

# SEA LEVEL RISE<sup>1</sup> & DRAINAGE

Part 2 of the Factsheet Series 'Law & Adaptation in Florida'



## Are local governments responsible for the homes and roads damaged from flooding caused by rising sea levels?

The answers to these questions are often complex and depend on the specific details of each situation. While local governments have extensive authority to provide drainage and other services (such as police and fire), there is no law forcing local governments to do so.

If a local government does choose to provide drainage service to its residents, the government is legally obligated to conduct adequate maintenance on the drainage system.

- When drainage service with adequate maintenance is provided, the local government is not negligent.
- When drainage service is provided, but there is negligent or improper maintenance, the local government may be liable for resulting damages.

Next appear some generalized legal rules related to drainage law and local governments, illustrated with three independent hypothetical scenarios in “Sunny City.”

### Scenario #1: Drainage with negligent maintenance

*The coastal local government of Sunny City designed, installed, and manages a drainage system for its downtown and residential neighborhoods. Sunny City has a very small city maintenance staff, resulting in failure to inspect and clean out the drainage system. Much of the system has been clogged by sediment, branches, garbage, and debris over the years.*

*The largest rain event to hit the town in many years strikes. Similar rain events 20-30 years ago had not caused flooding. Due to the lack of maintenance of the drainage system, stormwater backs up into numerous homes in a low-lying neighborhood, causing flood damage.*

**Analysis:** *If homeowners could prove that the flooding would not have occurred if the system had been properly maintained, they have a strong legal argument that Sunny City is legally liable for their flood damages because the city was negligent in maintaining the stormwater system.*

<sup>1</sup> This short work is primarily derived from: Thomas Ruppert & Carly Grimm, *Drowning in Place: Local Government Costs and Liabilities for Flooding Due to Sea Level Rise*, Fla. Bar J., Vol 87, No. 9 (2013). Thanks to Dr. Savanna Barry, Regional Specialized Extension Agent, UF/IFAS; IFAS Extension Agent Carrie Stevenson; UF/IFAS and Florida Sea Grant Extension Agent Dr. Vincent Encomio; and Dr. Maia McGuire, Associate Director, Extension & Education, Florida Sea Grant for their reviews, edits, and comments.

## Scenario #2: Drainage with proper maintenance overwhelmed by heavy rain

*Sunny City designed, installed, and properly maintains a drainage system that prevents flooding during modest, short-lived rain events (according to then-current Sunny City design guidelines). However, an unusually heavy rain event overwhelmed parts of the system. This caused several homes in various neighborhoods to flood and large areas of neighborhoods to have streets with standing water for hours after the rain event.*

**Analysis:** *In such a case, Sunny City would likely not be legally liable for flooding damages if the system was properly maintained. Sunny City has no legal duty to upgrade an existing drainage system that was incapable of adequately draining an unusually heavy rain event or a rain event that exceeded the design of the stormwater system.*

As mentioned, the facts of each case can make a big difference. In the second hypothetical above, if the increased flooding and damage were caused by Sunny City's approval for new development without proper drainage, then the pre-existing homeowners might be able to hold Sunny City or the developer liable if the pre-existing homeowners could show that their damages occurred—or were worsened—by Sunny City approving and the developer building the new development.



Figure 1: Flooding following a king tide in the Coconut Grove neighborhood of Miami. Photo credit: Thomas Ruppert

## Scenario #3: Drainage with proper maintenance but impacted by sea level rise

*Sunny City built its stormwater system 60 years ago. The system functioned well then, and all new development since has also added the appropriate and required drainage that does not cause increased flooding. Sunny City has continually and appropriately maintained the stormwater system. Nonetheless, sea level rise (SLR) has caused coastal waters to back up into the stormwater system, leading to colonization of the stormwater pipes by marine life. The seawater in the pipes also means there is less room for rain to immediately enter the system and that the system drains slower. On top of these issues, much heavier rain events have become more common.*

*Although Sunny City responded by spending large sums of money to clear the pipes of marine life to prevent clogging, the combined factors of SLR and heavier rainfall resulted in frequent flooding of properties that did not previously flood. Sunny City says it does not have the funds to spend several million dollars to redesign and rebuild the drainage system to protect the most affected neighborhoods from the flooding impacts.*

**Analysis:** *Since Sunny City has provided drainage, Sunny City has a duty to properly maintain its drainage system. At the same time, Sunny City has no duty to upgrade an existing drainage system. The city would likely not be liable for the flooding damages in this hypothetical as long as the primary cause of the flooding was a combination of SLR and a local government decision not to upgrade the system.<sup>2</sup> However, if property owners could demonstrate that the flooding occurred due to negligent maintenance, such as in the first hypothetical, then the city would likely be liable for flooding damages.<sup>3</sup>*

<sup>2</sup> Thomas Ruppert & Carly Grimm, *Drowning in Place: Local Government Costs and Liabilities for Flooding Due to Sea Level Rise*, Fla. Bar J., Vol 87, No. 9 (2013).

