

Climate Change Impacts on Law and Policy in Florida

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Climate change and sea level rise have made obsolete the notion that law and policy develop in the context of a relatively stable natural environment. The need of communities to adapt to climate change and sea level rise reflects the need for laws and policies governing those communities to facilitate rather than undermine such adaptation. This chapter provides an overview of law and policy issues at three levels of government—state, local, and federal. It highlights changes in state law and policy in Florida that relate to climate change and sea level rise. The chapter also focuses on local governments, and includes sections about regional collaborations of local governments, financial issues and climate change/sea level rise at the local level, examinations of impacts on infrastructure, and impacts on the public's use of beaches in Florida. The chapter concludes with discussion of a policy change related to climate change and sea level rise at the federal level that impacts local governments.

Key Messages

- The state of Florida engagement with climate change began early, with energy law in 2006. Since then the focus of engagement in climate and sea level rise has shifted from energy to disaster planning and flooding. This shift to focus on flooding and resilience resulted from local government experience of roads and drainage being the first types of infrastructure to suffer from rising seas.
- Local governments, with much of their focus on infrastructure, have been some of the greatest centers of action on climate change, with many adopting extensive comprehensive plan policies that are increasingly being implemented through ordinances. Collaboration among local governments has resulted in increased focus on climate change and sea level rise as well as harmonized approaches to the challenges.
- Among the challenges that Florida faces is protecting the state's beaches, which are the lifeblood of Florida's tourism industry.
- Federal actions (from federally-supported research and data to federal policy changes to the National Environmental Protection Act and the new Federal Flood Risk Management Standard) have been both drivers and supporters of state and local activities on climate change and sea level rise, though recent changes at the federal level have eliminated some of these drivers.

Keywords

Climate change; Sea level rise; Infrastructure; Flooding; Local government; Policy; Law; Planning; Resiliency; Adaptation

Introduction

Law has typically developed on the assumption that as much as society and law may change, the natural world around us is, for the most part, a world of basic stationarity.¹ (Craig 2010) Climate change and sea level rise, however, mean that this fundamental assumption about the natural world does not apply any longer, and law and policy need to enable necessary adaptations to changes in physical and related conditions. This chapter reviews areas of law and policy in Florida impacted by climate change and sea level rise, including related changes in state law, provides a focus on local government action and regional collaborations in Florida, and includes a brief overview of federal actions and policy with greater emphasis on federal policy changes that affect local governments. Local governments form the real focus of this chapter since most of the impacts and most of the adaptations to climate change and sea level rise directly implicate local governments as the seat of comprehensive land use planning, infrastructure, public finance, and the level of representational government closest to people when they feel the impacts of climate change or sea level rise.

Climate change and sea level rise can and will impact law and policy in almost any substantive area and discipline in the long run. However, this chapter maintains a relatively narrow focus for two reasons. First, the authors wish to keep this summary short and readable. Second, a number of issues that could fall under the rubric of climate change or sea level rise policy already appear in other chapters of this book. For example, land use and land cover discussions appear in Chapter 2; water policy related to climate change and sea level rise is included in Chapter 3; some discussion of urban infrastructure policy occurs in Chapter 11; energy policy and impacts appear in Chapter 5; impacts on insurance, both the National Flood Insurance Program and the Florida's Citizens Insurance, are analyzed in Chapter 6.

State Law, Climate Change, and Sea Level Rise

At the level of state government, Florida has had a relationship with climate change and sea level rise for longer than most might think. Florida was an early adopter when then-governor Jeb Bush signed into law the Renewable Energy Technologies and Energy Efficiency Act in 2006. A major component of the Act was the creation of the new Florida Energy Commission in an advisory role related to state energy policies. The first report of the Commission (Florida Energy Commission 2007)² was required to include recommended steps and a schedule for the development of a state climate action plan.

¹ See, e.g. Robin Kundis Craig, "Stationarity is Dead"—Long Live Transformation: Five Principles for Climate Change Adaptation Law, 34 *Harv. Env't'l L.R.* 9 (2010).

² 2007 Florida Energy Commission, Report to the Legislature. Available at <http://www.dms.myflorida.com/content/download/54452/228726/file/2007>.

The Commission's report noted the scientific community's consensus that human-caused increases in greenhouse gases need to be addressed and recommended setting targets to reduce them. This would require an inventory of greenhouse gases but it would put the state in a position to lead by example through education and unification of Florida's energy governance. In 2007, under the administration of then-Governor Charlie Crist, the focus on climate continued at the state level, with executive orders setting targets and actions to reduce greenhouse gas emissions statewide.³

Climate change activity continued in 2008 and throughout the Crist administration. One bill created a cap and trade program for utilities, set up a renewable portfolio standard for energy, and addressed automobile efficiency and emissions.⁴ Another addressed issues such as green building, efficient land use patterns, energy conservation, greenhouse gas emissions in planning, and provided for the Florida Building Commission to make recommendations on energy efficiency.⁵ In 2009, the statutorily-created "Florida Energy & Climate Commission" began meeting.

Under the subsequent administration of Governor Rick Scott, state agencies continue working on climate change-related issues. Rather than concentrating resources on policy development through more publicly-focused commissions or task forces, the administration has turned its attention more to the disaster planning and recovery aspects of climate change. The Florida Fish and Wildlife Conservation Commission is doing a significant amount of data collection and monitoring related to habitat and species impacts.⁶ The Department of Economic Opportunity, both through its own statutory mission and with funding from the federal government, has been doing extensive work on sea level rise, including pilot planning efforts in several communities.⁷ Its approach has been to also provide technical assistance for local governments and to offer review and comment on compliance with legislation passed in 2015 related to addressing "Peril of Flood" issues in comprehensive plans. The Department of Economic Opportunity has also created numerous guides and compilations of resources for local governments that want to start addressing sea level rise in their policy framework.⁸ The Florida Department of Environmental

³ This discussion of climate change history and policy in Florida owes much to Erin Deady, Esq., and the article "The Link Between Future Flood Risk and Comprehensive Planning," in *The Environmental and Land Use Law Section Reporter of the Florida Bar*, Vol. 37, No.2, 7-14, (Sept. 2015). Thomas Ruppert was co-author with Erin Deady on this article.

⁴ *Laws of Florida*, 2008-227.

⁵ *Laws of Florida*, 2008-191.

⁶ *See, e.g.* Florida Fish and Wildlife Conservation Commission, *Climate Change*, available at <http://myfwc.com/conservation/special-initiatives/climate-change/>.

⁷ *See, e.g.* Florida Dept. of Econ. Oppt'y, *Adaptation Planning*, available at <http://www.floridajobs.org/community-planning-and-development/programs/community-planning-table-of-contents/adaptation-planning>.

⁸ Various products of the work of the Department of Economic Opportunity can be found on their "Adaptation Planning" website at <http://www.floridajobs.org/community-planning-and-development/programs/community-planning-table-of-contents/adaptation-planning>.

Protection has primarily been limited to work related to climate change impacts on coral reefs.⁹

In 2011, HB 7207, a nearly 200-page bill, became law and essentially overhauled the state's growth management policy, which is laid out in Chapter 163, Florida Statutes (F.S.). Included in the changes were many viewed as contentious by planners and conservationists, with a fundamental reorganization of the Florida Department of Community Affairs into a new Florida Department of Economic Opportunity; a shift that retained some planning and growth management functions but clearly focusing more on the state's economic development policy. In addition, the law reduced state oversight of local planning decisions and actions, concentrating more on resources and issues with statewide significance. Relative to climate change, the law eliminated many, but not all, of the energy efficiency and greenhouse gas reduction provisions from Chapter 163, F.S.; these had been added only three years before in 2008 with the passage of HB 697. Although many of these provisions were eliminated, there are several that remain even today to consider in the planning context:

- Comprehensive planning standards on data in Section 163.3177(1)(f), F.S. "All mandatory and optional elements of the comprehensive plan and plan amendments shall be based upon relevant and appropriate data and an analysis by the local government that may include, but not be limited to, surveys, studies, community goals and vision, and other data available at the time of adoption of the comprehensive plan or plan amendment."
- A project could be considered "sprawl" if: (VIII) plan or plan amendment allows for land use patterns or timing which disproportionately increase cost in time, money or energy of providing and maintaining facilities/services, including roads, potable water. Section 163.3177(6)(a)9.a.(VIII), F.S.
- "Discourage the proliferation" of sprawl if: project incorporates a development pattern or urban form that achieves four (4) or more of the following ... promotes conservation of water and energy. Section 163.3177(6)(a)9.b.(IV).
- Conservation element: must contain principles, guidelines, and standards for conservation that provide long-term goals to protect air quality. Section 163.3177(6)(d)2., F.S.

