶⁰ The governors, mayors, and other local leaders on the President's Task Force on Climate Preparedness and Resilience also recommended in their report to the President in November 2014 that CEQ finalize its 2010 guidance. The Task Force noted specifically that, because CEQ had yet to finalize the 2010 draft guidance, "projects and investments are being advanced without adequate and coordinated consideration of the project design or alternatives relative to climate impacts and greenhouse gas emissions, a direction that generates unacceptable public health, safety, and financial risks for communities."⁶¹

The revised draft guidance applies to all proposed federal actions, including federal site-specific actions, federal grants, federal rulemaking actions, and federal land and resource management decisions.⁶² However, it is unclear what consequence a federal agency that fails to follow the guidance will face because the guidance states expressly that it is a set of policy recommendations and is not legally binding.⁶³

As of May 2015, CEQ had not finalized the revised guidance. The comment period on the revised draft guidance closed March 25, 2015.⁶⁴

59. See GAO REPORT, *supra* note 21, at 80 (summarizing results from GAO study and citing NATIONAL RESEARCH COUNCIL, PANEL ON STRATEGIES AND METHODS FOR CLIMATE-RELATED DECISION SUPPORT, COMMITTEE ON THE HUMAN DIMENSIONS OF GLOBAL CHANGE, INFORMING DECISIONS IN A CHANGING CLIMATE (National Academies Press, 2009)).

60. *Id.*

61. See THE WHITE HOUSE, *supra* note 24, at 20 (recommendation 2.7).

62. See CEQ, *supra* note 57, at 8 (identifying range of applicable federal actions).

63. *Id.* at 1 n.4.

64. Revised Draft Guidance for Greenhouse Gas Emissions and Climate Change Impacts, CEQ, COUNCIL ON ENVIRONMENTAL QUALITY, <https://www.whitehouse.gov/administration/eop/ceq/initiatives/nepa/ghg-guidance> (last visited May 21, 2015).

D. HUD Resilience Activities

Although the President has directed all federal agencies to engage in adaptation planning,⁶⁵ HUD's approach to resilience in particular has the potential to significantly effect local disaster preparedness. In addition to billions of dollars per year in physical infrastructure expenditures, HUD is one of the largest sources of funding for long-term disaster recovery.⁶⁶ HUD's Community Development Block Grant-Disaster Recovery (CDBG-DR) is a supplemental appropriation to state and local governments for unmet housing, economic, and infrastructure needs.⁶⁷ Although CDBG-DR is only appropriated on an ad hoc basis, the annual CDBG program is often a critical resource for state and local governments working during the recovery process to increase resilience by, for example, helping to fund elevations and buyouts.⁶⁸

Currently, HUD is running the National Disaster Resilience Competition. The competition's goal is to fairly allocate the remaining one billion dollars allocated through Public Law 113-2 CDBG-DR funds.⁶⁹ This is a two-phase competition where eligible applicants frame a resilience approach in Phase 1, and, if successful, will be invited to expand the resilience approach in Phase 2. Applicants will be awarded funds if they are successful in Phase 2.

Additionally, HUD established an internal Resilience Council to ensure all HUD activities incorporate resilience to natural disasters and climate-related threats.⁷⁰ The Council developed and is currently working to implement the agency's Climate Change Adaptation Plan.⁷¹ According to the plan, HUD is identifying threats and adapting policies

65. See Exec. Orders No. 13514, 74 Fed. Reg. 52117 (Oct. 5, 2009) (establishing greenhouse gas emission reductions a performance metric for all federal agencies and requiring a deliberative planning process to ensure goal achievement); CEQ, FEDERAL AGENCY CLIMATE CHANGE ADAPTATION PLANNING IMPLEMENTING INSTRUCTIONS (Mar. 4, 2011), available at https://www.whitehouse.gov/sites/default/files/microsites/ceq/adaptation_final_implementing_instructions_3_3.pdf.

66. See HUD, HOUSING AND URBAN DEVELOPMENT CLIMATE CHANGE ADAPTATION PLAN OCTOBER 2014 3 (2014) [hereinafter HUD ADAPTATION PLAN], available at <http://portal.hud.gov/hudportal/documents/huddoc?id=HUD2014CCAdaptPlan.pdf>.