<sup>3</sup> See, e.g. *Slemp v. City of North Miami*, 545 So. 2d 256, 258 (Fla. 1989); *Southwest Fla. Water Management Dist. v. Nanz*, 642 So. 2d 1084, 1086 (Fla. 1994) ("Having assumed control of this drainage system and undertaken to operate and maintain said drainage system, [d]efendants, and each of them, had a duty and obligation to prudently operate, control, maintain, and manage said system so that it would work properly and drain off excess waters so as not to cause flooding in the area. Defendants owed said duties and obligations to your [p]laintiffs, residents and/or owners of homes and real property serviced by the drainage system.").

The key to determining legal liability for flooding is what caused the flooding. If a court concludes that flooding damages resulted from inadequate maintenance, the local government may be liable. However, if flood damages occurred because a local government chose not to upgrade a drainage system, then the local government will likely not be held liable. Again, these legal opinions are not guarantees. Only courts have the ability to determine legal liability in specific cases, and courts sometimes come into conflict in how they interpret the law and assign liability. This uncertainty constrains the lawyer to providing advice to clients about what courts *are most likely* to say.

Florida has no clear case law indicating whether increased flooding due to SLR constitutes negligent maintenance of a drainage system or a discretionary decision of the local government not to upgrade a drainage system for the changed circumstances of climate change and SLR. If a court says the local government made a discretionary choice not to upgrade the system, the local government will not be liable for flood damages that result from that decision. As sea levels continue to rise, the question of whether and when local governments are responsible for flooding damages due to lack of effective drainage systems will become a multi-billion dollar question.

As potential local government liability for increased flooding and decreased efficacy of drainage systems increases along with SLR, local governments should carefully examine other possible future liabilities, such as accepting responsibility for drainage systems created as part of private developments. Rising sea levels threaten more and more drainage systems, causing millions, indeed billions, of dollars in losses through property damage and loss of property value.<sup>4</sup>

While no local governments want to see properties lost to rising seas, limited financial resources may prevent the upgrades necessary to prevent or delay such losses. Thus, local governments need to carefully manage their drainage systems and understand their potential legal liabilities for damages when the drainage system does not function as planned.

For more information and legal resources related to this topic, contact the Florida Sea Grant College Program at [info@flseagrant.org](mailto:info@flseagrant.org).



Figure 2: Drainage pipe. Photo credit: Thomas Ruppert

<sup>4</sup> Due to the complexity and difficulty of creating reliable estimates of the amount and value of property at risk from sea level rise, estimates vary widely, but they are all extremely high. For example, while the National Oceanic and Atmospheric Administration (NOAA) has not released an updated report on the exact value of property at risk of inundation by sea level rise by 2100 under their high sea level rise projection, the 2017 report, "Global and Regional Sea Level Rise Scenarios for the United States," estimated that by 2100, under their high sea level rise scenario, the value of property at risk of inundation ranges from \$66 billion to \$106 billion. "Ocean at the Door: New Homes and the Rising Sea," a 2018 report by Zillow, estimated that by 2100, nearly 2 million U.S. homes worth \$882 billion could be at risk of inundation from sea level rise. A 2016 report by the Union of Concerned Scientists, "Underwater: Rising Seas, Chronic Floods, and the Implications for US Coastal Real Estate," estimated that by 2100, \$1 trillion worth of U.S. coastal property could be at risk of chronic flooding caused by sea level rise. A 2017 report by First Street Foundation, "The First National Flood Risk Assessment," estimated that over 4.3 million properties in the contiguous United States are at significant risk of flooding due to sea level rise, with a total combined value of \$1.34 trillion. These large differences in estimated values in part may stem from different definitions of "at risk of flooding." Some analyses may only include a property expected to be below mean high water at the time of assessment while others may see a risk of "chronic flooding," which will occur long before and over a much greater area than only counting property below the mean high-water mark.