The 2011 law eliminated Chapter 9J-5 from the Florida Administrative Code (F.A.C.), which was an implementing rule providing detailed guidance on comprehensive plan implementation pursuant to Chapter 163, F.S. While the implementing rule was eliminated, some of that guidance was incorporated into Chapter 163, F.S. The stated goal was to eliminate duplication between the Chapter itself and the implementing rule by consolidating the policies into one location. The sections of the F.A.C. that were eliminated included details and requirements related to post-disaster and resilience planning, evaluation of erosion and accretion trends and their impacts, public access, infrastructure, and other considerations. The new requirements are more flexible

⁹ See, e.g. Florida Dept. of Environmental Protection, Climate Change and Coral Reefs, available at http://www.dep.state.fl.us/coastal/programs/coral/climate_change.htm.

than what was required pursuant to Chapter 9J-5, F.A.C.¹⁰ How this flexibility ultimately impacts local government post-disaster redevelopment planning is still an evolving matter.

The 2011 law also opened some doors. It added the option for local governments to address sea level rise adaptation as part of the Coastal Management Element of local government comprehensive plans through the establishment of optional adaptation action areas. Potential criteria for such an area are broad and include, but are not limited to: areas for which the land elevations are below, at, or near mean higher high water; areas with a hydrologic connection to coastal waters; or areas that are designated as evacuation zones for storm surge.¹¹ This addition is reinforced by a definition for “adaptation action area” or “adaptation area,” which is “a designation in the coastal management element of a local government’s comprehensive plan which identifies one or more areas that experience coastal flooding due to extreme high tides and storm surge, and that are vulnerable to the related impacts of rising sea levels for the purposes of prioritizing funding for infrastructure needs and adaptation planning.”¹²

Finally, the 2011 law did not prohibit longer timeframes for planning,¹³ but the minimum required planning horizons in Florida’s comprehensive planning law (5 and 10 years) remain too short to effectively include consideration of climate change and sea level rise impacts, even when taking into account infrastructure or development with usable life spans of many decades.¹⁴

In summary, the changes to comprehensive planning law in 2011 do not prevent Florida’s local governments from engaging in detailed, proactive efforts to increase their resilience to coastal hazards, such as erosion, storms, and sea level rise; but they allowed for a more discretionary function than a prescriptive one. However, the flexible and discretionary mechanisms for resilience and coastal planning may be politically challenging at the local level. One view is that without the “stick” of mandatory requirements, local governments will choose not to address them at all. Another view is that incrementally providing local governments tools to address these issues within the state’s comprehensive planning law provides a basis for doing so for those that want to, and allows greater local control and self-determination. Several local governments have proactively utilized provisions in Chapter 163, F.S. to create optional elements of comprehensive plans far exceeding the requirements in Chapter 163 and addressing a range

¹⁰ Section 163.3178(2)(f), F.S. contains language somewhat similar to the former requirement of Chapter 9J-5 of the Florida Administrative Code requirement for post-disaster redevelopment plans. The statute provides that the coastal management element shall contain a “redevelopment component which outlines the principles which shall be used to eliminate inappropriate and unsafe development in the coastal areas when opportunities arise.”

¹¹ Laws of Florida, 2011-139, codified at Section 163.3177(6)(g)10, F.S. (2016).

¹² Laws of Florida, 2011-139, codified at Section 163.3164(1), F.S. (2016).

¹³ The new law allowed “additional planning periods for specific components, elements, land use amendments, or projects.” Section 163.3177(5)a, F.S. (2016).

¹⁴ Section 163.3177((5)(a), F.S. stating, “Each local government comprehensive plan must include at least two planning periods, one covering at least the first 5-year period occurring after the plan’s adoption and one covering at least a 10-year period.”

of topics including climate change, adaptation, energy, or combinations of all of these on some level.¹⁵

As discussed in chapter 6 of this book, changes to the National Flood Insurance Program in 2012 and 2014 hit Florida extremely hard. As part of its efforts to deal with the impacts of such changes, the 2015 Florida Legislature passed a law entitled “An Act Relating to the Peril of Flood.”¹⁶ While important parts of the law directly address flood insurance issues, other portions focus on flooding issues, disaster planning and recovery, and pre-disaster mitigation. Under the 2015 law, coastal management elements must include “A redevelopment component that outlines the principles that must be used to eliminate inappropriate and unsafe development in the coastal areas when opportunities arise.”¹⁷ While the redevelopment component itself is not new, what is required to be addressed in the component has been enhanced. The requirements include:

1. Employing development and redevelopment principles, strategies, and engineering solutions that reduce the flood risk in coastal areas that result from high-tide events, storm surge, flash floods, stormwater runoff, and the related impacts of sea level rise.
2. Encouraging the use of best practices development and redevelopment principles, strategies, and engineering solutions that will result in the removal of coastal real property from flood zone designations established by FEMA.
3. Identifying site development techniques and best practices that may reduce losses due to flooding and claims made under flood insurance policies issued in the state.
4. Being consistent with, or more stringent than, the flood-resistant construction requirements in the Florida Building Code and applicable flood plain management regulations set forth in 44 C.F.R. part 60.
5. Requiring that any construction activities seaward of the coastal construction control lines established pursuant to Section 161.053, F.S. be consistent with Chapter 161, F.S.
6. Encouraging local governments to participate in the National Flood Insurance Program Community Rating System administered by FEMA to achieve flood insurance premium discounts for their residents.

Because of the law passed in 2011, Section 163.3178(2)(f)1., F.S. now includes sea level rise as one of the root causes that must be addressed in the “redevelopment principles, strategies, and engineering solutions” to reduce flood risk. Local governments required to have coastal management elements in their comprehensive plans appear to have broad discretion as to how they comply with this new mandate. The law does not specify a date by which local governments must comply. Section 163.3191(1), F.S. still requires local governments to evaluate their plans at least once every seven years to determine if amendments are necessary to reflect relevant

¹⁵ Section 163.3177(1)(a), F.S. stating, “The comprehensive plan shall consist of elements as described in this section, and may include optional elements.”

¹⁶ Laws of Florida, 2015-69.

¹⁷ Laws of Florida, 2015-69, section 1, codified at Section 163.3178(2)(f), F.S. (2016).

changes in state law. That said, a local government also has the authority pursuant to Section 163.3191(2), F.S. to make a determination that amendments are necessary sooner than that seven-year requirement. With that, local governments do have discretion in how they want to comply with these new future flood risk requirements and could do so sooner than their next required evaluation and appraisal report, if they chose to.

While explicitly now requiring flood risk from sea level rise to be addressed in comprehensive plans (coastal management elements), this shouldn't be considered the single driving force for local governments to address climate change and sea level rise. As outlined previously, policy development based on solid data, infrastructure risk planning, limiting expenditures in coastal areas susceptible to storm damage, protection of air quality, elimination of sprawl, and other notions of balanced planning should be considered holistically when updating comprehensive plans. The importance of considering the state's policy and regulatory structure as a floor, not a ceiling, when dealing with climate and sea level rise issues is a shift that is already starting to occur at the local level.