67. See Housing and Community Development Act of 1974 § 103, 42 U.S.C. § 5303 (2014) (authorizing CDBG-DR funding). See also 24 C.F.R. 570 (2015).

68. See generally THE COMMUNITY DEVELOPMENT BLOCK GRANT PROGRAM—FACT SHEET (no date), available at <https://www.hudexchange.info/onecpd/assets/File/The-Community-Development-Block-Grant-Program-Fact-Sheet.pdf>; *Community Development*, HUD.GOV, http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/communitydevelopment (last visited May 19, 2015).

69. See Disaster Relief Appropriations Act of 2013, P.L. 113-2.

70. HUD ADAPTATION PLAN, *supra* note 66, at 4.

71. See HUD ADAPTATION PLAN, *supra* note 66. HUD issued its first Agency Climate Change Adaptation plan in 2012. *Id.* at 9.

and investments to help communities better prepare and respond to the effects of climate change, including approaching rebuilding in a way that increases resilience.⁷²

Among the more than two dozen proposed actions, the plan proposes that the agency update its floodplain management regulations to require that “projects involving new construction or substantial improvement be elevated additional footage above the base flood elevation, as determined by FEMA’s best available data.”⁷³ The plan also calls for considering the effects of climate change on vulnerable communities when conducting NEPA reviews of proposed HUD actions,⁷⁴ reviewing and establishing building standards for new construction and substantial rehabilitations to incorporate sustainability and resilience measures,⁷⁵ and encouraging Community Planning and Development (CPD) grantees to discuss climate-related risk and actions needed to minimize potential impact of these risks on vulnerable populations served by CPD programs in their Consolidated Plans.⁷⁶

E. An Interesting Twist on Municipal Liability for Failure to Adapt

Given the clear role for local governments in adaptation planning and implementation,⁷⁷ some scholars and commentators question whether local governments will soon face liability for failure to plan for and implement climate change adaptation measures.⁷⁸ Commentary on the potential for municipal liability for failure to adapt has focused primarily on tort liability.⁷⁹ However, at least one scholar, Christopher Serkin, has argued that regulatory failure to protect property in the face of climate change could amount to an unconstitutional taking.⁸⁰ And, on May 1, 2015, the U.S. Court of Federal Claims increased

72. *Id.* at 3-4.

73. *Id.* at 16 (action 1.4).

74. *Id.* at 16-17 (action 1.5).

75. *Id.* at 18 (action 1.7).

76. *Id.* at 21-22 (action 1.11).

77. See Salkin, *supra* note 19, at 10158.

78. See, e.g., Maxine Burkett, *Duty and Breach in an Era of Uncertainty: Local Government Liability for Failure to Adapt to Climate Change*, 20 GEO. MASON L. REV. 775, 780-81 (2013).

79. See, e.g., *id.*; Jenna Schweitzer, *Climate Change Legal Remedies: Hurricane Sandy and New York City Coastal Adaptation*, 16 VT. J. ENVTL. L. 243 (2014) (applying Maxine Burkett’s tort liability argument to New York City, concluding the City would not face liability for failure to adapt reasonably, and arguing that New York common law signals to local governments that property owners bear the risks of failure to adapt to natural hazards).

80. See Christopher Serkin, *Passive Takings: The State’s Affirmative Duty to Protect Property*, 113 MICH. L. REV. 345, 388-406 (2014).

the specter of municipal liability for failure to adapt to climate change risks when it found the U.S. Army Corps of Engineers (USACE) liable for damage caused by temporary flooding from Hurricane Katrina and other storms under a takings theory based on USACE's failure to maintain a navigational channel that USACE had constructed in the 1960s.⁸¹

Relying in large part on the U.S. Supreme Court's 2012 decision in *Arkansas Game & Fish Commission*,⁸² Judge Susan Braden ruled in *St. Bernard Parish Government* that USACE's failure to properly maintain the Mississippi River–Gulf Outlet (“MR-GO”), a seventy-six mile long navigational channel constructed, expanded and operated by the Corps, resulted in a taking of private property without just compensation in violation of the Takings Clause.⁸³ Judge Braden found that the Corps' negligent design and failure to maintain the MR-GO exacerbated flood damage from Hurricane Katrina and several subsequent storms, and, although temporary, wrongfully deprived landowners of the use of their property.⁸⁴

