Flooding and Subsidence

The Greater New Orleans region is defined by our relationship with water, which brings economic and recreational opportunities. However, our abundance of water also brings the challenge of flood risk. Our region experiences two distinct kinds of flooding: smaller-scale, localized flooding from rainfall and the potential for larger-scale flooding from tropical storms. Both kinds of flooding can cause safety concerns and damage to property. Additionally, we experience subsidence (land sinking) which is impacted by how we have historically dealt with our flood risk. Fortunately, we have many options for reducing, or mitigating, our flood risk and increasing our region's resilience.

A family wades across a flooded street on Aug. 5, 2017. Photo courtesy Nola.com

Localized Flooding

New Orleans receives an average of 64 inches of rain every year, a number that might increase as precipitation patterns change. This year, some neighborhoods have already received around 75 inches of rain, and due to the topography of our land much of this stormwater must be pumped into our surrounding water bodies, such as Lake Pontchartrain. When excessive rainfall overwhelms our drainage system, water can back up and cause localized flooding. To reduce localized flooding, we can reduce the burden on our gray infrastructure (including our catch basins, pipes, pumps, and canals) by supplementing it with green infrastructure. These are systems that store, absorb, and filter water using native plants and other elements that slow runoff and allow water to be absorbed into the ground. Examples of green infrastructure include permeable pavement, rain gardens, bioswales, rain barrels, and French drains. The Sewerage and

Water Board and City of New Orleans, as well as nonprofit groups and local companies, have begun implementing green infrastructure throughout New Orleans. We need to expand these programs to mitigate the localized flooding still evident in many neighborhoods and to keep up with increasing rainfall.

Tropical Storm Flooding

New Orleans also experiences flood risk from tropical storms. Hurricane season typically runs from June 1 until November 30, and residents are advised to keep close watch on forecasts should storms impact our region. In New Orleans, we are protected to the 1% annual chance flood risk (*aka* 100-year storm) by the Hurricane and Storm Damage Risk Reduction System (HSDRR), a massive system of levees, floodwalls, and a surge barrier. However, residual flood risk remains, which may require evacuation or sheltering in place. In addition to our infrastructure to mitigate storm surge, our natural barriers of wetlands are critically important to reducing our flood risk during tropical storms. Restoration projects in Louisiana's Coastal Master Plan are vital for New Orleans safety in the face of land loss and sea level rise.

Evidence of subsidence along the foundation and in the driveway of a home in New Orleans East, courtesy Aron Chang.

Subsidence

The soils in the New Orleans region are prone to subsidence, or land sinking, which is exacerbated by overreliance on our pumping system. When rainwater is not able to infiltrate into the ground due to impervious land cover (such as concrete) and is instead pumped out of the city, the soils dry up and subside. Our soil can be compared to a wet sponge left on the kitchen counter; as it dries, it contracts and shrinks. This causes damage to our streets and homes, and increases our flood risk. In fact, it is a major reason that some neighborhoods now lie below sea level. We cannot reverse all forms of subsidence but we can slow future subsidence associated with the de-watering of soils by actively managing our groundwater, thereby prolonging the life of our infrastructure and addressing flood risk. For more information, please contact Nathan Lott, director of the Water Collaborative of Greater New Orleans at nathan@nolawater.org.