Another area of state law that should be integrating the reality of sea level rise but has largely failed to do so is Florida's "Coastal Construction Control Line" (CCCL) permitting program.¹⁸ Part of the CCCL program's stated goal is "to preserve and protect [Florida's beaches] from imprudent construction which can jeopardize the stability of the beach-dune system, accelerate erosion, provide inadequate protection to upland structures, endanger adjacent properties, or interfere with public beach access."¹⁹ Building requirements associated with the CCCL program have increased the resistance of coastal construction to storm events generally. However, the CCCL program has many shortcomings that, as demonstrated by the risks to and loss of structures permitted under it, do seem to allow imprudent construction.²⁰ The CCCL program statutes never mention sea level rise, and the regulations that implement it do not account for sea level rise in permitting of new "major habitable structures." In fact, regulations implementing the CCCL program only mention sea level rise once: regulations allow consideration of sea level rise when determining whether to issue a permit to allow armoring or hardening of the shoreline.²¹ Thus, state laws and regulations do not allow the CCCL program to account for sea level rise when

¹⁸ The CCCL program appears in statute at Chapter 161, Part I (161.011 – 161.242) (2016).

¹⁹ FLA. STAT. § 161.053 (2016).

²⁰ Florida's experience with loss of and damage to many coastal homes during Hurricane Matthew's glancing blow to Florida in 2015 demonstrated shortcomings of the CCCL program. Many homes or structures damaged or lost due to coastal erosion were permitted under the CCCL program. *See also, e.g.* Thomas Ruppert, *Eroding Long-Term Prospects for Dynamic Beach Habitat in Florida*, 1 *Sea Grant Law & Policy Journal* 65 (2008), available online at <http://www.olemiss.edu/orgs/SGLC/National/SGLPJ/SGLPJ.htm>. This cited article was based on a more comprehensive document that reviewed several structures permitted under the CCCL program and includes photos of the structures. This is available as the link "White Paper on Dynamic Turtle Nesting Habitat Accommodation in Florida" and "Appendices to the White Paper on Dynamic Turtle Nesting Habitat Accommodation in Florida" at <https://www.law.ufl.edu/academics/dynamic-habitat-accommodation-the-policy-framework-for-migrating-shorelines>.

²¹ Fla. Admin. Code 62B-41.005(7)(c) (2016).

deciding what types of development are permissible, where development may be sited, or how it is designed but do allow for consideration of sea level rise when deciding whether to allow coastal armoring.

Florida has extensive state requirements for stormwater and wetlands permitting through the state's Environmental Resource Permit (ERP) program.²² The ERP program regulates activities that alter the flow of surface waters, such as construction creating stormwater; the ERP also regulates dredging and filling in wetlands or surface waters. However, the rules for implementing the ERP program do not currently consider future conditions specifically related to changing rainfall patterns or increasing sea levels. Thus, the ERP program, when permitting construction in wetlands in coastal areas, may be permitting construction that will soon experience significant impacts from sea level rise. Likewise, without taking changing rainfall patterns into account, such as the increased incidence of heavy rainfall events, design requirements for stormwater systems will, in the future, likely not achieve the level of service intended.

Finally, in the 2017 legislative session, SB 464/HB 181 (now Section 252.3655, F.S.) passed creating an interagency workgroup to share information on the current and potential impacts of natural hazards throughout the state. The goal is to coordinate the ongoing efforts of state agencies in addressing the impacts of natural hazards, and collaborate on statewide initiatives to address the impacts of natural hazards. "Natural hazards" was specifically defined to include, extreme heat, drought, wildfire, sea-level change, high tides, storm surge, saltwater intrusion, stormwater runoff, flash floods, inland flooding, and coastal flooding. The workgroup is to meet quarterly to share information, leverage agency resources, coordinate ongoing efforts, and provide information for inclusion in the annual progress report to the Governor, the President of the Senate, and the Speaker of the House of Representatives starting January 2019.

Local Government: The Real Seat of Climate Change and Sea-Level Rise Action in Florida

Evolving approaches to climate and sea level rise policy at the state level, depending on what administration is in place, have left some local governments wondering how to address this important challenge. Whether driven by local politics or efforts to comply with state or federal planning requirements, there is recognition that, on some level, policy discussion must occur. Some of the most impacted communities have also begun to work together regionally to address the issue regardless of what legislative or administrative requirements may or may not exist.

Local governments have a visceral connection to climate change and sea level rise; when exceptionally heavy rainfall events occur—when heat waves hurt people, when droughts limit

²² State permitting is also conducted in conjunction with U.S. Army Corps of Engineers permitting. *See* Florida Department of Environmental Protection, "What is the Environmental Resource Permit (ERP) Program?"; available at <http://www.dep.state.fl.us/WATER/wetlands/erp/index.htm>.

water supplies, and when sea level rise causes flooding—more often than not the first ones to hear from the residents impacted are local governments. As one person put it: “If the road in front of your house is flooded, you will probably call the local government before you call the state or federal government.” Some local governments have responded by taking the lead in developing planning language and local resolutions and ordinances that account for climate change and sea level rise.

In terms of implementation of the 2015 Peril of Flood legislation, 195 local governments are required to have a coastal management element in their comprehensive plans (161 municipalities and 34 counties). As of May 2017²³:

- 43 (22%) explicitly address sea level rise in their comprehensive plans
- Eleven mention Adaptation Action Areas (AAAs) in their comprehensive plans (six of these are located in southeast Florida)
- Six have a physical designation:
 - Satellite Beach designates coastal high hazard areas as AAAs
 - Village of Pinecrest designates AAAs
 - Broward County sand bypass project at Port Everglades
 - Ft. Lauderdale 16 areas 38 stormwater projects
 - Yankeetown
 - Fernandina Beach

The following local governments have addressed the new Peril of Flood requirements in Section 163.3178, F.S. within their comprehensive plans or updates to them. Several others are in process (Levy and Santa Rosa). But as of May 2017, the following now have some language, either proposed or final and adopted, related to redevelopment principles, plans, or strategies that address future flood risk including sea level rise.

- North Miami
- Miami Beach
- Lake Park
- Ponce Inlet
- Sunny Isles Beach
- St. Petersburg
- Boynton Beach
- Jupiter Inlet Colony
- West Palm Beach
- Jupiter
- Yankeetown

²³ Erin L. Deady, *Why the Law of Climate Change Matters: From Paris to a Local Government Near You*, Florida Bar Journal (November 2017), available at: <https://www.floridabar.org/news/tfb-journal/>.

- Palm Beach
- Clearwater
- Broward County
- Pinecrest

Some local governments also have optional elements of their comprehensive plans addressing adaptation, sea level rise, energy, or a combination. For instance, Broward County has a “Climate Change Element” and Monroe County has an “Energy and Climate Element.” Both have similar characteristics in that they address things such as greenhouse gas reductions on the mitigation side through energy policies and otherwise; but they also address linkages between a changing climate and the built environment, such as infrastructure and land use. Using the optional element approach to address these issues within a comprehensive plan probably affords a local government the widest latitude to address their issues at the most individual level through direct policies and commitments to further develop data to support future policy or both.

Additionally, several local governments in Florida are using their own resources or grant funding to develop datasets upon which to develop new climate-related policies. Some are doing this in furtherance of the Peril of Flood legislation, and some just because it makes good planning sense. Partnerships between not-for-profit organizations and local governments, or just local governments themselves are a driving factor in opportunities local governments are seizing to address these issues. A dual dynamic is also evolving whereby the policy structure is being put into place, but concurrently, local governments are starting to implement actual strategies to build resiliency into their communities. This implementation aspect is taking on many forms including stormwater master planning; actual project development for roads or other drainage infrastructure; identification, analysis and retrofits of actual vulnerable facilities; beach and shoreline protection; and the raising or flood-proofing of structures.

Regional Collaboration

In 2010, southeast Florida created what has become one of the best-known regional collaborations on climate change in the United States. Palm Beach, Broward, Miami Dade, and Monroe counties joined together to officially form the Southeast Florida Regional Climate Change Compact (Compact). The Compact had its genesis in part from a realization that parallel lobbying efforts by the counties could be strengthened by working from similar baselines.²⁴ While the official voting members of the Compact’s Steering Committee include two members from each county and one member from a municipality from each county, several other organizations have actively worked in coordination with the Compact, including the U.S. Army

²⁴ David L. Markell, *Sea-Level Rise and Changing Times for Florida Local Governments*, 42 *Colum. J. Envtl. L.* (forthcoming 2016).