According to Judge Braden, to prove a temporary taking, a plaintiff must show: (1) a protectable property interest under state law; (2) the character of the property and the owners' “reasonable-investment backed expectations”; (3) foreseeability; (4) causation; and (5) substantiality.⁸⁵ Because *St. Bernard's Parish* involved affirmative governmental actions (i.e., negligent expansion and maintenance of the navigational channel), the case leaves open the question of whether

81. *St. Bernard Parish Gov't v. U.S.*, No. 05-1119L, 2015 WL 2058969 (Fed. Cl. May 1, 2015).

82. *Ark. Game & Fish Comm'n v. United States*, 133 S. Ct. 511, 515 (2012) (holding that “recurrent floodings, even if of finite duration, are not categorically exempt from Takings Clause liability”). Prior to *Arkansas Game*, federal courts had generally understood Takings Clause liability as limited to permanent or inevitably recurring flood events. See *Ark. Game & Fish Comm'n v. United States*, 637 F.3d 1366 (Fed. Cir. 2011), *reversed by* 133 S. Ct. 511 (2012). But see *First English Evangelical Lutheran Church of Glendale v. County of Los Angeles*, 482 U.S. 304, 319 (1987) (holding that invalidation of ordinance, “though converting the taking into a ‘temporary’ one, is not a sufficient remedy to meet the demands of the Just Compensation Clause”).

83. *St. Bernard Parish Gov't*, 2015 WL 2058969 at *1.

84. *Id.* The court built on the factual findings of the earlier tort cases against the United States, *In re Katrina Breaches Consolidated Litigation*, which had found the government liable for negligence based on, among other things, the long history of credible warnings that MR-GO was a “powder keg” of flooding risk prior to the advent of Katrina. But see *In re Katrina Canal Breaches Litig.*, 696 F.3d 436 (5th Cir. 2012) (reversing on governmental immunity grounds). *Id.* at *2.

85. *St. Bernard Parish Gov't*, 2015 WL 2058969 at *26.

a government entity could be liable for failure to take any action in the face of foreseeable climate-related risks.

Because the consequences of destructive storms are foreseeable and at least in part attributable to failures in the legal system, Maxine Burkett argues that local governments could face tort liability for failure to adapt to climate change.⁸⁶ Burkett posits that, although no affirmative duty exists for governments to provide protection from natural hazards, once a local government begins instituting adaptation measures that action triggers a duty to adapt reasonably under the circumstances and failure to do so can result in liability for negligence.⁸⁷ The Fifth Circuit ultimately rejected tort theories of liability in the Katrina litigation as violative of governmental immunity under the Flood Control Act (FCA) and discretionary-function exception to the Federal Tort Claims Act (FTCA)⁸⁸ But, in *St. Bernard's Parish*, by basing Takings Clause liability in large part on USACE's negligent expansion and failure to maintain MR-GO, the court essentially expanded Takings Clause liability to encompass governmental negligence that exacerbates weather-related damage to property.⁸⁹

So far, in the United States, plaintiffs' claims against local governments have not extended to negligent failure to adapt to climate change. Rather, plaintiffs injured by flooding have brought actions against local governments alleging that the municipalities' affirmative acts of negligent design, construction or operation of flood control structures caused the plaintiffs' injuries,⁹⁰ and, in at least one instance, plaintiffs injured by flooding brought an action against a county government claiming that the county's negligent regulation of development on an adjacent property caused plaintiffs' damages.⁹¹ With

86. Burkett, *supra* note 78, at 780–81. See also Daniel Farber, *Symposium Introduction: Navigating the Intersection of Environmental Law and Disaster Law*, 2011 B.Y.U. L. REV. 1783, 1786 (2011) (“environmental disasters stem from gaps in environmental regulation: weak protection of wetlands, badly planned infrastructure, and, above all, climate change.”).

87. Burkett, *supra* note 78, at 780–81.

88. Katrina Canal Braches Litig., 696 F.3d at 444 (immunity under FCA extends to claims stemming from levee breaches caused by dredging of canal); *id.* at 449–52 (describing the discretionary function exception to FTCA extends to remaining claims).