Corps of Engineers, the National Oceanic and Atmospheric Administration, the U.S. Environmental Protection Agency, the South Florida Regional Planning Council, the South Florida Water Management District, and The Nature Conservancy, among others.

One of the first activities of the Compact was development by the “Sea Level Rise Technical Ad Hoc Working Group” of a white paper on sea level rise projections for Compact members in their planning efforts. This document was updated in the Compact’s 2015 “Unified Sea Level Rise Projection” paper.²⁵ While the Compact has generated dozens of valuable documents, this one has played an important role in helping bring together Compact members and others on the committee that developed and updated it.

Another crucial document, both in development and implementation, is the Compact’s Regional Climate Action Plan, or RCAP. Developed in 2012, the RCAP was again a broadly collaborative project involving nearly 100 subject-matter experts.²⁶ The RCAP contains recommendations in seven broad areas: sustainable communities and transportation planning; water supply, management and infrastructure; natural systems; agriculture; energy and fuel; risk reduction and emergency management; and outreach and public policy. The RCAP also contains 110 recommendations intended to be implemented “through existing local and regional agencies, processes and organizations.”²⁷ The RCAP has resulted in several workshops as well as an implementation guide, and the Compact has completed surveying of municipalities to determine levels of implementation of RCAP recommendations. The RCAP is, as of late 2017, going through an update process scheduled for completion in December 2017.

The extensive collaboration at the highest level of county government represented by the Southeast Florida Regional Climate Change Compact is not the only model for regional work to address climate change. In northeast Florida, an early effort of the Northeast Florida Regional Council to promote discussion by the business community about the potential risks of sea level rise led to members of the business community beginning to address not only the risks of sea level rise but also of climate change. The Northeast Regional Council and its related Regional Council Institute have been facilitating the work of Public/Private Regional Resiliency Committee.²⁸

Florida’s Tampa Bay region has also been working towards greater regional collaboration with the Tampa Bay Regional Planning Council and its “One Bay Resilient Communities”

²⁵ Available at <http://www.southeastfloridaclimatecompact.org/wp-content/uploads/2015/10/2015-Compact-Unified-Sea-Level-Rise-Projection.pdf>

²⁶ Southeast Florida Regional Compact Counties, *A Region Responds to a Changing Climate: Regional Climate Action Plan* (Oct. 2012), <http://www.southeastfloridaclimatecompact.org/wp-content/uploads/2014/09/regional-climate-action-plan-final-ada-compliant.pdf>. *See also*, David L. Markell, *Sea Level Rise and Changing Times for Florida Local Governments*, 42 *Colum. J. Envtl. L.* (forthcoming 2016).

²⁷ Southeast Florida Regional Compact Counties, *A Region Responds to a Changing Climate: Regional Climate Action Plan* vi (Oct. 2012).

²⁸ <http://www.rcinef.org/P2R2.html>.

working group; together with Florida Sea Grant, they facilitated creation of the Tampa Bay Climate Science Advisory Panel. In August 2015, this panel released a report entitled “Recommended Projection of Sea Level Rise in the Tampa Bay Region.” This effort, focused on developing a regional sea level rise projection scenario similar to the one produced by the Southeast Florida Regional Climate Change Compact, served as a way to bring together a plethora of local actors, including local governments, state and federal agencies, academic institutions, and non-profit entities. The resulting sea level rise projections are now being integrated into policy and codes by some local governments in the region.

Sea level rise and climate change do not respect political borders at the local level any more than at the global level. Developing regional approaches to climate change can help build momentum for efforts to reduce the causes of climate change, while also making it possible to more rationally address the impacts that sea level rise will have on our communities.

Drainage and Road Infrastructure—the Canaries in the Coal Mine

Climate change and sea level rise were once thought to be issues for the future. But communities in Florida and elsewhere have seen that climate change and sea level rise are already impacting them.²⁹ Local governments are struggling with water supply issues brought on by more severe dry seasons and increased saltwater intrusion, heavier rainfall and flooding, warmer temperatures, and flooding exacerbated by rising seas. This subsection looks at how the challenges of roads and drainage are an example of the challenges that local governments—and all of us that live in them—face. This subsection focuses primarily on sea level rise rather than the full spectrum of climate change impacts.

Roads and drainage systems are among the most basic infrastructure that makes areas inhabitable. Development of an area requires road access. And for decades, most development in Florida has required dealing with issues related to stormwater.³⁰ Roads and drainage, typical of infrastructure, are most conspicuous in how little people think or talk about them when everything is working well.

But roads and drainage have long presented challenges in certain parts of Florida. Drainage has been a challenge due to the very flat nature of much of Florida, resulting in efforts to drain land that is miles from the ocean but just a few feet above sea level. Roads may present problems either due to lack of drainage or, along the coast, hazards such as erosion.

While not specifically about sea level rise per se, an instructive case about the challenges that local governments face regarding roads and other infrastructure presented itself in 2011 northeast

²⁹ See, e.g. 2014 National Climate Assessment, Overview Introduction, available at <http://nca2014.globalchange.gov/highlights/overview/overview#intro-section-2>.

³⁰ Programs impacting stormwater regulation include: Florida’s implementation the National Pollution Elimination Discharge System, the Florida Department of Environmental Protection’s Nonpoint Source Management Program, and the Environmental Resource Permit (ERP) Program managed by Florida’s five water management districts.

Florida.³¹ Property owners sued St. Johns County for a “taking” of private property because the Atlantic Ocean had been undermining the only road access to their homes since long before most of the homes were built; the County had been unable to keep the road in an equivalent condition to other county roads. After the property owners lost at the trial court level, an appellate court ruled that “[t]he County must provide a reasonable level of maintenance that affords meaningful access, unless or until the County formally abandons the road,”³² However, in many areas where the road used to be there was nothing left but wet sand beach, and part had been entirely washed away by a new inlet. Estimates of the cost at that time for a beach nourishment project, which would have been a precursor to reconstructing the road, were over \$13 million up front and \$5.7-8.5 million every 3-5 years for maintenance. This would have been a major financial burden for a county that then had a population of about 170,000.

Ultimately the case settled with the property owners and the county in very similar positions to the ones they were in prior to several years of litigation. The county had, however, expended nearly \$1 million just in litigation costs to defend against an action by owners of a handful of homes that were built or purchased on land that already had almost 50 years’ history of obvious erosion problems. St. Johns County, during the litigation, passed a new ordinance that would have required building permit applicants to sign a “hold harmless” agreement in order to receive a building permit.³³ The trial court judge called this policy “repugnant,” but an almost identical policy has been consistently used for over a decade in California when issuing permits to build along the coast. During Hurricane Matthew in 2016, the road and properties at issue in the St. Johns case were heavily damaged. Virtually all the remaining road that had been repaired and repaved under the settlement agreement three years earlier was wiped out. A breach in the spit of sand created a new inlet that cut off three homes from the mainland and left them almost in the waters of the Atlantic Ocean.

The settlement agreement bound the county, in case of a “catastrophic weather event,” to “make timely and good faith efforts to obtain state, federal, and/or other available funds to restore, to the greatest extent reasonably possible, [the road].” Additionally, the county and property owners came to an agreement on levels of service for the road in the future, recognizing the environmental challenges impacting the quality of the road. As part of the settlement, the following were agreed to:

- County agreed to use “good faith” efforts to maintain Old A1A in “As Is” condition;
- County agreed to use “timely and good faith efforts” to keep access open;
- County agreed to include the existing paved portion of Old A1A in the pavement management schedule and repave it as needed;

³¹ *Jordan v. St. Johns County*, 2011 Fla. App. LEXIS 11337 (Fla. Dist. Ct. App. 5th Dist., June 22, 2011); *St. Johns County v. Jordan*, 2011 Fla. LEXIS 2819 (Fla., Dec. 5, 2011). The case settled in 2013.

³² *Id.* at 838.

³³ St. Johns County Ordinance 2008-45.

- County agreed to resurface a 0.3-mile portion of Old A1A to create a connection with New A1A;
- County agreed to remove diminished road access as an impediment to obtaining building permits;
- Property owners agreed to give the county notice and an opportunity to buy properties along this roadway before selling to others;
- County agreed to repeal the requirement that prospective home builders sign “hold harmless” agreements to get building permits;
- Property owners agreed to grant easements to restore access to parcels outside of the existing paved area;
- Agreed to allow transit over county-owned parcels to facilitate access to parcels outside of the existing paved area;
- Agreed to consider recommendations of the Summer Haven Municipal Services Taxing Unit regarding the use of funds; and
- County agreed to pay \$75,000 to partially reimburse plaintiff-owners’ costs.

Ultimately, the case in St. Johns County points out a new reality that local governments need to consider: the need to provide and maintain infrastructure services to existing or future development needs to be considered as a potentially massive legal and financial liability looming over local governments. This case in St. Johns County indicates a potential for local government liability when a road cannot, in the local government’s assessment, realistically be repaired due to some combination of environmental challenges and cost. Currently, this court decision is binding on all trial courts in Florida, but local governments may seek to take a proactive approach to try to minimize potential liability in similar situations.³⁴ It is also important to note that St. John’s County has had an ordinance in place since 2012 that indicates when forces of nature and environmental conditions create difficulties in maintaining a road according to usual design and maintenance standards, the county will apply different criteria.³⁵ The 2012 ordinance also specifies that in some cases “roads in environmentally-challenging locations” may have unpaved surfaces; substandard lane widths or single lanes; vehicle type, size, and weight limitations; periods of time when the roads may be submerged, be buried by soil, covered by sand or blocked by vegetative debris; and no assurance that emergency vehicles can use or routinely use the road for access. Finally, the 2012 ordinance notes several other things, including that property owners with existing improvements that are accessed by roads that are in environmentally-challenging locations may encounter access issues; that access may be limited by naturally occurring

³⁴ See, e.g. Thomas Ruppert, John Fergus & Alex Stewart, *Environmentally Compromised Road Segments—A Model Ordinance* (October 2015), available at https://www.flseagrant.org/wp-content/uploads/Envirtly_Comp_Rds-FINAL_10.20.15_1.pdf.

³⁵ St. Johns County Ordinance No. 2012-35 (December 2012), available at <http://www.sjccoc.us/minrec/OrdinanceBooks/2012/ORD2012-35.pdf>.

conditions beyond the control of the county; and that the county has no obligation to build or improve any roads areas designated as “environmentally challenging.”

In Monroe County, a case study is currently underway (now in its implementation phase) to “pilot” a methodology in two neighborhoods to determine a basis for a future sea level rise level of service for road improvements and construction. Completed in January 2017, the effort has analyzed the current levels of inundation routinely seen in these neighborhoods, which were severely impacted king tides in 2015 and 2016. The effort has developed numerous options based on elevation targets (with stormwater features) to ensure that alternatives can be permitted and implemented.³⁶ From a policy perspective, Monroe County is selecting a future scenario of sea level rise and basing design criteria to reduce flooding to a specified return frequency. The County adopted a Resolution that includes design standards capturing these concepts and incorporating the consideration of future sea level rise for the useful life of the project.³⁷ The concept is to apply typical “level of service” approaches to account for future flood risk. The county has also planned a more comprehensive analysis of the same methodology countywide to develop a phased approach to retool roads based on level of vulnerability in the future.

In terms of flooding, drainage presents similar challenges to that of roads, but the impacts to drainage typically occur first. Problems in the lowest areas begin with sea water rising to the level of outfall pipes which leads to a slowing of drainage. Next, pipes fill with sea water, and as sea levels continue to rise, eventually water backs up out of storm drains and into streets. Many local governments experiencing such drainage problems begin by placing one-way valves that prevent sea water from moving backward into the system. Once that no longer works, pumps are the next logical option. Finally, water quality requirements at the state level and local permitting will like require new or enhanced stormwater features accompany the rehabilitation or retrofit of a road. These stormwater features will be necessary not only to address water quality but also to mitigate any potential impacts to adjacent property owners. The need for such stormwater infrastructure could have a large influence on the ultimate design and cost of a road improvement project.

So far, Florida law does not yet impose the level of liability for drainage whereby sea level rise and legal liability could potentially impact local governments financially the way the St. John’s County case discussed above could. Under current law and jurisprudence, it appears that Florida local governments might only be liable for flooding if they fail to maintain their stormwater systems.³⁸ With regard to services, Florida courts distinguish between upgrading and

³⁶ Monroe County, FL, “Monroe County Pilot Roads Project: The Sands and Twin Lakes Communities” (January 2017), available at: <http://monroecountyfl.iqm2.com/Citizens/FileOpen.aspx?Type=1&ID=1038&Inline=True>.

³⁷ Monroe County, FL, Resolution 028-2017.

³⁸ Thomas Ruppert and Carly Grimm, *Drowning in Place: Local Government Costs and Liabilities for Flooding Due to Sea-Level Rise*, Florida Bar Journal, Vol 87, No. 9 (2013). However, as this article points out, a lack of local government liability hinges on whether courts find that flooding due to SLR results from

maintenance of infrastructure. Courts have held that the decision to upgrade infrastructure is considered a planning level function to which absolute immunity applies.³⁹ This should be contrasted with courts holding that failing to maintain infrastructure is an operational activity that exposes the government to potential liability.⁴⁰ Therefore, when a local government upgrades, there is now a duty to maintain and operate the system so that it will properly function.⁴¹ That said, liability is a fact-specific inquiry considering the project design, function, history and infrastructure operations.⁴² In the face of changing future conditions, such as changing rainfall volumes and tidal inundation, these principles are likely to morph, especially when previously constructed projects can no longer function as designed.⁴³

A crucial question for the future is how the law will evolve as local (as well as state and federal) governments find it increasingly expensive and difficult to provide infrastructure services to existing properties in areas more and more subject to coastal hazards. This presents a serious policy conundrum that requires balancing extremely important and fundamental issues, such as rights to access and use of private property, the responsibility of private property owners, fairness to taxpayers, honoring the long-standing admonition in state law to avoid subsidizing development in hazardous areas, and the financial solvency of local governments.

Beaches and Tourism

Florida is the world's number one tourist destination; tourism generates \$67 billion of activity in the state. Florida's beaches are the single biggest draw for tourists. Thus, access to beaches for those who do not own coastal property is essential to maintaining the tourism lifeblood in Florida's economic veins. In Florida, many beaches that are considered "public" because the public uses them are actually comprised of private properties with boundaries that reach down to the mean high water line. Under state common law, in some areas the public has established a customary right to use the dry sand beach on private property for recreational purposes if that use has been longstanding, uninterrupted, and without dispute.⁴⁴

Florida's Department of Environmental Protection (DEP) has statutory authority to protect established public use of dry sand beaches when the department authorizes coastal construction.⁴⁵

a lack of maintenance, which results in local government liability, or from a need to upgrade the system, which very likely means that there is no local government liability for flooding damage.

³⁹ Dep't of Transportation v. Konney, 587 So.2d 1292,1296 (Fla. 1991).

⁴⁰ Dep't of Transportation v. Neilson, 419 So.2d 1071,1073 (Fla. 1982).

⁴¹ Erin L. Deady, Why the Law of Climate Change Matters: From Paris to a Local Government Near You, Florida Bar Journal (November 2017), available at: <https://www.floridabar.org/news/tfb-journal/>.

⁴² *Id.*

⁴³ *Id.*

⁴⁴ City of Daytona Beach v. Tona-Rama, Inc., 294 So.2d 73 (Fla. 1974).