89. See John Echeverria, *Ruling in MR-GO Takings Lawsuit*, TAKINGS LITIGATION: A BLOG ABOUT TAKINGS LAW, May 2, 2015, <http://takingslitigation.com/2015/05/02/ruling-in-mr-go-takings-lawsuit/> (“the decision would appear to convert the Federal Tort Claims Act and its carefully crafted governmental immunities into a dead letter, at least in the flooding context”).

90. See, e.g., *Vermef v. City of Boulder City*, 80 P.3d 445 (Nev. 2003), *abrogated* by *ASAP Storage, Inc. v. City of Sparks*, 173 P.3d 734 (Nev. 2007); *Walter Legge Co. v. City of Peekskill*, 210 A.D.2d 317 (1994 N.Y.S. 2d Dep’t).

91. See, e.g., *Cootey v. Sun Inv., Inc.*, 718 P.2d 1086 (Hawaii 1986).

respect to the former actions, liability has tended to hinge on whether the municipality's conduct was statutorily immune⁹² and, if it was not, whether the plaintiffs proffered sufficient proof of negligence and causation.⁹³ With respect to the latter action, the court held that the county owed no duty to homeowners to ensure that development of an adjoining subdivision would not create a risk of flooding the homeowners' property.⁹⁴ *St. Bernard Parish's* application of *Arkansas Game & Fish*, however, leaves open the possibility that a municipality's negligent regulation of property that exacerbates flooding on that property or other properties could constitute a taking.

Whether or not the liability theory of *St. Bernard's Parish* survives appeal or gains traction in other courts, the court's imposition of governmental liability for negligently exacerbating flood damage could open the floodgates, so to speak, of litigation against government bodies for inadequately preparing for sea level rise, wild fires, drought, and other climate-related risks.⁹⁵

III. Conclusion

Over the past year, the federal government has taken a number of steps that could help state and local governments get much-needed support for local resilience initiatives. By even partially filling the climate resilience policy void at the national level, recent executive actions have

92. See, e.g., *Vermeij*, 80 P.3d at 553 (ruling on appeal of summary judgment that city was not entitled to immunity for damages occurring during flood under statute immunizing government entities from liability arising out of emergency management activities where damage was due to pre-emergency installation of the drainage channel), *abrogated by ASAP Storage*, 173 P.3d at 744-45 (ruling that statute immunizing government from liability relating to emergency management activities creates immunity for emergency responses and emergency preparation activities); see also *In re Katrina Canal Breaches Consol. Litig.*, 577 F. Supp. 2d 802, 807 (E.D. La. 2008) (ruling that genuine issues of material fact existed as to whether damage from flooding was caused by governmental negligence in design, construction, maintenance, and operation of a navigational channel, including resulting destruction of flood-mitigating wetlands, as opposed to negligence with regard to federal flood control project, which would be subject to statutory governmental immunity); *In re Katrina Canal Breaches Consol. Litig.*, 696 F.3d 436 (5th Cir. 2012) (holding that the government was immunized against claims for flooding damage).

93. *Walter Legge Co.*, 210 A.D.2d at 317 (affirming order granting judgment as matter of law for city where there was insufficient proof of causation and negligence in action against city for damage to property allegedly caused by flooding when natural waterway used as part of municipal drainage system overflowed).

94. *Cootey*, 718 P.2d 1086.

95. See *Troubled Shores*, CURRY COASTAL PILOT, Dec. 18, 2010 (reporting on lawsuit by homeowners against developers and realty company for failure to disclose foreseeable risk to properties from creek migration), available at <http://www.currypilot.com/News/Local-News/Troubled-shores>.

the potential to provide incentives, technical guidance and coordination that state and local governments need to effectively plan for current and future climate-related hazards.

However, the federal government continues to provide climate hazard mitigation support only at the periphery—that is, through executive actions, many of which are merely advisory. This tenuous approach is occurring notwithstanding knowledge that state and local governments, which have been delegated much of the authority relevant to climate change adaptation, need federal support in order to take effective action to close the troubling preparedness gap that exists in the United States. The result is a federal scheme akin to balancing a three-legged stool on two legs, and the risk of toppling—or in this case of suffering massive human and property losses—falls in large part on the state and local governments that are responsible for local adaptation planning.