⁴⁵ Fla. Stat. §§ 161.021(1), 161.041(1)(a), 161.052(12), 161.053(1)(a), 161.053(4)(e) (2016). Note that the definition in section 161.021(1) protects established customary use rights of the public and states that it

Assessing the extent to which the DEP considers lateral public access in the CCCL permitting process presents challenges since few permits mention lateral public access or include permit conditions to protect it.⁴⁶ However, DEP officials have indicated that when lateral public access issues arise, they usually are addressed through design modifications during the permitting process. The most serious challenge remains in that DEP asserts that its current statutory authority to address lateral public access only allows the department to look at the current situation; DEP indicates it lacks authority to look into the future and consider potential or likely erosion or the impacts of sea level rise. This failure to look towards the future of the beach and lateral public access to the beach during the permitting of coastal construction may threaten the future of publicly accessible beaches.

The potential right of the public to customary use of dry sand beach areas has been a point of contention in some areas of Florida. While disputes have arisen around many parts of Florida, they have been particularly acrimonious and continuous for the past few years in Walton County, which is located in Florida's Panhandle.⁴⁷

In July 2016, Lionel and Tammy Alford filed a suit challenging Walton County Ordinance 2016-23 ("Customary Use Ordinance").⁴⁸ The suit involved a facial challenge to the Customary Use Ordinance alleging that the County was without authority to enact it. They claimed that certain County regulations pertaining to the dry sand beach on their property violate their free speech rights (Count I) and substantive due process rights (Count II), and they sought declaratory relief (Count III). The Alford's contended that the Obstruction Amendments, which prohibit obstructions on the beach, including "ropes, chains, signs, or fences," effectively prevented them from conveying messages to public beachgoers regarding the boundary of their property, as well as religious and political messages, and precluded them from excluding the general public from their private property.

In October 2016, during the pendency of the case, the County enacted a new ordinance recognizing the public's customary right to use the beaches. Walton Cty. Code Ch. 23, "Customary Use Ordinance" (Ord. No. 2017-10) (amended Mar. 28, 2017, effective April 1, 2017). In December 2016, the Alford's amended their Complaint to add Count IV, challenging the Customary

applies to the access referred to in section 161.041(1)(a), but the latter section's definition only specifies access seaward of the mean high water line.

⁴⁶ Thomas Ruppert, *Eroding Long-Term Prospects for Florida's Beaches: Florida's Coastal Management Policy*, 111-13 (2008), available at https://www.law.ufl.edu/_pdf/academics/centers-clinics/clinics/conservation/resources/coastal_management_finalreport.pdf. For two examples of permits that do mention public access, see DEP permit #DA-708 and permit #BO-721.

⁴⁷ Customary use battle rages on 30A, *nwfdailynews.com* (Sept. 11, 2016), available at <http://www.nwfdailynews.com/news/20160911/customary-use-battle-rages-on-30a>. See also, e.g. Erika Kranz, *Sand for the People: The Continuing Controversy Over Public Access to Florida's Beaches*, 83 Fla. Bar J. 10 (June, 2009).

⁴⁸ *Alford v. Walton County*, U.S. District Court for the Northern District of Florida, Case No: 3:16-cv-00362-MCR-CJK

Use Ordinance and seeking a declaration that the ordinance is void ab initio on grounds that customary use is a common law doctrine reserved to the courts for determination on a case-by-case basis, and therefore, the County exceeded its authority and acted ultra vires by legislating customary use on a county-wide basis.

On September 26, 2017 the court entered an order finding for the Plaintiffs stating: “It is declared that the beach obstruction amendments to the Walton County Code, specifically, § 22-54(g)(2)(a)(3), to the extent it defines “obstructions [as] including but not limited to ropes, chains, signs, or fences,” and § 22-55 to the extent it states, “Obstructions include, but are not limited to ropes, chains, signs, or fences,” are facially unconstitutional in violation of the First Amendment and are STRICKEN. This does not impact any other provision of the Walton County Waterways and Beach Activities Ordinance.”

On August 15, 2017 numerous condominium associations and individuals also challenged the Walton County Ordinance in Federal Court as violative of Due Process, Equal Protection and Takings claims.⁴⁹ These claims are different than those litigated in the previous litigation with discovery not concluding until February 2018. Given the broader application of these claims, at this time, it is clear Walton County’s Customary Use Ordinance remains in contention.

Regardless of how the issues are settled in Walton County or elsewhere, a new combination of court precedent and sea level rise could threaten the public’s right to use beaches to which the public currently has a customary right of recreational use, thus potentially undermining Florida’s tourism industry. Hurricanes and tropical storms took an extremely heavy toll on beaches in Volusia County during 1999 and 2004. After significant loss of beach sand, Volusia County responded to the eroded, narrower, and more landward position of the dry sand beach by landward adjustment of the driving access lanes on the beach in parts of the county. This readjustment positioned the driving lanes within the confines of some private parcels. Three property owners sued the county for trespass and for a “taking” of their private property that resulted from maintaining parking and driving on the dry sand beach within their property boundaries and allowing public use.⁵⁰ The trial court ruled for Volusia County, and the landowners appealed to Florida’s Fifth District Court of Appeals.

The appeals court noted that “customary use” might apply to the beach in question. However, the Fifth District Court of Appeals also noted that whether the public’s customary use right to the dry sand beach moved landward along with the dry sand beach was unclear. After all, said the court, in instances of “avulsion” or sudden and dramatic loss of beach due to a hurricane or strong storm, property boundaries do not move. But with erosion, property boundaries usually move with the shifting mean high water line. In either case, the court intimated the possibility

⁴⁹ Seaside Town Council et al v. Walton County, U.S. District Court for the Northern District of Florida, Case No.: 3:17cv682-MCR/CJK

⁵⁰ Alfred J. Trepanier, etc. et al. v. County of Volusia, 965 So.2d 276, 278-79 (5th DCA 2007).

that an established customary use easement providing the right of the public to recreational use of the privately owned dry sand beach might not migrate landward with the dry sand beach area.⁵¹

Due to the case-specific and fact-intensive nature of determining a right to customary use of the dry sand beach by the public, the Fifth District Court of Appeal sent the case back to the trial court for additional fact finding. The trial court then made findings of fact that supported the position that the public had established a customary right to use of the dry sand beach portion of the property owners' parcels.⁵² The court noted that over the past century, evidence amply indicated that the location of the dry sand beach had varied dramatically, and that at times in the past the dry sand beach had indeed been located within the property boundaries of the plaintiff property owners' parcels. This finding of fact essentially skirted the key issue raised by the Fifth District Court of Appeals: whether an established public easement for use of the dry sand beach migrates with the dry sand beach onto and could be applied to private property to which it had not previously been applied.

Currently, the ambiguous holding of the Fifth District Court of Appeals in the Volusia County case (*Trepanier et al. v. County of Volusia*), which potentially puts at risk public easements by custom as sea level rise impacts beaches, is the law for all trial courts in Florida; however, if a trial court ruling depending on the *Trepanier* case is appealed in a district outside of Florida's Fifth District Court of Appeals, the case will not bind that appeals court. Ultimately, as the court noted, this issue carries so much significance for Florida that it will eventually have to be decided by the Florida Supreme Court.

Federal Policy and Action Impacting Local Governments

While the heart of adaptation for most people and communities will be their local government, federal law and policy still play important roles that affect communities. As mentioned earlier, major federal changes contributing as drivers for policy movement in Florida are the 2012 and 2014 changes to the National Flood Insurance Program.

The federal government has seen its role, in part, as being a generator of information and data that supports climate change and sea level rise analysis. For example, the National Aeronautics and Space Administration has an extensive network of satellites and other resources that generate

⁵¹ The court noted that "if it can be shown that, by custom, use of the beach by the public as a thoroughfare has moved seaward and landward" onto private property, the right of the public remains. However, the court continued by saying that "it is not evident, if customary use of a beach is made impossible by the landward shift of the mean high water line, that the areas subject to the public right by custom would move landward with it to preserve public use on private property that previously was not subject to the public's customary right of use." Alfred J. Trepanier, etc. et al. v. County of Volusia, 965 So.2d 276, 294 (5th DCA 2007). The court may have meant that an established right to customary use *does* move with the dry sand beach but does not if the movement of the beach was due to avulsion. However, due to the court's language, this is not entirely clear.

⁵² *Trepanier v. County of Volusia*, No. 2000-10528-CIDL, ¶¶4-5, 7th Judicial Circuit of Florida (March 30, 2010), 2010 WL 2849823 (Fla.Cir.Ct.).

climate data. The National Oceanic and Atmospheric Administration and the National Weather Service also generate data relevant to climate and sea level rise science. The United States Global Change Research Program is a program in which numerous federal agencies participate and that was mandated by Congress in the 1990 Global Change Research Act to “assist the nation and the world to understand, assess, predict, and respond to human-induced and natural processes of global change.” In addition to conducting its own research, federal agencies often support independent researchers in conducting their own work via grant funding.

Additionally, over the last several years, the federal government has pushed federal agencies to consider climate change in their missions.⁵³ At the federal level, international agreements and policy have also had an impact on federal initiatives. The Paris Agreement of 2015 came into force during November 2016 (on 5 October 2016, the threshold for entry into force of the Paris Agreement was achieved), meaning that countries that are part of the agreement, including the United States, are obligated to meet their “nationally determined contributions” of greenhouse gas reductions.⁵⁴

The Paris Agreement’s central aim is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 °C above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 °C. Additionally, the agreement looks to strengthen the ability of countries to deal with the impacts of climate change. To reach these goals, appropriate financial flows, a new technology framework, and an enhanced capacity building framework will be put in place, thus supporting action by developing countries and the most vulnerable countries, in line with their own national objectives. The Paris Agreement also provides for enhanced transparency of action and support through a more robust transparency framework. In 2018, participating parties will assess efforts in relation to the goals set and prepare the nationally determined contributions. There will also be a report card of sorts every five years to assess the collective progress.

Other federal activities that relate to or have contributed to climate change or sea level rise activities at the state and local level in Florida are detailed next.

U.S. Army Corps of Engineers (“Corps”)

The Corps has considered sea level change in its planning activities since 1986. This is separate from the regulatory aspects of its mission, but in 2000, sea level change considerations were included within its Planning Guidance Notebook. In 2009 the Corps released its first Engineer Circular (EC), 1165-2-211, “Incorporating Sea-Level Change Considerations in Civil Works Programs,” and EC 1165-2-212 “Sea-Level Change Considerations for Civil Works Programs”.

⁵³ Executive Order 13653 (Nov. 1, 2013), available at <https://www.whitehouse.gov/the-press-office/2013/11/01/executive-order-preparing-united-states-impacts-climate-change>.

⁵⁴ United Nations / Framework Convention on Climate Change (2015) *Adoption of the Paris Agreement*, 21st Conference of the Parties, Paris: United Nations.

Most recently in December 2013, EC 1100-2-8162 extended this guidance. In July 2014, the Corps created guidance (Engineer Technical Letter 1100-2-1) covering “Procedures to Evaluate Sea Level Change: Impacts, Responses and Adaptation.” Guidance is still in effect today.⁵⁵ The Corps also has available a tool (called “Beach-fx”) to create vulnerability assessments of non-developed natural coastlines or beach protection projects, which was updated for use with the new sea level guidance.⁵⁶

Considered “regulations,” these policies establish a framework “for incorporating the direct and indirect physical effects of projected future sea level change across a project lifecycle in managing, planning, engineering, designing, constructing, operating, and maintaining Corps projects and systems of projects.”⁵⁷ Again, this does not apply to the Corps’ regulatory review duties of permits; but rather, the need to take into account changing sea levels only currently applies to projects the Corps is bound to undertake under congressional funding and direction, more commonly known as civil works projects.

National Environmental Policy Act (“NEPA”)

On December 24, 2014, the White House’s Council on Environmental Quality released revised draft guidance on how federal agencies should evaluate greenhouse gas emissions and the impacts of climate change when conducting reviews pursuant to National Environmental Policy Act (NEPA) evaluation. This guidance updated and expanded previous guidance from 2010 and applied to all proposed federal actions, including land and resource management activities.

Focusing on the climate change and sea level aspects, the new guidance directed agencies to consider the implications of climate change impacts on the proposed action, including potential adverse environmental effects that could result from drought or sea level rise. While agencies have wide discretion in how to consider climate change and sea levels, two key considerations are: 1) reliance on agency experience and expertise to determine whether an analysis of greenhouse gas emissions and climate change impacts would be useful, and 2) application of the “rule of reason” to ensure that the type and level of analysis is appropriate for the anticipated environmental effects of the project. The focus is on the long-term viability of the project, tying design alternatives to climate change effects on a proposed federal action of the useful life of that project. This is especially true in cases when it will be located in a vulnerable area or impact vulnerable populations or resources. With the NEPA guidance, the main message is that while the level of analysis is somewhat flexible, addressing the issue is not.

⁵⁵ U.S. Army Corps of Engineers, Engineering and Construction Bulletin (September 16, 2016), available at: http://www.iwr.usace.army.mil/Portals/70/docs/frmp/eo11988/EDB_2016_25.pdf

⁵⁶ U.S. Army Corps of Engineers, Analyzing Evolution and Cost-Benefits of Shore Protection Projects, available at: <http://www.erdc.usace.army.mil/Media/Fact-Sheets/Fact-Sheet-Article-View/Article/476718/beach-fx/>

⁵⁷ U.S. Army Corps of Engineers, Dept. of the Army, Sea-Level Change Considerations for Civil Works Programs, EC 1165-2-212 (October, 1, 2011).

In August 2016, the Council on Environmental Quality released final guidance⁵⁸ for federal agencies on how to consider the impacts of their actions on climate change in their NEPA reviews and how all types of federal actions will impact climate change. The guidance builds from the 2010 draft guidance and 2014 revised draft guidance, and incorporates comments and feedback received. Additionally, finalization of the 2014 revised draft guidance was specifically called for by the State, Local and Tribal Leaders Task Force on Climate Preparedness and Resilience's recommendations to the president. The new final guidance also:

- Advises agencies on how to quantify projected greenhouse gas emissions of proposed federal actions whenever the necessary tools, methodologies, and data inputs are available;
- Encourages agencies to determine the appropriate level (broad, programmatic, or project- or site-specific) and extent of quantitative or qualitative analysis required to comply with NEPA;
- Has agencies consider alternatives that would make the action and affected communities more resilient to the effects of a changing climate; and
- Promotes use of existing information and science when assessing proposed actions.

The guidance is applicable when a federal agency initiates any new NEPA review, and agencies should exercise judgment when considering whether to apply this guidance to the extent practicable to an ongoing NEPA process. Finally, agencies are encouraged to consider applying this guidance to projects in the environmental impact statement or environmental assessment preparation stage. The standard is if it would inform the alternatives analysis or address comments raised through the public comment if (based on science) the review would be incomplete without application of the guidance, and the additional time and resources needed would be proportionate to the value of the information included.

It should be noted that the President's March 28, 2017 Executive Order, "Promoting Energy Independence and Economic Growth," directed the Council on Environmental Quality to rescind this guidance.⁵⁹ Given that courts have demanded climate consideration in agency NEPA analyses already, this could cause the administration future legal challenges, despite the directive to rescind it.⁶⁰

The Federal Flood Risk Management Standard

Two significant issues at the federal level that already impact local communities and will continue to even more so in the future include the National Flood Insurance Program and the Federal Flood Risk Management Standard. The National Flood Insurance Program is discussed

⁵⁸ Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews.

⁵⁹ The White House Office of the Press Secretary, Executive Order on Promoting Energy Independence and Economic Growth (March 28, 2017), available at: <https://www.whitehouse.gov>

⁶⁰ See *e.g.*, *Ctr for Biological Diversity v. Nat'l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1217 (9th Cir. 2008).

in detail in Chapter 6, so this section of the book will focus on the Federal Flood Risk Management Standard (FFRMS).

The FFRMS is contained in the 2015 Executive Order 13690 – Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input. as an amendment to Executive Order 11988 – Floodplain Management, which was issued in 1977. The goal of modifying the 1977 executive order was to ensure that, in light of increased flooding around the country and especially in coastal areas suffering from sea level rise, federal investments do not contribute to flooding and are wisely sited to maximize the utility of the federal investment.

The original 1977 executive order’s purpose was “avoiding [federal] actions in or impacting the base floodplain and minimizing potential harm if [federal] action must be located in the base floodplain.”⁶¹ To accomplish this, several steps were delineated for a federal action, including: 1) determining if the project will be in a floodplain; 2) identification of practical alternatives to locating in a floodplain; 3) if location in the floodplain is necessary, identify potential impacts; 4) minimize harm to the floodplain; 5) reevaluation of the proposal in light of previous steps; and 6) release of findings prior to implementation. The 2015 executive order altered these steps as part of a movement beyond “emphasis on flood control and protection to a broader focus on flood risk management.”⁶²

The 2015 executive order applies to “federally-funded projects,” which means “actions where federal funds are used for new construction, substantial improvement, or to address substantial damage.”⁶³ This is a more limited application than the 1977 executive order, which applied to “federal actions,” including when agencies of the federal government engage in (1) acquiring, managing, and disposing of Federal lands, and facilities; (2) providing federally undertaken, financed, or assisted construction and improvements; and (3) conducting federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulating, and licensing activities.”⁶⁴

The 2015 Executive Order 13690’s FFRMS made three primary changes to Executive Order 11988. First, it modified the way that floodplains are determined. Whereas Executive Order 11988 used the 100-year floodplain as its base, Executive Order 13690 expanded the floodplain used both vertically and horizontally. This occurs in three possible ways. The preferred method,

⁶¹ In the context of Executive Order 11988, “base floodplain” refers to the area subject to flooding by the base flood, which, as with the National Flood Insurance Program, (also known as the “100-year” floodplain).

⁶² Guidelines for Implementing Order 11899, Floodplain Management, and Executive Order 13690, Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input, 14 (Oct. 8, 2015).

⁶³ Guidelines for Implementing Order 11899, Floodplain Management, and Executive Order 13690, Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input, 16 (Oct. 8, 2015).

⁶⁴ E.O. 11988, Section 1 (1977).

if the science is available, is the climate-informed science approach, which consists of customized analysis of the area in question under potential future climate scenarios. Another method is the freeboard value approach, which requires projects be built two feet above the base flood (100-year flood) elevation or three feet above the base flood elevation for critical projects.⁶⁵ Finally, agencies may use the “500-year” elevation approach, which is an elevation equivalent to the 0.2%-annual-chance-flood elevation.⁶⁶ Whichever method is used, the agency must include not only the increase in *elevation* of the floodplain but also the corresponding *horizontal expansion* of the floodplain.

Second, the 2015 executive order 13690 incorporated the idea of “critical action determinations” by agencies. A critical action “shall mean any activity for which even a slight chance of flooding would be too great.”⁶⁷

And third, the 2015 executive order added significant focus on the use of natural features and nature-based approaches “to reduce flood risks, as well as minimize the impacts of Federal actions to natural and beneficial floodplain values and to lives and property.”⁶⁸

The 1977 executive order was implemented by regulation for very few federal agencies; most agencies implemented it through policy changes. This is also true for the modifications established by Executive Order 13690; only five agencies—FEMA, Housing and Urban Development, the Army Corps of Engineers, the Tennessee Valley Authority, and the Federal Energy Regulatory Commission—are currently anticipated to adopt new rules to implement the FFRMS. Other agencies will incorporate the FFRMS changes into policy and procedures guiding their work.

The FFRMS is very important to local governments because many projects are built with a contribution of federal funds, and this will trigger use of the FFRMS. One potentially devastating scenario for local governments is that a disaster strikes and the local government begins rebuilding destroyed or substantially damaged infrastructure or buildings. Then, upon seeking eligible reimbursement from the federal government, the local government realizes that it only built facilities to the 100-year floodplain rather than the standards of the FFRMS, and thus is not eligible for federal funds. While, as of late 2016, this scenario has not happened given that no federal agency has yet finalized its implementation of the FFRMS, local governments should be aware that implementation will occur in the near future as (FEMA has completed a draft rule for FFRMS implementation, and other agencies are approaching that mark. In August of 2017,

⁶⁵ “Critical Action” is defined in the Implementing Guidelines to E.O. 11988.

⁶⁶ Exec. Order No. 13,690, 80 FR 6425, § 6(1)(c) (2015).

⁶⁷ *Id.* § 2(j) (2015); Guidelines for Implementing Order 11899, Floodplain Management, and Executive Order 13690, Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input, 35, 38-39 (Oct. 8, 2015).

⁶⁸ Guidelines for Implementing Order 11899, Floodplain Management, and Executive Order 13690, Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input, 41 (Oct. 8, 2015).

President Trump signed an executive order that eliminated the Federal Flood Risk Management Standard.⁶⁹

Great uncertainty surrounds the future of federal involvement and support of climate change and sea level science and adaptation. The evidence is mounting that the Trump administration has taken a very different stance on climate change and sea level rise than the previous administration. Regardless of how the federal response may change, local governments in Florida will continue to increase their activity on adapting to rising seas since they are seeing more flooding each year.

Conclusion

Florida has taken many steps at the state, regional, and local levels to begin addressing the challenges of climate change and sea level rise. However, the current state requirements alone remain far from sufficient to build a more resilient future for Florida. Over the past few years, major rainfall events have caused massive flooding in Florida's Panhandle and in southeast Florida; and after a decade without a major hurricane, we have seen the paths of destruction left by Hurricane Matthew off Florida's East Coast and Hurricane Irma through much of the peninsula.

While events of the past have slowly pushed Florida and its local governments towards more resilience, such as stronger building codes, the state must now confront two realities that merge to create a tremendous policy challenge. First, even after past events, Florida has, as a state, been largely unwilling to address where we build; the focus after disasters has been almost entirely on how we build. While strengthening building standards is good, we need further discussion about what types of land uses may or not be appropriate in certain hazardous areas. Second, the past is not a good indicator of the future. Currently, permitting programs and planning take place almost exclusively based on data of past trends. Whether it be rainfall, calculation of five-year, 25-year, or 100-year storm events, or erosion rates, we look to a past that is no longer indicative of the future we need to face.

To address these weaknesses, permitting programs should look to the future. This raises many questions. For example, should water supply and storage be expanded to account for the possibility of increasingly severe droughts? And even if there are more severe droughts, should permitting of drainage systems be modified to account for heavier rainfall events when the rains do come? Amid the many questions there are also some clear needs. Construction of drainage systems needs to account for future sea levels rather than being engineered solely for today's sea level. Sea level projections should be incorporated into both local planning decisions as well as

⁶⁹ Presidential Executive Order on Establishing Discipline and Accountability in the Environmental Review and Permitting Process for Infrastructure, Executive Order ----, (August 15, 2017), available at <https://www.whitehouse.gov/the-press-office/2017/08/15/presidential-executive-order-establishing-discipline-and-accountability>.

into the state of Florida's Coastal Construction Control Line permitting program to inform what is built, perhaps allowing some uses in at-risk areas but not allowing more sensitive uses. Some policy options most appropriately fit in state programs and others at the local level, but we need to work together at the local and state level to effectively incorporate climate change and sea level rise into all relevant areas of policy and planning in Florida.

Finally, in the aftermath of hurricanes Harvey, Irma, and Maria in 2017, it remains to be seen if Federal and state responses will shift to better link the future of flood risk with climate and sea level rise considerations. After Hurricane Sandy, there were some shifts in policy and a noticeable rise in legal cases that shaped some recovery and resiliency strategies. The Florida House has established a Select Committee on Hurricane Response and Preparedness. The extent to which that committee delves into the issues of future flood risk related to climate change, for both coastal and inland communities, remains to be seen.